

# METERING

|                                        |                                                                                      |                   |                   |
|----------------------------------------|--------------------------------------------------------------------------------------|-------------------|-------------------|
| Modular energy (kWh) meters            |     | Lovato<br>Socomec | E-1<br>E-7        |
| Modular multimeters                    |    | Lovato<br>Socomec | E-2<br>E-8        |
| Panel mount network analysers          |   | Lovato<br>Socomec | E-3/4<br>E-9...10 |
| Digital panel meters                   |   | Lovato            | E-5...6           |
| Digiware power monitoring systems      |   | Socomec           | E-11...15         |
| Current transformers (CT's)            |   | MBS<br>EM         | E-17...21<br>E-22 |
| Split core current transformers (CT's) |   | MBS               | E-21              |
| Analog panel meters                    |   | EM                | E-23              |
| Energy management software             |  | Lovato            | E-24              |
| Datalogger                             |  | Socomec           | E-15              |



DMED110T1



DME120T1



DMED300T2



DMECD



EXM1001

**Digital meters with LCD screen**

**DMED series** of energy meters are digital instruments for the measurement of electrical energy consumption in single and three phase systems with direct connection or via current transformer (CT). Expandable versions of the DMED models are available with a range of expansion modules for communication and I/O etc. Typical applications include energy monitoring of individual units in shopping centres, apartments, marinas and factories.



Scan to watch video

| type | input current | description | static pulse output | module width x 18 mm |
|------|---------------|-------------|---------------------|----------------------|
|------|---------------|-------------|---------------------|----------------------|

**Single phase direct connection 40/63A** *(modular design DIN rail mountable)*

- Rated supply voltage: 220 - 240 VAC -20...+15%
- Input current: 40/63A (*direct connection*)
- Active energy: Class 1 (IEC/EN 62053-21)
- Reactive energy: Class 2 (IEC/EN 62053-23)

|                  |     |                                        |   |   |
|------------------|-----|----------------------------------------|---|---|
| <b>DMED100T1</b> | 40A | direct connection digital energy meter | 1 | 1 |
|------------------|-----|----------------------------------------|---|---|

**Multi-measurements:** Total and partial active, reactive energy, active, reactive power, voltage, current and power factor, hour counter

|                  |     |                                        |   |   |
|------------------|-----|----------------------------------------|---|---|
| <b>DMED110T1</b> | 40A | direct connection digital energy meter | 1 | 1 |
| <b>DMED111</b>   | 40A | as above with RS485 interface          | - | 1 |
| <b>DMED120T1</b> | 63A | direct connection digital energy meter | 1 | 2 |
| <b>DMED121</b>   | 63A | as above with RS485 interface          | - | 2 |
| <b>DMED130</b>   | 63A | expandable with <b>EXM1001</b> module  | - | 2 |

**Three phase direct connection 80A** *(modular design DIN rail mountable)*

**Multi-measurements:** Total and partial active, reactive energy, active, reactive power, voltage, current and power factor, hour counter.

- Graphic backlit LCD screen with 6+1 digits
- Tariff selection (*2 tariffs*)

|                  |     |                                    |   |   |
|------------------|-----|------------------------------------|---|---|
| <b>DMED300T2</b> | 80A | 3ph+N digital energy meter         | 2 | 4 |
| <b>DMED301</b>   | 80A | 3ph+N digital energy meter (RS485) | - | 4 |

**Three phase CT connection .../5A** *(modular design DIN rail mountable)*

**Multi-measurements:** Total and partial active, reactive energy, active, reactive power, voltage, current and power factor.

- Backlit LCD screen (*128 x 80 pixels*)

|                   |     |                                  |   |   |
|-------------------|-----|----------------------------------|---|---|
| <b>DMED310T2*</b> | /5A | 3ph digital energy meter         | 2 | 4 |
| <b>DMED330</b>    | /5A | 3ph digital energy meter (RS485) | - | 4 |

\* Accepts **EXM...** (up to 3) plug-in optic expansion modules

**Data concentrator** *(modular design DIN rail mountable)*

DMECD data concentrator designed in combination with energy meters, permitting connection to (*up to 8*) devices. The concentrator is able to count static pulse outputs from the connected energy meters, storing data for viewing on its display or directly on a PC through the built-in RS485 port, using Xpress software.

- Graphic backlit LCD screen (*128 x 80 pixels*)
- 8 inputs for pulse count, expandable up to 14 using **EXM...** type expansion modules
- 8 total and 8 partial energy meters
- Built-in RS485 interface (Modbus-RTU or ASCII)
- Expandable with **EXM...** (*up to 3*) plug-in optic expansion modules (*below*)

|              |                                                       |   |   |
|--------------|-------------------------------------------------------|---|---|
| <b>DMECD</b> | data concentrator for up to 8 connected energy meters | - | 4 |
|--------------|-------------------------------------------------------|---|---|

**Expansion modules for DMED310T2 and DMECD** *(modular design DIN rail mountable)*

|                |                                                                 |   |
|----------------|-----------------------------------------------------------------|---|
| <b>EXM1001</b> | 2 opto-isolated digital inputs and 2 relay outputs (5A 250 VAC) | 2 |
| <b>EXM1010</b> | opto-isolated USB interface                                     | 2 |
| <b>EXM1012</b> | opto-isolated RS485 interface                                   | 2 |
| <b>EXM1013</b> | opto-isolated Ethernet interface                                | 2 |
| <b>EXM1020</b> | opto-isolated RS485 interface and 2 relay outputs (5A 250 VAC)  | 2 |
| <b>EXM1030</b> | data storage, clock-calendar (RTC) with backup for data logging | 2 |



DMG100



DMG200



DMG300



EXM1001



EXM1010

**DMG series** digital multimeters and power analysers are equipped with a digital LCD display providing extremely clear, intuitive and flexible viewing of all electrical parameters in an installation. DMG digital multimeters in a modular housing (*4 modules wide*).

- Modular DIN rail mounting (*aligns with standard MCB 45 mm cutout*)
- Accuracy:
 

|                  |         |                                  |
|------------------|---------|----------------------------------|
| Voltage/Current: | ±0.5%   | ( <i>True RMS measurements</i> ) |
| Power:           | ±1%     | f.s.                             |
| Frequency:       | ±0.05%  |                                  |
| Active energy:   | Class 1 | (IEC/EN 62053-21)                |
| Reactive energy: | Class 2 | (IEC/EN 62053-23)                |

**Main measurements:**

- Voltage: phase, line and system values
- Current: phase values (*neutral current calculated*)
- Power: apparent, active and reactive phase and total values
- Power Factor (PF) per phase and total
- Frequency of measured voltage value
- HIGH-LOW-AVERAGE value functions of all measurements
- Maximum demand of power and current values
- Asymmetric voltage and current
- Energy meters for active, reactive and apparent values
- Bidirectional (*import and export of active reactive energy*)

| type                                                                             | description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | module width x 18 mm      |       |                    |       |           |        |               |                              |  |
|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-------|--------------------|-------|-----------|--------|---------------|------------------------------|--|
| <b>DMG100 series - LCD multimeters</b> <i>economical with icon LCD display</i>   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                           |       |                    |       |           |        |               |                              |  |
|                                                                                  | <ul style="list-style-type: none"> <li>• Auxiliary power supply: 100 - 240 VAC / 120 - 250 VDC</li> <li>• Input current: CT - 1A or 5A</li> <li>• Voltage measurement: 50 - 720 VAC L-L</li> <li>• Harmonic analysis of V and I up to the 15th order</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                           |       |                    |       |           |        |               |                              |  |
| <b>DMG100</b>                                                                    | modular power analyser                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 4                         |       |                    |       |           |        |               |                              |  |
| <b>DMG110</b>                                                                    | modular power analyser with RS485 interface                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 4                         |       |                    |       |           |        |               |                              |  |
| <b>DMG200 series - LCD multimeters</b> <i>with graphic backlight LCD display</i> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                           |       |                    |       |           |        |               |                              |  |
|                                                                                  | <p><i>As above DMG 100 but with following additional features:</i></p> <ul style="list-style-type: none"> <li>• Input current: CT - 5A</li> <li>• Voltage measurement: 20 - 830 VAC L-L</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                           |       |                    |       |           |        |               |                              |  |
| <b>DMG200</b>                                                                    | modular power analyser                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 4                         |       |                    |       |           |        |               |                              |  |
| <b>DMG210</b>                                                                    | modular power analyser with RS485 interface                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 4                         |       |                    |       |           |        |               |                              |  |
| <b>DMG300 series (expandable)</b> <i>with graphic backlight LCD display</i>      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                           |       |                    |       |           |        |               |                              |  |
|                                                                                  | <p><i>As above DMG 200 but with following additional features:</i></p> <ul style="list-style-type: none"> <li>• Input current: CT - 1A or 5A</li> <li>• Voltage measurement: 20 - 830 VAC L-L / 10-480 VAC L-N</li> <li>• Optional communication ports: USB, RS232, RS485, Ethernet</li> <li>• Harmonic analysis of voltage and current up to the 31° order</li> <li>• Energy meters for active, reactive, apparent power with programmable tariff function</li> </ul> <table style="margin-left: 20px; border: none;"> <tr> <td>Accuracy: Voltage/current</td> <td>±0.2%</td> </tr> <tr> <td>Power/power factor</td> <td>±0.5%</td> </tr> <tr> <td>Frequency</td> <td>±0.05%</td> </tr> <tr> <td>Active energy</td> <td>class 0.5S (IEC/EN 62053-22)</td> </tr> </table> | Accuracy: Voltage/current | ±0.2% | Power/power factor | ±0.5% | Frequency | ±0.05% | Active energy | class 0.5S (IEC/EN 62053-22) |  |
| Accuracy: Voltage/current                                                        | ±0.2%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                           |       |                    |       |           |        |               |                              |  |
| Power/power factor                                                               | ±0.5%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                           |       |                    |       |           |        |               |                              |  |
| Frequency                                                                        | ±0.05%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                           |       |                    |       |           |        |               |                              |  |
| Active energy                                                                    | class 0.5S (IEC/EN 62053-22)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                           |       |                    |       |           |        |               |                              |  |
| <b>DMG300*</b>                                                                   | modular power analyser                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 4                         |       |                    |       |           |        |               |                              |  |
|                                                                                  | <i>* Accepts EXM...(up to 3) plug-in optic expansion modules</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                           |       |                    |       |           |        |               |                              |  |
| <b>Expansion modules and accessories for DMG300</b>                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                           |       |                    |       |           |        |               |                              |  |
| <b>EXM8004</b>                                                                   | sealable terminal cover for DMG100/110/200/210/300                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 2                         |       |                    |       |           |        |               |                              |  |
| <b>EXM1001</b>                                                                   | 2 opto-isolated digital inputs and 2 relay outputs (5A 250 VAC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 2                         |       |                    |       |           |        |               |                              |  |
| <b>EXM1010</b>                                                                   | opto-isolated USB interface                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 2                         |       |                    |       |           |        |               |                              |  |
| <b>EXM1012</b>                                                                   | opto-isolated RS485 interface                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 2                         |       |                    |       |           |        |               |                              |  |
| <b>EXM1013</b>                                                                   | opto-isolated Ethernet interface                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 2                         |       |                    |       |           |        |               |                              |  |
| <b>EXM1020</b>                                                                   | opto-isolated RS485 interface and 2 relay outputs (5A 250 VAC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2                         |       |                    |       |           |        |               |                              |  |
| <b>EXM1030</b>                                                                   | data storage, clock-calendar (RTC) with backup for event logging                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 2                         |       |                    |       |           |        |               |                              |  |

new



DMG500

new



Rogowski coils



DMG611...



DMG700



DMG800

**Flush mounting digital metering instruments (96 x 96 mm)**

The **DMG range** of digital multimeters are capable of viewing electrical measurements with high accuracy permitting complete control of distribution networks. The meters feature an extended power supply voltage range, high measurement accuracy, expendability and a graphic interactive interface for simple use.

**Main measurement functions include:** True RMS measurements of voltage and current values

- HIGH-LOW-AVERAGE value functions for all measurements
- Maximum demand of power and current values
- Energy meters for active, reactive, apparent partial and total values
- Hour counter for programmable total and partial hours
- Current input : CT - 1A or 5A
- Power: apparent/active/reactive: ±1% f.s. - phase and total values
- Frequency measurement range 45...66Hz: ±0.05%
- Harmonic distortion (THD) Voltage and Current: Up to the 15<sup>o</sup> order
- Active energy: Class 1 (IEC/EN 62053-21)
- Reactive energy: Class 2 (IEC/EN 62053-23)
- P.F. Power Factor (*per phase and total*): ±0.5%

| type | RS485 serial port | optical port | description | expansion slots |
|------|-------------------|--------------|-------------|-----------------|
|------|-------------------|--------------|-------------|-----------------|

**DMG500 - "Econo" multi measurement instrument with backlit LCD icon display**

Auxiliary power supply: 100...240 VAC  
Voltage measurement range: 480 VAC (50/60 Hz)

|               |     |    |                                        |   |
|---------------|-----|----|----------------------------------------|---|
| <b>DMG500</b> | no  | no | "econo" digital p/mount power analyser | - |
| <b>DMG510</b> | yes | no | "econo" digital p/mount power analyser | - |

**DMG600 - Multi measurement instrument with backlit LCD icon display**

As above **DMG 500** but with following additional features:

Auxiliary power supply: 100...440 VAC / 110...250 VDC  
Voltage measurement: 50...720 VAC L-L  
Active energy: **DMG600\610** - Class 1 \ **DMG615** - Class 0.5

|               |     |     |                                    |   |
|---------------|-----|-----|------------------------------------|---|
| <b>DMG600</b> | no  | yes | digital panel mount power analyser | 1 |
| <b>DMG610</b> | yes | yes | digital panel mount power analyser | 1 |
| <b>DMG615</b> | yes | yes | digital panel mount power analyser | 1 |

**DMG611 - supplied with calibrated Rogowski coils**

- Current reading through 3 Rogowski coils (*included*)
- Measurement range: 5...100% I<sub>max</sub>

|                     |     |     |                                                |   |
|---------------------|-----|-----|------------------------------------------------|---|
| <b>DMG611R0500*</b> | yes | yes | 25...500A power analyser with Rogowski coils   | 1 |
| <b>DMG611R3000*</b> | yes | yes | 100...3000A power analyser with Rogowski coils | 1 |

\* Accepts **EXP...** (up to 1) plug-in expansion modules

**DMG700 - "Mid-range" multi measurement instrument with backlit LCD icon display**

As above **DMG 600** but with following additional features:

Wide graphic LCD display  
Auxiliary power supply: 100...440 VAC / 110...250 VDC  
Voltage measurement: 20 - 830 VAC L-L  
Pulse counter for general use: consumption pulse counting for water, gas, etc., (*with expansion module*)

|                |    |    |                                    |   |
|----------------|----|----|------------------------------------|---|
| <b>DMG700*</b> | no | no | digital panel mount power analyser | 4 |
|----------------|----|----|------------------------------------|---|

\* Accepts **EXP...** (up to 4) plug-in expansion modules

**DMG800 - "High accuracy" multi measurement instrument with backlit LCD icon display**

As above **DMG 700** but with following additional features:

Auxiliary power supply: 100...440 VAC/110...250 VDC (12-24-48 VDC for **DMG800D048**)  
Harmonic analysis Up to the 31<sup>o</sup> order (*voltage and current*)

Accuracy: Voltage: ±0.2% (50...830 VAC)  
Current: ±0.2% (0.1...1.1In)  
Power: ±0.5% f.s.,  
Power factor: ±0.5%  
Frequency: ±0.05%  
Active energy: Class 0.5s (IEC/EN 62053-22)  
Reactive energy: Class 2 (IEC/EN 62053-23)

|                   |    |    |                                       |   |
|-------------------|----|----|---------------------------------------|---|
| <b>DMG800</b>     | no | no | digital panel mount power analyser    | 4 |
| <b>DMG800D048</b> | no | no | (as above but with 9 - 70 VDC supply) | 4 |



DMG900



DMG900T



DMG900RD



EXP1004



EXP1015

**Flush mounting expandable digital multimeters (96 x 96 mm)**

- Graphic touch-screen LCD display for extremely simple interaction
- Rear expansion slots accept plug-in modules suitable for numerous applications
- True RMS measurements of voltage and current values

**Main measurements and functions :**

- Voltage: phase, phase-neutral and ground neutral-earth
- Current: phase values
- Neutral current calculated and true values
- Power: apparent, active and reactive phase and total values
- P.F. Power Factor per phase and total
- Cosφ per phase
- Frequency of measured voltage value
- Voltage and current asymmetry
- Total harmonic distortion (THD) of voltage and current
- Harmonic analysis of voltage and current up to the 63° order
- HIGH-LOW-AVERAGE value functions for all measurements
- Maximum demand of power and current values
- Energy meters with programmable tariff functions
- Hour counter for programmable total and partial hours
- Pulse counter for consumption of water, gas, etc. (only with expansion module)
- Energy quality analysis to EN 50160 (only with expansion module)

| type | description | expansion slots |
|------|-------------|-----------------|
|------|-------------|-----------------|

**DMG900 series** *Graphic touch-screen LCD display*

- Auxiliary power supply: 100 - 440 VAC /110 - 250 VDC
- Input current: CT - 1A or 5A
- Voltage measurement: 20 - 830 VAC L-L / 10 - 480 VAC L-N
- Accuracy:
  - voltage/current ±0.2%
  - power/power factor ±0.5% f.s.
  - frequency ±0.05%
  - active energy Class 0.5S (IEC/EN 62053-22)
  - reactive energy: Class 2 (IEC/EN 62053-23)

|               |                            |   |
|---------------|----------------------------|---|
| <b>DMG900</b> | panel mount power analyser | 4 |
|---------------|----------------------------|---|

**DMG900T series** *DIN rail mount measurement transducer (expandable)*

DIN rail mounting measurement transducer for chassis mounting, incorporating 4 expansion slots to accommodate expansion modules for added I/O's or communication requirements.

|                |                                             |   |
|----------------|---------------------------------------------|---|
| <b>DMG900T</b> | panel mount power analyser (without screen) | 4 |
|----------------|---------------------------------------------|---|

|                 |                                                                        |  |
|-----------------|------------------------------------------------------------------------|--|
| <b>DMG900RD</b> | remote panel mount (96 x 96 mm) touch screen display for above DMG900T |  |
|-----------------|------------------------------------------------------------------------|--|

**Expansion modules and accessories for DMG600/700/800/900**

**Inputs and outputs**

- EXP1000** 4 digital opto-isolated inputs
- EXP1001** 4 static opto-isolated outputs
- EXP1002** 2 digital inputs and 2 static outputs, opto-isolated
- EXP1003** 2 output relays (5A 250 VAC)
- EXP1004** 2 analog opto-isolated inputs 0/4 -20mA or 0-5/10V (only for **DMG800/900**)
- EXP1005** 2 analog opto-isolated outputs 0/4 -20mA or 0-5/10V (only for **DMG800/900**)

**Communication ports**

- EXP1010** opto-isolated USB interface
- EXP1011** opto-isolated RS232 interface
- EXP1012** opto-isolated RS485 interface
- EXP1013** opto-isolated Ethernet interface
- EXP1014** opto-isolated Profibus-DP interface (only for **DMG800/900**)
- EXP1015** GPRS/GSM modem without antenna (only for **DMG900**)
- EXP1030** data storage, clock-calendar \ backup for data logging (only for **DMG800/900**)
- EXP1031** as above with energy quality (EN 50160) (only for **DMG900/900T**)

**Software and accessories for DMG300/700/800/900**

- C2** PC - RS232 connecting cable (1.8m)
- CX03** GSM Quad-band antenna for **EXP1015** (850/900/1800/1900/2100MHz)



DMK80R1



DMK81R1



DMK83R1



DMK75R1

**DMK series - Modular digital monitoring devices**

- Modular DIN rail mounting (3 modules – 54 mm wide)
- Auxiliary supply: 220 - 240 VAC
- Memorises minimum and maximum measured values (since last reset)
- Instantaneous or preset trip delays (0 - 900sec)
- 1 changeover relay output (8A 250 VAC)

| type                                                                            | description                                          | monitored range |
|---------------------------------------------------------------------------------|------------------------------------------------------|-----------------|
| <b>Voltage monitors</b> (measures and displays single and three phase voltages) |                                                      |                 |
| Overvoltage range:                                                              | Off / 102 - 120% (delay 0 - 900sec)                  |                 |
| Undervoltage range:                                                             | Off / 70 - 98% (delay 0 - 900sec)                    |                 |
| Voltage/phase loss or failure:                                                  | Off / 5 - 85% (delay 0 - 900sec)                     |                 |
| Programmable VT ratio :                                                         | 1.00 - 500.00 (accuracy: ±0.25% f.s. ±1digit)        |                 |
| <b>DMK80R1</b>                                                                  | 1-phase over/under voltage meter/monitor             | 15 - 660 VAC    |
| <b>DMK70R1</b>                                                                  | 3-phase over/under voltage meter/monitor             | 15 - 660 VAC    |
| <b>DMK70</b>                                                                    | 3-phase voltage meter/monitor                        | 15 - 660 VAC    |
| <b>Current monitors</b> (measures and displays single and three phase currents) |                                                      |                 |
| Measurement range:                                                              | 0.05A - 5.75A (CT ratio: 5 - 10.000A) ±0.5%          |                 |
| Overcurrent range:                                                              | Off / 102 - 200% (delay 0 - 900sec)                  |                 |
| Undercurrent range:                                                             | Off / 5 - 98% (delay 0 - 900sec)                     |                 |
| Instantaneous tripping:                                                         | Off / 110-600%                                       |                 |
| <b>DMK81R1</b>                                                                  | 1-phase over/under current meter/monitor             | 0.05A - 5.75A   |
| <b>DMK71R1</b>                                                                  | 3-phase over/under current meter/monitor             | 0.05A - 5.75A   |
| <b>Frequency monitors</b> (measures and displays line frequency)                |                                                      |                 |
| Measurement range:                                                              | 15...660V / 50...60 Hz (±10%)                        |                 |
| <b>DMK83R1</b>                                                                  | frequency meter/monitor                              | 45 - 65Hz       |
| <b>Three-phase multi-measurement instrument</b>                                 |                                                      |                 |
| Measurement range:                                                              |                                                      |                 |
| – Voltage                                                                       | Phase loss or failure: Off / 5 - 85%                 | 35 - 660 VAC    |
|                                                                                 | Maximum voltage: Off / 102 - 120%                    |                 |
|                                                                                 | Minimum voltage: Off / 70 - 98%                      |                 |
|                                                                                 | Asymmetry: Off / 2 - 20%                             |                 |
|                                                                                 | Phase sequence: Off / L1-L2-L3 / L3-L2-L1            |                 |
| – Current                                                                       | Current loss: Off / 2 - 100%                         | 0.05 - 5.75A    |
|                                                                                 | Maximum current: Off / 102 - 200%                    |                 |
|                                                                                 | Minimum current: Off / 5 - 98%                       |                 |
|                                                                                 | Maximum current instantaneous trip: Off / 110 - 600% |                 |
| – Power                                                                         | Rated power: 1 - 10.000 kW                           |                 |
|                                                                                 | Maximum power: Off / 101 - 200%                      |                 |
|                                                                                 | Max power instantaneous trip: Off / 110 - 600%       |                 |
|                                                                                 | Minimum power: Off / 10 - 99%                        |                 |
| – Frequency                                                                     | Maximum frequency: Off / 101 - 110%                  | 45 - 66Hz       |
|                                                                                 | Minimum frequency: Off / 90 - 99%                    |                 |
| <b>DMK75R1</b>                                                                  | 3-phase multi measurement digital meter/monitor      |                 |



DMK00R1



DMK10R1



DMK01R1



DMK03R1



DMK11R1

**Digital panel meters** *Panel mount (H) 48 x (W) 96 mm*

- Auxiliary supply 220 - 240 VAC (others on request)
- True RMS measurements
- 0.5 current / 0.25 voltage
- Memory storage of maximum and minimum values
- Flush 96 x 48 mm panel mounting
- Programmable time delay for max, min or voltage/current loss (0 - 900 sec)

| type                                                                 | description                          | output                          | monitored range |
|----------------------------------------------------------------------|--------------------------------------|---------------------------------|-----------------|
| <b>Voltmeters</b> <i>(panel mounting 48 x 96 mm)</i>                 |                                      |                                 |                 |
| Voltage measurement range: 15 - 660 VAC                              |                                      |                                 |                 |
| Operating frequency range: 45 - 65Hz                                 |                                      |                                 |                 |
| Programmable VT ratio: 1.00 - 500.0                                  |                                      |                                 |                 |
| Accuracy: ±0.25% f.s. ±1 digit                                       |                                      |                                 |                 |
| <b>DMK00</b>                                                         | single phase digital voltmeter       | meter only                      | 15-660 VAC      |
| <b>DMK10</b>                                                         | three phase digital voltmeter        | meter only                      | 15-660 VAC      |
| <b>Voltmeter / monitor</b> <i>1 c/o relay output (8A - 250VAC)</i>   |                                      |                                 |                 |
| Settings                                                             |                                      | time delay                      |                 |
| – Voltage loss or failure:                                           |                                      | 102 - 120% Ue (0 - 900sec)      |                 |
| – Maximum voltage:                                                   |                                      | 5 - 85% Ue (0 - 900sec)         |                 |
| – Minimum voltage:                                                   |                                      | 70 - 98Ue (0 - 900sec)          |                 |
| <b>DMK00R1</b>                                                       | single phase digital voltage monitor | relay out                       | 15-660 VAC      |
| <b>DMK10R1</b>                                                       | three phase digital voltage monitor  | relay out                       | 15-660 VAC      |
| <b>Ammeters</b> <i>accuracy: ± 0.5% full scale ± 1 digit</i>         |                                      |                                 |                 |
| Current measurement range: 0.05 - 5.75A                              |                                      |                                 |                 |
| Operating frequency range: 45 - 65Hz                                 |                                      |                                 |                 |
| Programmable CT ratio: 5 - 10.000                                    |                                      |                                 |                 |
| Accuracy: ±0.5% f.s. ±1 digit                                        |                                      |                                 |                 |
| <b>DMK01</b>                                                         | single phase digital ammeter only    | meter only                      | 0.05 - 5.75A    |
| <b>DMK11</b>                                                         | three phase digital ammeter only     | meter only                      | 0.05 - 5.75A    |
| <b>Ammeter / monitor</b> <i>1 changeover relay output</i>            |                                      |                                 |                 |
| Settings                                                             |                                      | time delay                      |                 |
| – Current loss:                                                      |                                      | Off / 2 - 100% (0 - 900sec)     |                 |
| – Maximum current:                                                   |                                      | Off / 102 - 200% (0 - 900sec)   |                 |
| – Instantaneous trip::                                               |                                      | Off / 110 - 600% (0 - 900sec)   |                 |
| – Minimum current:                                                   |                                      | Off / 5 - 98% (0 - 900sec)      |                 |
| <b>DMK01R1</b>                                                       | single phase digital current monitor | relay out                       | 0.05 - 5.75A    |
| <b>DMK11R1</b>                                                       | three phase digital current monitor  | relay out                       | 0.05 - 5.75A    |
| <b>Frequency meter</b> <i>accuracy: ± 1 digit</i>                    |                                      |                                 |                 |
| Measurement input: 15 - 660 VAC                                      |                                      |                                 |                 |
| Frequency measure range: 15 - 65Hz                                   |                                      |                                 |                 |
| Accuracy: ±1 digit                                                   |                                      |                                 |                 |
| <b>DMK03</b>                                                         | digital frequency meter only         | meter only                      | 15 - 65Hz       |
| <b>Frequency meter / monitor</b> <i>1 changeover relay output</i>    |                                      |                                 |                 |
| Settings:                                                            |                                      | time delay                      |                 |
| – Maximum frequency:                                                 |                                      | Off / 101 - 110% (0.5 - 900sec) |                 |
| – Minimum frequency:                                                 |                                      | Off / 90 - 99% (0.5 - 900sec)   |                 |
| <b>DMK03R1</b>                                                       | digital frequency monitor            | relay output                    | 15 - 65Hz       |
| <b>Multi-meter</b> <i>combination voltage, current, power factor</i> |                                      |                                 |                 |
| • Voltage: ph-to-ph and ph-to-neutral values                         |                                      | • Power factor                  |                 |
| • Current: 3 phase                                                   |                                      | • Frequency                     |                 |
| • Active, reactive, apparent power and energy                        |                                      | • Hour counter                  |                 |
| Voltage measurement range: 35 - 660 VAC                              |                                      |                                 |                 |
| Current measurement range: 0.05 - 5.75A                              |                                      |                                 |                 |
| Operating frequency range: 45 - 65Hz                                 |                                      |                                 |                 |
| Programmable VT ratio: 1.00 - 500.0                                  |                                      |                                 |                 |
| Programmable CT ratio: 5 - 10.000                                    |                                      |                                 |                 |
| <b>DMK16</b>                                                         | three-phase multi-meter only         | meter only                      | multi-meter     |
| <b>DMK16R1</b>                                                       | three-phase multi-meter and monitor  | relay out                       | multi-meter     |



new

4850 3058



4850 3043



4850 3054



4850 3012



4853 0000

**COUNTIS series - Active energy meters (kWh meters)**

Energy meters are digital instruments for the measurement of electrical energy consumption in single and three phase systems with direct connection or via a current transformer (CT).

| type | current | reading | RS485 modbus | dual tariff | description | width in 17.5 mm |
|------|---------|---------|--------------|-------------|-------------|------------------|
|------|---------|---------|--------------|-------------|-------------|------------------|

**Single phase direct connection kWh meters (modular design DIN rail mounting)**

- LCD display
- Bidirectional (*energy consumption and production*)
- Measurement accuracy: 1 %
- Rated supply voltage: 230 VAC
- Pulse output: 100Wh
- Active energy: Class 1 (IEC/EN 62053-21) Class B (EN 50470)

|                   |     |     |        |     |     |                        |   |
|-------------------|-----|-----|--------|-----|-----|------------------------|---|
| <b>4850 3058</b>  | E00 | 40A | direct | no  | no  | single phase kwh meter | 1 |
| <b>4850 3039</b>  | E03 | 40A | direct | yes | yes | single phase kwh meter | 1 |
| <b>4850 3060</b>  | E11 | 80A | direct | no  | yes | single phase kwh meter | 2 |
| <b>4850 3043</b>  | E13 | 80A | direct | yes | yes | single phase kwh meter | 2 |
| <b>4850 3047*</b> | E17 | 80A | direct | no  | yes | single phase kwh meter | 2 |

\* Ethernet web server embedded

**Three phase direct connection kWh meters (modular design DIN rail mounting)**

- Backlit LCD display
- Rated supply voltage: 230 - 400 VAC
- Pulse output: 100Wh
- Measurement accuracy: 1 %
- Bi-directional (*energy consumption and production*)
- Active energy: Class 1 (IEC/EN 62053-21) class B (EN 50470)

|                   |     |      |        |     |         |                       |   |
|-------------------|-----|------|--------|-----|---------|-----------------------|---|
| <b>4850 3003</b>  | E20 | 63A  | direct | no  | no      | three phase kwh meter | 4 |
| <b>4850 3062</b>  | E21 | 80A  | direct | no  | yes     | three phase kwh meter | 4 |
| <b>4850 3050</b>  | E23 | 80A  | direct | yes | yes     | three phase kwh meter | 4 |
| <b>4850 3054*</b> | E27 | 80A  | direct | no  | yes     | three phase kwh meter | 4 |
| <b>4850 3005</b>  | E30 | 100A | direct | no  | no      | three phase kwh meter | 7 |
| <b>4850 3006</b>  | E31 | 100A | direct | no  | yes     | three phase kwh meter | 7 |
| <b>4850 3012</b>  | E33 | 100A | direct | yes | via com | three phase kwh meter | 7 |

\* Ethernet web server embedded

Note MID compliant devices available on request.

**CT operated ...1/5A**

|                   |     |        |    |     |         |                       |   |
|-------------------|-----|--------|----|-----|---------|-----------------------|---|
| <b>4850 3063</b>  | E41 | ..1/5A | CT | no  | no      | three phase kwh meter | 4 |
| <b>4850 3065</b>  | E43 | ..1/5A | CT | yes | via com | three phase kwh meter | 4 |
| <b>4850 3027*</b> | E45 | ..1/5A | CT | yes | via com | three phase kwh meter | 4 |

\* Mbus

**Pulse concentrator (modular design DIN rail mounting)**

COUNTIS ECi2 multi-utility pulse concentrator allows for up to 7 pulse inputs from water, gas, compressed air and electricity meters to be registered and stored. All data can be centralised via RS485 communication using MODBUS protocol.

- Load curves are available for each of the 7 logical inputs
- Partial, total, daily, weekly or monthly kWh or other types of data (*litres, m<sup>3</sup>...*)
- Customisation by selection of the measuring unit: kWh, m<sup>3</sup>, litres
- Generate event alarms (*1 dedicated relay output*)
- 230 - 400 VAC supply

|                  |      |  |  |     |  |                                       |   |
|------------------|------|--|--|-----|--|---------------------------------------|---|
| <b>4853 0000</b> | ECi2 |  |  | yes |  | pulse concentrator for up to 7 inputs | 4 |
|------------------|------|--|--|-----|--|---------------------------------------|---|



**DIRIS series - Multifunction meters**

Compact and ergonomic, the **DIRIS** multifunction meter specially adapted for monitoring and managing electrical energy. Its communication function allows the analysis of data collected via a PLC or energy management software.

- Compact: Panel or Din rail mount options enables easy integration into any type of electrical cabinet
- Compliant: **IEC61557-12** high-level standard for all PMD's (*Performance Monitoring Devices*)
- RS485: Communication permits the extraction of data and device configuration remotely
- Ease of use: Permits easy navigation via direct keys and easy to read backlit LCD screen display
- Advanced: Programmable input and output as standard including pulse metering, alarm report and pulse output

**Multi-measurement (model dependant)**

- Frequency - 45 - 65 Hz
- Current - Instantaneous and maximum average I1, I2, I3, In
- Voltage and frequency - Instantaneous V1, V2, V3, U12, U23, U31,F
- Power - Instantaneous and maximum average 3P, ΣP, 3Q, ΣQ, 3S, ΣS
- Power factor - Instantaneous 3PF, ΣPF and maximum average
- Energy - Active energy: +/- kWh Reactive energy: +/- kvarh - hours
- Harmonic analysis - THD Current, voltage, phase-to-phase voltage
- Events - Alarms on all electrical values
- Energy accuracy - Active energy class 0.55 (IEC 62053-23)

| type | auxiliary power supply | width in | description |
|------|------------------------|----------|-------------|
|      |                        | 17.5 mm  |             |

**DIRIS A10 - Multifunction meter**

*DIN rail mount*

The **DIRIS A10** is a modular multifunction meter for measuring electrical values in low voltage networks. It allows all electrical parameters to be displayed and utilised for communication and/ or output functions.

- Navigation is via 5 direct access keys and easy to read screen display
- Harmonic analysis up to (*level 51*)
- Integrated temperature sensor
- Detects wiring errors to automatically correct CT installation errors
- Dual tariff selection
- Dimensions: 72 x 90 mm x 64 mm deep

|                  |               |   |     |                                               |
|------------------|---------------|---|-----|-----------------------------------------------|
| <b>4825 0400</b> | 110 - 277 VAC | 4 | A10 | 72 x 90 mm DIN rail mount multifunction meter |
| <b>4825 0401</b> | 110 - 277 VAC | 4 | A10 | as above with RS485 MODBUS comms              |



4825 0400

**DIRIS A14 - Multifunction meter**

*DIN rail mount*

**DIRIS A14** with MID certification provide the guaranteed accuracy required for applications in which sub-billing of the electrical energy consumed is necessary. With Bi-directional metering (*four quadrants*) function, allowing for measurement of energy production or consumption.

- Auxiliary power supply : Self supply
- Display of electrical values ( I,U,V, ΣP, ΣQ, ΣQ, ΣS, PF) and P + load curve Over a 7 day period via communication
- Total and partial metering +/- Kwh +/- Kvarh
- Harmonic analysis (*via comm*) up to level 63
- Multi traffic functions (*via comm.*) selection of one our of four billing tariffs
- Dimensions: 72 x 90 mm x 64 mm deep

|                  |                       |   |     |                                     |
|------------------|-----------------------|---|-----|-------------------------------------|
| <b>4825 0020</b> | 50 to 460 VAC +/- 15% | 4 | A14 | 72 x 90 mm MID + RS485 MODBUS comm. |
|------------------|-----------------------|---|-----|-------------------------------------|



4825 0020



4825 0402



4825 0403



4825 0094

| type | auxiliary power supply | number plug-in modules | description |
|------|------------------------|------------------------|-------------|
|------|------------------------|------------------------|-------------|

**DIRIS A20 - Multifunction meter** *panel mount*

DIRIS A20 multifunction meters are panel mounted measurement units which ensure the user has access to all the measurements required for successfully carrying out energy efficiency projects and ensuring the electric distribution is monitored.

- Detects wiring errors to automatically correct CT installation errors
- Hours metering
- Harmonic analysis up to (level 51)
- Accepts 1 x functional plug-in module for output or RS485 MODBUS communication
- Dimensions: 96 x 96 mm x 60 mm deep

|           |               |     |                                            |
|-----------|---------------|-----|--------------------------------------------|
| 4825 0402 | 110 - 400 VAC | A20 | 96 x 96 mm panel mount multifunction meter |
|-----------|---------------|-----|--------------------------------------------|

**DIRIS A30/41 - Multifunction meter** *96 x 96 mm panel mount 60 mm deep*

The DIRIS A30/41 series provides access to all measurements required for successfully carrying out energy efficiency projects for electrical distribution monitoring, the units are easily customisable or upgradeable through optional plug-in modules (up to 4)

- A41 has CT current input for measuring neutral current as well
- Provides accurate instantaneous, average and maximum levels of most important measurements
- Metering active, reactive and apparent energy with hours
- Harmonic analysis up to (level 53)
- Provide load curves of Active/Reactive power with voltages and frequency
- Accepts 4 x functional plug-in modules
- Dimensions: 72 x 90 mm panel mount 64 mm deep

|           |               |   |     |                                            |
|-----------|---------------|---|-----|--------------------------------------------|
| 4825 0403 | 110 - 400 VAC | 4 | A30 | 96 x 96 mm panel mount multifunction meter |
| 4825 0404 | 110 - 400 VAC | 4 | A41 | as above with neutral monitoring           |
| 4825 0405 | 12 - 48 VDC   | 4 | A30 | 96 x 96 mm panel mount multifunction meter |

**Accessories for DIRIS meters**

| type | function | description | for model |
|------|----------|-------------|-----------|
|------|----------|-------------|-----------|

**Plug-modules** *(for customisation or upgrading of meters)*

|           |                              |                                        |        |
|-----------|------------------------------|----------------------------------------|--------|
| 4825 0080 | 1 x output                   | plug-in optional modules               | A20    |
| 4825 0082 | RS485 MODBUS comms           | plug-in optional modules               | A20    |
| 4825 0090 | 2 configurable pulse outputs | plug-in optional modules               | A30/41 |
| 4825 0092 | RS485 MODBUS comms           | plug-in optional modules               | A30/41 |
| 4825 0093 | 2 Analog outputs             | plug-in optional modules               | A30/41 |
| 4825 0094 | 2 inputs / 2 outputs         | plug-in optional modules               | A30/41 |
| 4825 0205 | Sub D9 PROFIBUS DP comm      | plug-in optional modules               | A30/41 |
| 4825 0097 | Memory                       | plug-in optional modules               | A30/41 |
| 4825 0203 | Ethernet communication       | plug-in optional modules               | A30/41 |
| 4825 0204 | Ethernet + RS485 MODBUS      | plug-in optional modules               | A30/41 |
| 4825 0089 | IP65 protection              | IP65 protection cover for DIRIS meters | A30/41 |



**DIRIS A40** is a Panel Mounted Monitoring Device (PMD). It offers a range of functions for measuring voltage, current, power, energy and quality. It is designed for measuring, monitoring and reporting historical data and allows analysis of a single phase or three phase load.

**Multi-measurement:**

- Current - Instantaneous and maximum average I1, I2, I3, In
- Voltage and frequency - Instantaneous V1, V2, V3, U12, U23, U31, Ussystem
- Frequency - 45-65 Hz
- Power - Instantaneous and maximum average 3P, ΣP, 3Q, ΣQ, 3S, ΣS
- Power factor - Instantaneous 3PF, ΣPF
- Energy - Active energy: +/- kWh Reactive energy: +/- kvarh - hours
- Harmonic analysis - THD Current, voltage, phase-to-phase voltage
- Events - Alarms on all electrical values
- Inputs - 3 digital inputs (*pulse metering, status checking*)
- Outputs - 2 outputs (*alarms or pulses*)

**Power and energy measurement:**

- Accuracy - 0.2 DIRIS A-40 Class only
- Active energy and active power - Class 0.5 with TE, TF or iTR sensors - Class 1 with TR sensors
- Accuracy of reactive energy - Class 2 with TE, TR or TF sensors

**Voltage measurement:**

- Characteristics of the network measured - 50-300 VAC (Ph/N) - 87-520 VAC (Ph/Ph) - CAT III
- Frequency accuracy - Class 0.02



| type | Aux. power supply | inputs | outputs | description |
|------|-------------------|--------|---------|-------------|
|------|-------------------|--------|---------|-------------|

| <b>DIRIS A40 - Multifunction meter</b> |               | 92 x 92 mm panel mount 68 mm deep |   |                                     |
|----------------------------------------|---------------|-----------------------------------|---|-------------------------------------|
| 4825 0500                              | 110 - 400 VAC | 3                                 | 2 | panel mount meter with RS485 Modbus |
| 4825 0501*                             | 110 - 400 VAC | 3                                 | 2 | as above with Ethernet Modbus       |

\* Modbus TCP, Modbus RTU, BackNet, SMTP, SNMP

**Current sensors for above A40 multifunctional meter**

Various types of current sensors can be connected to the DIRIS A40: solid-core (TE), split-core (TR / iTR) or Rogowski (TF). This range of sensors is suitable for all types of new or existing installations. A quick RJ12 connection makes wiring easy and reliable and prevents wiring errors. The A40 automatically recognizes the sensor size and type. This guarantees the overall accuracy of the A40 + current sensor measurement chain.

| type                                                 | model  | actual range current (A)         | description                | pitch (mm) | hole size (mm) |
|------------------------------------------------------|--------|----------------------------------|----------------------------|------------|----------------|
| <b>TE - Solid current sensors</b>                    |        | class 0.5                        |                            |            |                |
| 4829 0500                                            | TE-18  | 0.1...24                         | solid current sensor       | 18         | Ø 8.6          |
| 4829 0501                                            | TE-18  | 0.5...75                         | solid current sensor       | 18         | Ø 8.6          |
| 4829 0502                                            | TE-25  | 0.8...192                        | solid current sensor       | 25         | 13.5 ■         |
| 4829 0503                                            | TE-35  | 1.26...300                       | solid current sensor       | 35         | 21 ■           |
| 4829 0504                                            | TE-45  | 3.2...756                        | solid current sensor       | 45         | 31 ■           |
| 4829 0505                                            | TE-55  | 8...1200                         | solid current sensor       | 55         | 41 ■           |
| 4829 0506                                            | TE-90  | 12...2400                        | solid current sensor       | 90         | 64 ■           |
| <b>TR - Split-core current sensors</b>               |        | class I                          |                            |            |                |
| 4829 0555                                            | TR-10  | 0.5...90                         | split-core current sensors | -          | Ø 10           |
| 4829 0556                                            | TR-14  | 0.8...192                        | split-core current sensors | -          | Ø 14           |
| 4829 0552                                            | TR-16  | 0.64...120                       | split-core current sensors | -          | Ø 16           |
| 4829 0557                                            | TR-21  | 1.26...300                       | split-core current sensors | -          | Ø 21           |
| 4829 0553                                            | TR-24  | 1.26...200                       | split-core current sensors | -          | Ø 24           |
| 4829 0558                                            | TR-32  | 3.2...720                        | split-core current sensors | -          | Ø 32           |
| 4829 0554                                            | TR-36  | 4...720                          | split-core current sensors | -          | Ø 36           |
| <b>iTR - Split-core current sensors</b>              |        | class 0.5 ( <i>intelligent</i> ) |                            |            |                |
| 4829 0655                                            | iTR-10 | 0.5...75                         | split-core current sensors | -          | Ø 10           |
| 4829 0656                                            | iTR-14 | 0.8...192                        | split-core current sensors | -          | Ø 14           |
| 4829 0657                                            | iTR-21 | 1.26...300                       | split-core current sensors | -          | Ø 21           |
| 4829 0658                                            | iTR-32 | 3.2...720                        | split-core current sensors | -          | Ø 32           |
| <b>TF - Flexible current sensors (Rogowski coil)</b> |        |                                  |                            |            |                |
| 4829 0570                                            | TF-55  | 3...720                          | flexible current sensors   | -          | Ø 55           |
| 4829 0571                                            | TF-120 | 10...2400                        | flexible current sensors   | -          | Ø 120          |
| 4829 0572                                            | TF-300 | 32...7200                        | flexible current sensors   | -          | Ø 300          |

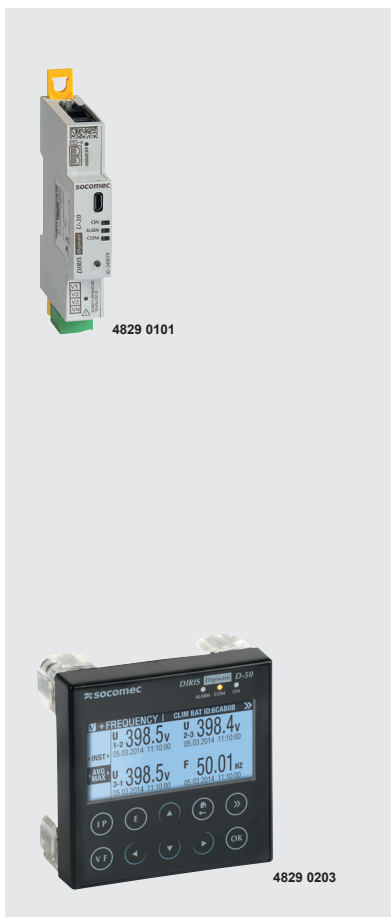
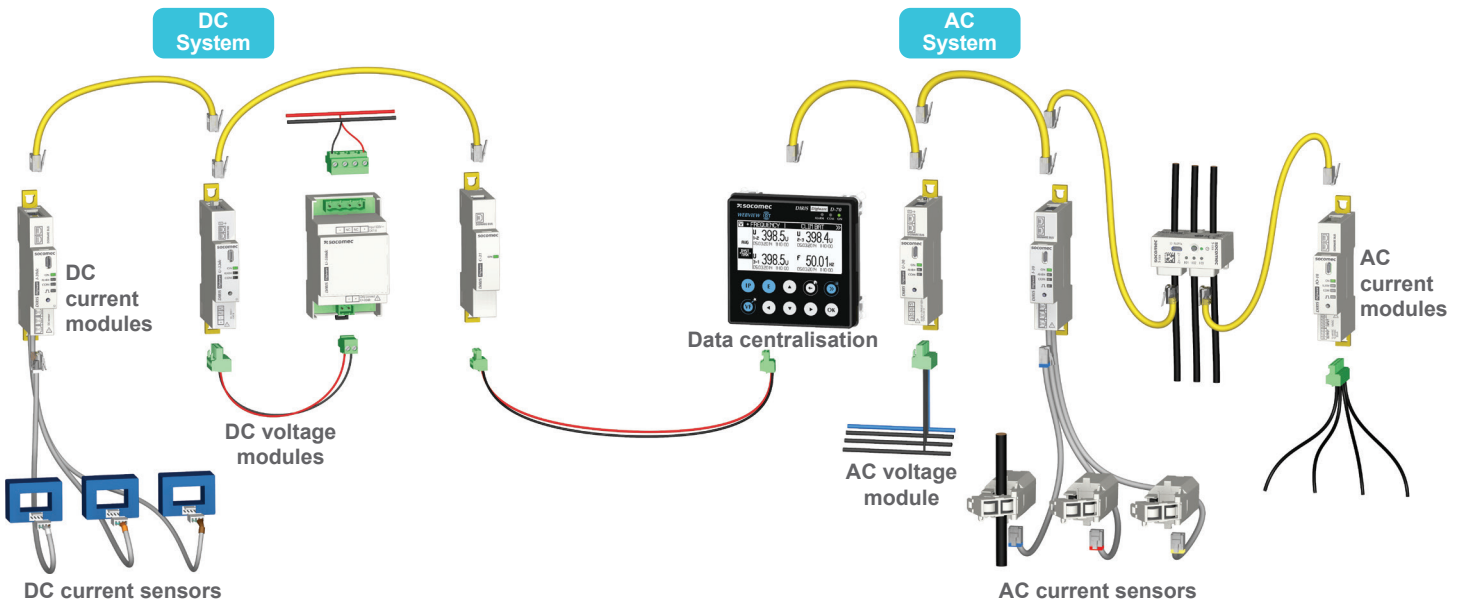
The **DIRIS Digiware** is a multi-circuit AC or DC power monitoring device that is the most effective solution for metering consumption. Measuring and monitoring the quality of electrical energy in industrial and commercial data centre applications.

- Accuracy as per standard IEC 61557-12 ( Class 0.5 )
- Implementation in a quarter of the time vs existing metering technologies
- Installation of measurement modules and current sensors at the closest point to the load
- Can monitor several circuits via a single current measurement module thanks to independent current inputs
- Compact and flexible design: suitable for new and existing installations including panels with space restrictions
- The system is composed of several modules: control interface, voltage acquisition module, current acquisition modules but also closed, split-core or flexible current sensors.



Scan to watch video

**Build your system :**



| type                                                                                                                                                                                                                                                                                                                                         | description                                                                       | module width                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------|
| <b>Control and power supply interface</b>                                                                                                                                                                                                                                                                                                    |                                                                                   |                                |
| <ul style="list-style-type: none"> <li>• Power supply 24 VDC (required, see page B-59)</li> <li>• Communication via RS485 Modbus and Digiware BUS</li> </ul>                                                                                                                                                                                 |                                                                                   |                                |
| <b>C-31 Data centralisation only (no display)</b>                                                                                                                                                                                                                                                                                            |                                                                                   |                                |
| <ul style="list-style-type: none"> <li>• Centralises all of the Digiware systems data unto MODBUS RS485</li> </ul>                                                                                                                                                                                                                           |                                                                                   |                                |
| 4829 0101                                                                                                                                                                                                                                                                                                                                    | modular centralisation unit                                                       | 18 mm                          |
| <b>D-40/50/70 centralisation and display of data</b>                                                                                                                                                                                                                                                                                         |                                                                                   | panel mount 96 mm <sup>2</sup> |
| <ul style="list-style-type: none"> <li>• High-resolution LCD display</li> <li>• Local view of data from the Digiware Bus</li> <li>• Keys on the front face for direct access to measurement data, device configuration etc.</li> <li>• Can display electrical measurements from both AC and DC systems simultaneously via Webview</li> </ul> |                                                                                   |                                |
| <b>D-40</b>                                                                                                                                                                                                                                                                                                                                  |                                                                                   |                                |
| 4829 0199                                                                                                                                                                                                                                                                                                                                    | centralisation unit with multi-point display + Modbus RS485 output                |                                |
| <b>D-50</b>                                                                                                                                                                                                                                                                                                                                  |                                                                                   |                                |
| 4829 0204                                                                                                                                                                                                                                                                                                                                    | centralisation unit with multi-point display + Modbus TCP                         |                                |
| <b>D-70</b><br>(see page E-15 for more information)                                                                                                                                                                                                                                                                                          |                                                                                   |                                |
| 4829 0203                                                                                                                                                                                                                                                                                                                                    | centralisation unit with multi-point display + Ethernet comm / embedded webserver |                                |
| <b>C-32 Range extending repeater</b>                                                                                                                                                                                                                                                                                                         |                                                                                   |                                |
| <ul style="list-style-type: none"> <li>• Required when Digiware bus length exceeds 100m</li> <li>• Maximum bus length 300m (2 repeaters)</li> <li>• Power supply 24 VDC (required see page B-59)</li> </ul>                                                                                                                                  |                                                                                   |                                |
| 4829 0103                                                                                                                                                                                                                                                                                                                                    | range extending repeater                                                          | 18 mm                          |
| <b>Note: For RJ45 connecting cables for above see E-13</b>                                                                                                                                                                                                                                                                                   |                                                                                   |                                |



4829 0106



4829 0112



4829 0160



4829 0161

**AC voltage measurement modules – single voltage measurement point for the entire system.**

- 3 phase voltage and frequency monitoring
- RJ45 bus allows you measurement of voltage as well as supply power to all connected devices
- A complete, dedicated solution for: metering, voltage monitoring and quality analysis of the AC voltage

| type                                                                                        | description                                      | module width |
|---------------------------------------------------------------------------------------------|--------------------------------------------------|--------------|
| <b>U-10 Metering module</b>                                                                 |                                                  |              |
| 4829 0105                                                                                   | modular AC voltage measurement metering module   | 18 mm        |
| <b>U-20 Monitoring module (as above but with additional 3ph THDu monitoring)</b>            |                                                  |              |
| 4829 0106                                                                                   | modular AC voltage measurement monitoring module | 18 mm        |
| <b>U-30 Analysis module (all electrical parameters including history of average values)</b> |                                                  |              |
| 4829 0102                                                                                   | modular AC voltage measurement analysis module   | 18 mm        |

**AC current measurement modules**

Allocates the load to be measured or to monitor independent current inputs i.e three-phase load and 3 single-phase loads.

- Metering:  $\pm$  kWh,  $\pm$  kvarh, kVAh
- Multi-measurement: I1, I2, I3, In,  $\Sigma$ P,  $\Sigma$ Q,  $\Sigma$ S,  $\Sigma$ PF
- Wiring errors are also prevented and implementation is simplified
- **RJ45** and **RJ12** rapid connection and automatically configures connected current sensors

| type                                                                                           | description                                      | current Inputs | module width |
|------------------------------------------------------------------------------------------------|--------------------------------------------------|----------------|--------------|
| <b>I-30/60 metering modules</b>                                                                |                                                  |                |              |
| 4829 0110                                                                                      | I-30 modular current measurement metering module | 3              | 18 mm        |
| 4829 0112                                                                                      | I-60 modular current measurement metering module | 6              | 36 mm        |
| <b>I-31/61 metering and load curve modules</b>                                                 |                                                  |                |              |
| 4829 0111                                                                                      | I-31 modular current measurement metering module | 3              | 18 mm        |
| 4829 0113                                                                                      | I-61 modular current measurement metering module | 6              | 36 mm        |
| <b>I-35/45 analysis module (all electrical parameters including history of average values)</b> |                                                  |                |              |
| 4829 0130                                                                                      | I-35 modular current measurement analysis module | 3              | 18 mm        |
| 4829 0131                                                                                      | I-45 modular current measurement analysis module | 4              | 27 mm        |

**DIRIS Digiware S - Current measurement modules**

**DIRIS Digiware S** is a power metering and monitoring service with 3 integrated current sensors enabling the measurement of one three-phase or three single-phase circuits up to 63 A.

- Metering:  $\pm$  kWh,  $\pm$  kvarh, kVAh
- Can be mounted upstream or downstream of the protective device
- Advanced monitoring via **VirtualMonitor** (position, trip etc. without using auxiliary)
- Matching the pitch of protective devices up to 63 A, solving issues of space constraints

|           |                                                   |   |   |
|-----------|---------------------------------------------------|---|---|
| 4829 0160 | S-130 modular current measurement metering module | 3 | – |
| 4829 0161 | S-135 modular current measurement analysis module | 3 | – |
| 4829 0162 | S-Datacenter modular 3 x single phase monitoring  | 3 | – |

**DIRIS Digiware S - Accessories**

|           |                                            |      |        |
|-----------|--------------------------------------------|------|--------|
| 4829 0195 | Mounting clip for above Digiware S modules | pack | (x 10) |
| 4829 0196 | Holding clip for above Digiware S modules  | pack | (x 10) |
| 4829 0189 | Flat RJ45 Digiware bus connection cable    |      | 0.06 m |

Note: For longer length connecting cables refer to **E- 13**

**DIRIS Digiware I/O (input/output modules)**

The **DIRIS Digiware I/O (input/output)** modules can be easily added anywhere within the measurement system thanks to a quick **RJ45** connection I/O modules.

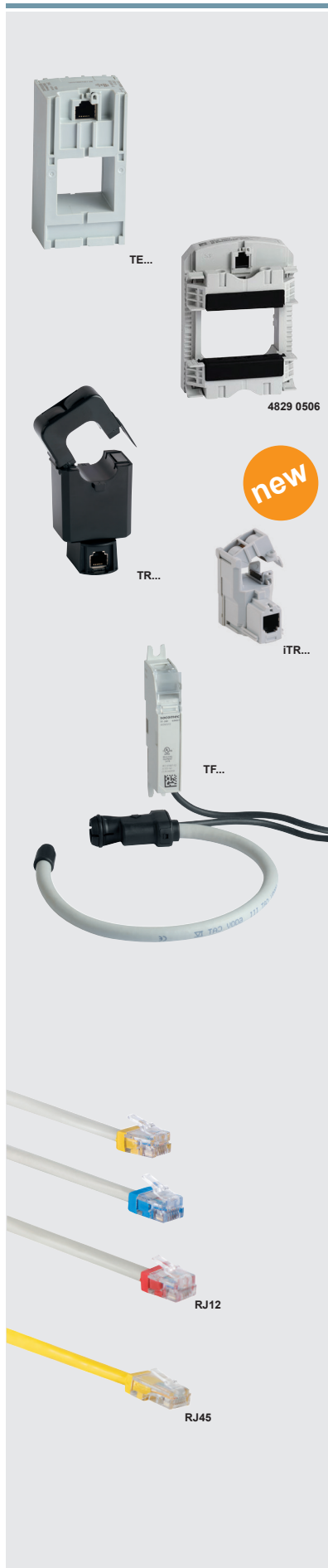
The **I/O-10** modules have 4 digital inputs and 2 digital outputs, which can be used:

- To monitor changes of status of an input or to collect pulses from multi-fluid meters (water, gas...)
- To remotely command devices by sending a digital output signal
- Inputs/Connection: 12 VDC 3mA, Outputs: 12 - 48 VDC, 12 - 24 VAC 50mA / screw terminal blocks

The **I/O-20** modules have 2 analogue inputs allowing:

- To collect data from analogue sensors, e.g. pressure, humidity, temperature, levels (fuel...)
- To monitor levels by setting up alarms on chosen thresholds
- Inputs/Connection: 0/4-20 mA, 200 ohm / screw terminal blocks

|           | DI | DO | AI |                      |         |
|-----------|----|----|----|----------------------|---------|
| 4829 0140 | 4  | 2  | –  | input/output modules | (18 mm) |
| 4829 0145 | –  | –  | 2  | input/output modules | (18 mm) |



### Current sensors

Current sensors can be connected to the DIRIS Digiware system via a rapid RJ12 connection various accessories are available, permitting installation in all panel configurations.

- Plug and play RJ12 connections (*for ease of wiring preventing wiring errors*)
- Automatic detection of sensor type and current rating
- Class 0.5 from 2% to 120% of nominal current (*as per standard IEC 61557-12*)

| type                                                        | model  | actual range current (A) | description                      | pitch (mm) | hole size (mm) |
|-------------------------------------------------------------|--------|--------------------------|----------------------------------|------------|----------------|
| <b>TE - Solid current sensors</b>                           |        |                          | class 0.5                        |            |                |
| 4829 0500                                                   | TE-18  | 0.1...24                 | solid current sensor             | 18         | Ø 8.6          |
| 4829 0501                                                   | TE-18  | 0.5...75                 | solid current sensor             | 18         | Ø 8.6          |
| 4829 0502                                                   | TE-25  | 0.8...192                | solid current sensor             | 25         | 13.5 ■         |
| 4829 0503                                                   | TE-35  | 1.26...300               | solid current sensor             | 35         | 21 ■           |
| 4829 0504                                                   | TE-45  | 3.2...756                | solid current sensor             | 45         | 31 ■           |
| 4829 0505                                                   | TE-55  | 8...1200                 | solid current sensor             | 55         | 41 ■           |
| 4829 0506                                                   | TE-90  | 12...2400                | solid current sensor             | 90         | 64 ■           |
| <b>TR - Split-core current sensors</b>                      |        |                          | class I                          |            |                |
| 4829 0555                                                   | TR-10  | 0.5...90                 | split-core current sensors       | –          | Ø 10           |
| 4829 0556                                                   | TR-14  | 0.8...192                | split-core current sensors       | –          | Ø 14           |
| 4829 0552                                                   | TR-16  | 0.64...120               | split-core current sensors       | –          | Ø 16           |
| 4829 0557                                                   | TR-21  | 1.26...300               | split-core current sensors       | –          | Ø 21           |
| 4829 0553                                                   | TR-24  | 1.26...200               | split-core current sensors       | –          | Ø 24           |
| 4829 0558                                                   | TR-32  | 3.2...720                | split-core current sensors       | –          | Ø 32           |
| 4829 0554                                                   | TR-36  | 4...720                  | split-core current sensors       | –          | Ø 36           |
| <b>iTR - Split-core current sensors</b>                     |        |                          | class 0.5 ( <i>intelligent</i> ) |            |                |
| 4829 0655                                                   | iTR-10 | 0.5...75                 | split-core current sensors       | –          | Ø 10           |
| 4829 0656                                                   | iTR-14 | 0.8...192                | split-core current sensors       | –          | Ø 14           |
| 4829 0657                                                   | iTR-21 | 1.26...300               | split-core current sensors       | –          | Ø 21           |
| 4829 0658                                                   | iTR-32 | 3.2...720                | split-core current sensors       | –          | Ø 32           |
| <b>TF - Flexible current sensors (<i>Rogowski coil</i>)</b> |        |                          |                                  |            |                |
| 4829 0570                                                   | TF-55  | 3...720                  | flexible current sensors         | –          | Ø 55           |
| 4829 0571                                                   | TF-120 | 10...2400                | flexible current sensors         | –          | Ø 120          |
| 4829 0572                                                   | TF-300 | 32...7200                | flexible current sensors         | –          | Ø 300          |

### Cables and accessories for current sensors

| type                                                                                                                                                                                                                       | model | description                         | cable length (mm) | pack size (mm) |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------------------------|-------------------|----------------|
| <b>RJ12 current sensor connection cables (<i>inter connection</i>)</b>                                                                                                                                                     |       |                                     |                   |                |
| <ul style="list-style-type: none"> <li>• Automatic detection of current sensor ratings</li> <li>• Identification of cables by colour-coding</li> <li>• Disconnection of the current sensor secondary under load</li> </ul> |       |                                     |                   |                |
| 4829 0581                                                                                                                                                                                                                  | RJ12  | AC current sensor connection cable  | 0.2 m             | 3 x cables     |
| 4829 0595                                                                                                                                                                                                                  | RJ12  | AC current sensor connection cable  | 0.5 m             | 3 x cables     |
| 4829 0583                                                                                                                                                                                                                  | RJ12  | AC current sensor connection cable  | 1.0 m             | 3 x cables     |
| 4829 0584                                                                                                                                                                                                                  | RJ12  | AC current sensor connection cable  | 2.0 m             | 3 x cables     |
| 4829 0593                                                                                                                                                                                                                  | RJ12  | AC current sensor connection cable  | 1.0 m             | 6 x cables     |
| 4829 0594                                                                                                                                                                                                                  | RJ12  | AC current sensor connection cable  | 2.0 m             | 6 x cables     |
| 4829 0782                                                                                                                                                                                                                  | RJ12  | DC molex current sensor conn. cable | 0.3 m             | 3 x cables     |
| 4829 0783                                                                                                                                                                                                                  | RJ12  | DC molex current sensor conn. cable | 0.5 m             | 3 x cables     |
| 4829 0784                                                                                                                                                                                                                  | RJ12  | DC molex current sensor conn. cable | 1.0 m             | 3 x cables     |
| 4829 0785                                                                                                                                                                                                                  | RJ12  | DC molex current sensor conn. cable | 2.0 m             | 3 x cables     |
| 4829 0786                                                                                                                                                                                                                  | RJ12  | DC molex current sensor conn. cable | 5.0 m             | 1 x cable      |

### RJ45 current sensor connection cables (*bus connection*)

|                                                                                                 |                                                                        |                                         |       |                       |
|-------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|-----------------------------------------|-------|-----------------------|
| • Interconnection of I and U modules via Digiware Bus                                           |                                                                        |                                         |       |                       |
| 4829 0181                                                                                       | RJ45                                                                   | Digiware bus AC connection cable        | 0.1 m | –                     |
| 4829 0182                                                                                       | RJ45                                                                   | Digiware bus AC connection cable        | 0.5 m | –                     |
| 4829 0183                                                                                       | RJ45                                                                   | Digiware bus AC connection cable        | 1.0 m | –                     |
| 4829 0184                                                                                       | RJ45                                                                   | Digiware bus AC connection cable        | 2.0 m | –                     |
| 4829 0185*                                                                                      | RJ45                                                                   | AC current sensor cable + 50 connectors | 50 m  | ( <i>cable roll</i> ) |
| * <i>Maximum cable distance between current measurement modules and current sensors is 10 m</i> |                                                                        |                                         |       |                       |
| 4829 0599                                                                                       | 5A/CT adapter ( <i>measurement &gt;1000 A</i> )                        |                                         |       |                       |
| 4829 0598                                                                                       | coupling link for interconnecting sensors staggered or linear mounted  |                                         |       | (30pcs)               |
| 4829 0600                                                                                       | sealable cover ( <i>guarantees the immunity of sensor connection</i> ) |                                         |       | (20pcs)               |



new



### DC voltage measurement modules

DIRIS Digiware U-31/32dc module measures DC voltage for the entire system. It measures up to 180 VDC with a direct connection and is therefore compatible with typical nominal voltages (24 VDC, 48 VDC..)

- Voltage measurement accuracy: Class 0.5
- 1 single voltage measurement point for the entire system
- Voltage adaptors makes the system compatible with all voltage levels up to 1650 VDC
- RJ45 bus allows you measurement of voltage as well as supply power to all connected devices

| type                          | range          | voltage | description                                     | module width |
|-------------------------------|----------------|---------|-------------------------------------------------|--------------|
| <b>U-31dc Metering module</b> |                |         |                                                 |              |
| 4829 0150                     | 19...60 VDC    |         | modular voltage measurement metering module     | 18 mm        |
| <b>U-32dc Metering module</b> |                |         |                                                 |              |
| 4829 0151                     | 38...180 VDC   |         | modular voltage measurement metering module     | 18 mm        |
| <b>DC voltage adaptor</b>     |                |         |                                                 |              |
| 4829 0153                     | 200..600 VDC   |         | U500DC modular voltage adaptor metering module  | 53 mm        |
| 4829 0154                     | 400..1200 VDC  |         | U1000DC modular voltage adaptor metering module | 53 mm        |
| 4829 0155                     | 1200..1650 VDC |         | U1500DC modular voltage adaptor metering module | 53 mm        |

### DC measurement modules

Allocates the load to be measured or to monitor independent current inputs. Measurement of up to 3 DC circuit per Idc modules.

- Metering: ± kWh
- Accuracy of current measurement: Class 0.5
- Multi-measurement: Idc, Udc, Iripple, Irms
- Quick RJ45 connection between modules and RJ12-Molex to current sensors

| type                                       | description                                        | current Inputs | module width |
|--------------------------------------------|----------------------------------------------------|----------------|--------------|
| <b>I-30dc metering modules</b>             |                                                    |                |              |
| 4829 0156                                  | I-30dc modular current measurement metering module | 3              | 18 mm        |
| <b>I-35dc metering and analysis module</b> |                                                    |                |              |
| 4829 0157                                  | I-35dc modular current measurement analysis module | 3              | 18 mm        |

### DC current sensors

The DC current sensors measure the DC load currents of an electrical installation and transmit information to the Idc measurement modules via an RJ12 to Molex cable on the sensor side. The range comprises solid-core and split-core sensors (*Open-loop Hall effect*) ranging from 50 to 5000A in various sizes allowing them to be used in new or existing electrical installations.

- Automatic detection of sensor type and current rating
- Up to 3 different DC sensors can be connected to the same Idc module
- Accuracy of current measurement <1%
- Plug and play RJ12 molex cables (*for ease of wiring - preventing wiring errors*) see page E-13

| type                                                | frame size | nominal current (A) | description                  | pitch (mm) | hole size (mm) |
|-----------------------------------------------------|------------|---------------------|------------------------------|------------|----------------|
| <b>DC solid-core current sensors (frame size 1)</b> |            |                     |                              |            |                |
| 4829 0700                                           | 1          | 50A                 | DC solid-core current sensor | 18         | ■ 10.4 x 20.4  |
| 4829 0701                                           | 1          | 100A                | DC solid-core current sensor | 25         | ■ 10.4 x 20.4  |
| 4829 0702                                           | 1          | 200A                | DC solid-core current sensor | 35         | ■ 10.4 x 20.4  |
| 4829 0703                                           | 1          | 300A                | DC solid-core current sensor | 45         | ■ 10.4 x 20.4  |
| <i>Up to 5000A available on special request.</i>    |            |                     |                              |            |                |
| <b>DC split-core current sensors (frame size 1)</b> |            |                     |                              |            |                |
| 4829 0750                                           | 1          | 50A                 | DC split-core current sensor | 0          | ∅ 21           |
| 4829 0751                                           | 1          | 100A                | DC split-core current sensor | 0          | ∅ 21           |
| 4829 0752                                           | 1          | 200A                | DC split-core current sensor | 0          | ∅ 21           |
| <i>Up to 2000A available on special request.</i>    |            |                     |                              |            |                |



4829 0000

**DIRIS B-30**

The **DIRIS B-30** is a PMD in modular format that communicates wirelessly or via RS485. The 4 x RJ independent current inputs allows it to manage several types and number of circuits i.e 4 single-phase loads or 1 three phase load + 1 single-phase load (*compatible G-50/60*).

| type | description | module width (mm) |
|------|-------------|-------------------|
|------|-------------|-------------------|

|           |                                    |    |
|-----------|------------------------------------|----|
| 4829 0000 | B-30 RS RS485 MODBUS communication | 54 |
|-----------|------------------------------------|----|

**Accessories**

|           |                                       |               |         |
|-----------|---------------------------------------|---------------|---------|
| 4829 0200 | D-30 single point display for B-30    | (panel mount) | 96 x 96 |
| 4829 0280 | RJ9 cable for above D-30 display unit |               | 1.5 m   |
| 4829 0281 | RJ9 cable for above D-30 display unit |               | 3.0 m   |

**DIRIS D-70M-70** *communication gateway*

**DIRIS D-70M-70** acts as a gateway, centralising measurements from DIRIS Digiware, DIRIS A, DIRIS B and COUNTIS E devices and making them available over Ethernet. Data can be visualized on Webview, the "Power & Energy monitoring" embedded web server. Permits real time monitoring of electrical values and analysis of consumption data.

- Plug and Play automatic detection and addressing of measurement and metering devices
- Automatic recording and storage of measurements and consumption data, sending of alarms
- Ethernet/RS485 Modbus communication with embedded WEBVIEW power monitoring
- Inputs: Digiware/RS485
- Outputs: Ethernet
- Protocols: Modbus TCP, BACnet, IPSNMP v1, v2, v3
- Webserver: Embedded web server WEBVIEW-M (32 devices)
- Screen: High-resolution graphic screen (**D-70**)
- Voltage: 24 VDC SELV (*Safety Extra Low Voltage*) power supply elimination of hazardous voltage on cabinet doors.
- Ergonomic and easy to use with 10 direct access buttons for:
  - Measurement information
  - Output selection
  - Equipment configuration
- Centralising measurement points:
  - Circuit selection
  - Displaying data



4829 0203

| type | description | mounting (mm)<br>(H) (W) (D) |
|------|-------------|------------------------------|
|------|-------------|------------------------------|

|           |                                                      |               |
|-----------|------------------------------------------------------|---------------|
| 4829 0203 | D-70 multi-point display, Ethernet com. + web server | panel 97 97 - |
| 4829 0222 | M-70 as above without display                        | DIN 90 89 65  |

**WEBVIEW Datalogger**

- DATALOG H80** provides the ability to create a smart energy data communication network in order to:
- Pool, secure, store and provide the data to a computer application.
  - Connect your meters and multi-function measurement units in an Ethernet network
  - Quick installation on DIN rail or door mounting
  - Remotely and automatically read multi-fluid energy meters and multi-function meters, isolated or not

Function: Reliable collection and transmission

- Configurable collection frequency for each energy and multi-function meter
- Multiple communication protocols (Modbus RTU/TCP, HTTP(s), FTP(s))
- Collection and transmission interfaces: Ethernet

Advanced functions: Reports and extended data storage

- Extended data storage capacity (1 year for index data and 2 months for load curves)
- Auto-detects meters and measuring equipment
- Sends regular activity reports
- Event alerts (*communication errors, data quality, remote server connection*)



4854 0020

| type | LAN Ethernet ports | device licenses | description |
|------|--------------------|-----------------|-------------|
|------|--------------------|-----------------|-------------|

|           |   |           |                          |
|-----------|---|-----------|--------------------------|
| 4854 0020 | 4 | up to 100 | data logger with webview |
|-----------|---|-----------|--------------------------|





Automation for a Changing World

# Basic Compact Drive ME300 Series

## Compact and Intelligent

- Compact design; power range up to 7.5 kW
- Open loop control for IM and PM motors
- EMC filter (optional model)
- STO (Safe Torque Off) SIL2 (optional model)
- Supports PWM/pulse input for frequency setting
- Built-in PID control for single and multi-pumps

For more on the **ME300** range see page **A-19**





ASR 20.3



ASK 41.4



ASK 51.4



ASK 61.4

**Current transformers**

**Class 1**

**General specifications:**

- Nominal frequency: 50Hz (others on request)
- Isolation class: E
- Nominal thermal short-time current:  $I_{th} = 60 \times I_N$
- Maximum operating voltage:  $U_m \leq 0.72 \text{ kV}$
- Over-current limiting factor: FS 5 up to 1500 A nominal current

MBS AG current transformers conform fully to: DIN VDE 0414/1 - DIN 42600 - IEC 61869/1+2 - VBG 4

| type | ratio | class | Burden (VA) | description | max. hole diameter (mm) |         |         |
|------|-------|-------|-------------|-------------|-------------------------|---------|---------|
|      |       |       |             |             | round                   | B/bar 1 | B/bar 2 |

**Tube/ring type current transformers      5A secondary - class 1**

**ASR 20.3** tube current transformers (H) 65 x (W) 45 x (D) 30 mm

|       |        |   |      |                          |                                                                           |     |   |   |
|-------|--------|---|------|--------------------------|---------------------------------------------------------------------------|-----|---|---|
| 26027 | 50/5A  | 1 | 1    | tube current transformer | <table border="1"> <tr> <td>Ø21</td> <td>-</td> <td>-</td> </tr> </table> | Ø21 | - | - |
| Ø21   | -      | - |      |                          |                                                                           |     |   |   |
| 26029 | 60/5A  | 1 | 1.25 | tube current transformer |                                                                           |     |   |   |
| 26031 | 75/5A  | 1 | 1.5  | tube current transformer |                                                                           |     |   |   |
| 26035 | 100/5A | 1 | 2.5  | tube current transformer |                                                                           |     |   |   |
| 26041 | 150/5A | 1 | 3.75 | tube current transformer |                                                                           |     |   |   |
| 26051 | 200/5A | 1 | 3.75 | tube current transformer |                                                                           |     |   |   |
| 26046 | 250/5A | 1 | 5    | tube current transformer |                                                                           |     |   |   |

**Busbar mounted current transformers      5A secondary - class 1**

**ASK 31.3** current transformers (H) 76 x (W) 61 x (D) 48 mm

|      |        |       |     |                         |                                                                                   |     |       |       |
|------|--------|-------|-----|-------------------------|-----------------------------------------------------------------------------------|-----|-------|-------|
| 7038 | 50/5A  | 1     | 1   | std current transformer | <table border="1"> <tr> <td>Ø26</td> <td>30x10</td> <td>20x20</td> </tr> </table> | Ø26 | 30x10 | 20x20 |
| Ø26  | 30x10  | 20x20 |     |                         |                                                                                   |     |       |       |
| 7039 | 60/5A  | 1     | 1   | std current transformer |                                                                                   |     |       |       |
| 7041 | 75/5A  | 1     | 1.5 | std current transformer |                                                                                   |     |       |       |
| 7045 | 100/5A | 1     | 2.5 | std current transformer |                                                                                   |     |       |       |
| 7047 | 150/5A | 1     | 2.5 | std current transformer |                                                                                   |     |       |       |
| 7050 | 200/5A | 1     | 5   | std current transformer |                                                                                   |     |       |       |
| 7053 | 250/5A | 1     | 5   | std current transformer |                                                                                   |     |       |       |

**ASK 41.4** current transformers (H) 85.5 x (W) 71 x (D) 58 mm

|       |        |       |     |                         |                                                                                   |     |       |       |
|-------|--------|-------|-----|-------------------------|-----------------------------------------------------------------------------------|-----|-------|-------|
| 13044 | 100/5A | 1     | 2.5 | std current transformer | <table border="1"> <tr> <td>Ø32</td> <td>40x10</td> <td>30x15</td> </tr> </table> | Ø32 | 40x10 | 30x15 |
| Ø32   | 40x10  | 30x15 |     |                         |                                                                                   |     |       |       |
| 13048 | 150/5A | 1     | 5   | std current transformer |                                                                                   |     |       |       |
| 13050 | 200/5A | 1     | 5   | std current transformer |                                                                                   |     |       |       |
| 13054 | 250/5A | 1     | 10  | std current transformer |                                                                                   |     |       |       |
| 13057 | 300/5A | 1     | 10  | std current transformer |                                                                                   |     |       |       |
| 13062 | 400/5A | 1     | 15  | std current transformer |                                                                                   |     |       |       |
| 13066 | 500/5A | 1     | 15  | std current transformer |                                                                                   |     |       |       |
| 13070 | 600/5A | 1     | 15  | std current transformer |                                                                                   |     |       |       |
| 13073 | 750/5A | 1     | 15  | std current transformer |                                                                                   |     |       |       |
| 13077 | 800/5A | 1     | 15  | std current transformer |                                                                                   |     |       |       |

**ASK 51.4** current transformers (H) 98.5 x (W) 86 x (D) 58 mm

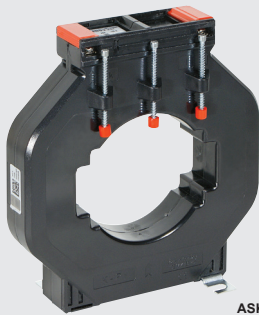
|       |         |       |    |                         |                                                                                   |     |       |       |
|-------|---------|-------|----|-------------------------|-----------------------------------------------------------------------------------|-----|-------|-------|
| 16055 | 400/5A  | 1     | 10 | std current transformer | <table border="1"> <tr> <td>Ø44</td> <td>50x10</td> <td>40x20</td> </tr> </table> | Ø44 | 50x10 | 40x20 |
| Ø44   | 50x10   | 40x20 |    |                         |                                                                                   |     |       |       |
| 16060 | 500/5A  | 1     | 15 | std current transformer |                                                                                   |     |       |       |
| 16064 | 600/5A  | 1     | 15 | std current transformer |                                                                                   |     |       |       |
| 16068 | 750/5A  | 1     | 15 | std current transformer |                                                                                   |     |       |       |
| 16071 | 800/5A  | 1     | 15 | std current transformer |                                                                                   |     |       |       |
| 16075 | 1000/5A | 1     | 15 | std current transformer |                                                                                   |     |       |       |

**ASK 61.4** current transformers (H) 105.5 x (W) 96 x (D) 58 mm

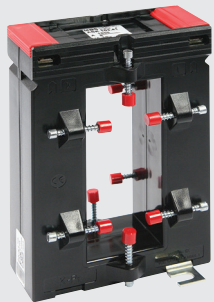
|       |         |       |    |                         |                                                                                   |     |       |       |
|-------|---------|-------|----|-------------------------|-----------------------------------------------------------------------------------|-----|-------|-------|
| 19065 | 600/5A  | 1     | 15 | std current transformer | <table border="1"> <tr> <td>Ø44</td> <td>60x10</td> <td>50x30</td> </tr> </table> | Ø44 | 60x10 | 50x30 |
| Ø44   | 60x10   | 50x30 |    |                         |                                                                                   |     |       |       |
| 19069 | 750/5A  | 1     | 15 | std current transformer |                                                                                   |     |       |       |
| 19073 | 800/5A  | 1     | 15 | std current transformer |                                                                                   |     |       |       |
| 19076 | 1000/5A | 1     | 15 | std current transformer |                                                                                   |     |       |       |
| 19085 | 1250/5A | 1     | 30 | std current transformer |                                                                                   |     |       |       |

**ASK 81.4** current transformers (H) 123.5 x (W) 120 x (D) 58 mm

|       |         |       |    |                         |                                                                                   |     |       |       |
|-------|---------|-------|----|-------------------------|-----------------------------------------------------------------------------------|-----|-------|-------|
| 21045 | 600/5A  | 1     | 10 | std current transformer | <table border="1"> <tr> <td>Ø55</td> <td>80x10</td> <td>60x30</td> </tr> </table> | Ø55 | 80x10 | 60x30 |
| Ø55   | 80x10   | 60x30 |    |                         |                                                                                   |     |       |       |
| 21049 | 750/5A  | 1     | 15 | std current transformer |                                                                                   |     |       |       |
| 21053 | 800/5A  | 1     | 15 | std current transformer |                                                                                   |     |       |       |
| 21056 | 1000/5A | 1     | 15 | std current transformer |                                                                                   |     |       |       |
| 21064 | 1250/5A | 1     | 15 | std current transformer |                                                                                   |     |       |       |
| 21072 | 1600/5A | 1     | 30 | std current transformer |                                                                                   |     |       |       |



ASK 103.3



ASK 103.41

**Current transformers**

**Class 1**

**General specifications:**

- Nominal frequency: 50Hz (*others on request*)
- Isolation class: E
- Nominal thermal short-time current:  $I_{th} = 60 \times I_N$
- Maximum operating voltage:  $U_m \leq 0.72 \text{ kV}$
- Over-current limiting factor: FS 5 up to 1500 A nominal current

MBS AG current transformers conform fully to: DIN VDE 0414/1 - DIN 42600 - IEC 61869/1+2 - VBG 4

| type | ratio | class | Burden (VA) | description | max. hole diameter (mm) |         |         |
|------|-------|-------|-------------|-------------|-------------------------|---------|---------|
|      |       |       |             |             | round                   | B/bar 1 | B/bar 2 |

**Busbar mounted current transformers 5A secondary - class 1**

| <b>ASK 101.4</b> |         | current transformers |    |                         | <i>(H) 144 x (W) 130 x (D) 58 mm</i>   |        |       |
|------------------|---------|----------------------|----|-------------------------|----------------------------------------|--------|-------|
| <b>22055</b>     | 1250/5A | 1                    | 30 | std current transformer | Ø70                                    | 100x10 | 80x30 |
| <b>22062</b>     | 1600/5A | 1                    | 30 | std current transformer |                                        |        |       |
| <b>22070</b>     | 2000/5A | 1                    | 30 | std current transformer |                                        |        |       |
| <b>ASK 103.3</b> |         | current transformers |    |                         | <i>(H) 187.5 x (W) 172 x (D) 52 mm</i> |        |       |
| <b>23058</b>     | 1600/5A | 1                    | 30 | std current transformer | Ø85                                    | 100x30 | 80x50 |
| <b>23062</b>     | 2000/5A | 1                    | 30 | std current transformer |                                        |        |       |
| <b>23066</b>     | 2500/5A | 1                    | 30 | std current transformer |                                        |        |       |
| <b>23070</b>     | 3000/5A | 1                    | 30 | std current transformer |                                        |        |       |

**Rectangular hole for vertically mounted busbars**

| <b>ASK 103.41</b> |         | current transformers |    |                         | <i>(H) 150 x (W) 98.5 x (D) 58 mm</i> |        |   |
|-------------------|---------|----------------------|----|-------------------------|---------------------------------------|--------|---|
| <b>97054</b>      | 500/5A  | 1                    | 5  | std current transformer | Ø40                                   | 100x40 | - |
| <b>97056</b>      | 600/5A  | 1                    | 5  | std current transformer |                                       |        |   |
| <b>97058</b>      | 750/5A  | 1                    | 5  | std current transformer |                                       |        |   |
| <b>97060</b>      | 800/5A  | 1                    | 10 | std current transformer |                                       |        |   |
| <b>97062</b>      | 1000/5A | 1                    | 15 | std current transformer |                                       |        |   |
| <b>97066</b>      | 1250/5A | 1                    | 15 | std current transformer |                                       |        |   |
| <b>ASK 128.4</b>  |         | current transformers |    |                         | <i>(H) 150 x (W) 98.5 x (D) 58 mm</i> |        |   |
| <b>94056</b>      | 1250/5A | 1                    | 15 | std current transformer | Ø38                                   | 128x38 | - |
| <b>94058</b>      | 1500/5A | 1                    | 30 | std current transformer |                                       |        |   |
| <b>94060</b>      | 2000/5A | 1                    | 30 | std current transformer |                                       |        |   |
| <b>94062</b>      | 2500/5A | 1                    | 30 | std current transformer |                                       |        |   |

**Accessories for current transformers**

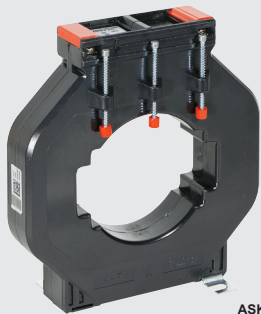
|              |          |                                                 |          |
|--------------|----------|-------------------------------------------------|----------|
| <b>55013</b> | DIN clip | DIN rail mounting clip for current transformers | ASR 20.3 |
| <b>55011</b> | DIN clip | DIN rail mounting clip for current transformers | ASK 30.3 |
| <b>55012</b> | DIN clip | DIN rail mounting clip for current transformers | ASK 41.4 |



ASK 41.4



ASK 61.4



ASK 103.3



ASK 51.4

**Current transformers .../5A Class 0.2 and 0.5**

Modern meters and network analysers provide higher accuracy levels requiring more accurate current transformers. We introduce a range of high accuracy and reliability Class 0.2s and 0.5 Current Transformers.

MBS AG current transformers conform fully to: IEC 60044 / DIN VDE 0414/1 - DIN 42600-2

| type                                                                 | ratio   | class  | Burden (VA) | description                            | max. hole diameter (mm)                                                          |         |         |        |
|----------------------------------------------------------------------|---------|--------|-------------|----------------------------------------|----------------------------------------------------------------------------------|---------|---------|--------|
|                                                                      |         |        |             |                                        | round                                                                            | B/bar 1 | B/bar 2 |        |
| <b>Busbar mounted current transformers 5A secondary - Class 0.5</b>  |         |        |             |                                        |                                                                                  |         |         |        |
| <b>ASK 41.4</b> current transformers                                 |         |        |             | <i>(H) 85.5 x (W) 71 x (D) 58 mm</i>   |                                                                                  |         |         |        |
| 13085                                                                | 200/5A  | 0.5    | 5           | std current transformer                | <table border="1"> <tr><td>Ø32</td><td>40x10</td><td>30x15</td></tr> </table>    | Ø32     | 40x10   | 30x15  |
| Ø32                                                                  | 40x10   | 30x15  |             |                                        |                                                                                  |         |         |        |
| 13086                                                                | 250/5A  | 0.5    | 5           | std current transformer                |                                                                                  |         |         |        |
| 13087                                                                | 300/5A  | 0.5    | 10          | std current transformer                |                                                                                  |         |         |        |
| 13088                                                                | 400/5A  | 0.5    | 10          | std current transformer                |                                                                                  |         |         |        |
| 13089                                                                | 500/5A  | 0.5    | 15          | std current transformer                |                                                                                  |         |         |        |
| 13090                                                                | 600/5A  | 0.5    | 15          | std current transformer                |                                                                                  |         |         |        |
| 13031                                                                | 800/5A  | 0.5    | 10          | std current transformer                |                                                                                  |         |         |        |
| <b>ASK 51.4</b> current transformers                                 |         |        |             | <i>(H) 101.5 x (W) 86 x (D) 58 mm</i>  |                                                                                  |         |         |        |
| 16154                                                                | 600/5A  | 0.5    | 15          | std current transformer                | <table border="1"> <tr><td>Ø44</td><td>50x12</td><td>40x20</td></tr> </table>    | Ø44     | 50x12   | 40x20  |
| Ø44                                                                  | 50x12   | 40x20  |             |                                        |                                                                                  |         |         |        |
| 16203                                                                | 750/5A  | 0.5    | 15          | std current transformer                |                                                                                  |         |         |        |
| 16033                                                                | 800/5A  | 0.5    | 15          | std current transformer                |                                                                                  |         |         |        |
| 16036                                                                | 1000/5A | 0.5    | 15          | std current transformer                |                                                                                  |         |         |        |
| <b>ASK 61.4</b> current transformers                                 |         |        |             | <i>(H) 108.5 x (W) 96 x (D) 58 mm</i>  |                                                                                  |         |         |        |
| 19031                                                                | 800/5A  | 0.5    | 15          | std current transformer                | <table border="1"> <tr><td>Ø44</td><td>63x10</td><td>50x20</td></tr> </table>    | Ø44     | 63x10   | 50x20  |
| Ø44                                                                  | 63x10   | 50x20  |             |                                        |                                                                                  |         |         |        |
| 19034                                                                | 1000/5A | 0.5    | 15          | std current transformer                |                                                                                  |         |         |        |
| 19101                                                                | 1250/5A | 0.5    | 30          | std current transformer                |                                                                                  |         |         |        |
| <b>ASK 81.4</b> current transformers                                 |         |        |             | <i>(H) 126.5 x (W) 120 x (D) 58 mm</i> |                                                                                  |         |         |        |
| 21023                                                                | 1000/5A | 0.5    | 15          | std current transformer                | <table border="1"> <tr><td>Ø55</td><td>80x10</td><td>50x30</td></tr> </table>    | Ø55     | 80x10   | 50x30  |
| Ø55                                                                  | 80x10   | 50x30  |             |                                        |                                                                                  |         |         |        |
| 21029                                                                | 1250/5A | 0.5    | 15          | std current transformer                |                                                                                  |         |         |        |
| 21035                                                                | 1600/5A | 0.5    | 15          | std current transformer                |                                                                                  |         |         |        |
| <b>ASK 103.3</b> current transformers                                |         |        |             | <i>(H) 187.5 x (W) 172 x (D) 52 mm</i> |                                                                                  |         |         |        |
| 23026                                                                | 1600/5A | 0.5    | 15          | std current transformer                | <table border="1"> <tr><td>Ø85</td><td>100x30</td><td>80x50</td></tr> </table>   | Ø85     | 100x30  | 80x50  |
| Ø85                                                                  | 100x30  | 80x50  |             |                                        |                                                                                  |         |         |        |
| 23029                                                                | 2000/5A | 0.5    | 30          | std current transformer                |                                                                                  |         |         |        |
| 23032                                                                | 2500/5A | 0.5    | 30          | std current transformer                |                                                                                  |         |         |        |
| 23035                                                                | 3000/5A | 0.5    | 30          | std current transformer                |                                                                                  |         |         |        |
| <b>Busbar mounted current transformers 5A secondary - Class 0.2s</b> |         |        |             |                                        |                                                                                  |         |         |        |
| <b>ASK 41.4</b> current transformers                                 |         |        |             | <i>(H) 85.5 x (W) 71 x (D) 58 mm</i>   |                                                                                  |         |         |        |
| V24-1704D                                                            | 200/5A  | 0.2s   | 2.5         | std current transformer                | <table border="1"> <tr><td>Ø32</td><td>40x10</td><td>30x15</td></tr> </table>    | Ø32     | 40x10   | 30x15  |
| Ø32                                                                  | 40x10   | 30x15  |             |                                        |                                                                                  |         |         |        |
| V24-1804F                                                            | 250/5A  | 0.2s   | 5           | std current transformer                |                                                                                  |         |         |        |
| V24-1904F                                                            | 300/5A  | 0.2s   | 5           | std current transformer                |                                                                                  |         |         |        |
| V24-2004H                                                            | 400/5A  | 0.2s   | 10          | std current transformer                |                                                                                  |         |         |        |
| V24-2104H                                                            | 500/5A  | 0.2s   | 10          | std current transformer                |                                                                                  |         |         |        |
| V24-2204F                                                            | 600/5A  | 0.2s   | 5           | std current transformer                |                                                                                  |         |         |        |
| <b>ASK 51.4</b> current transformers                                 |         |        |             | <i>(H) 98.5 x (W) 86 x (D) 58 mm</i>   |                                                                                  |         |         |        |
| V34-2404H                                                            | 800/5A  | 0.2s   | 10          | std current transformer                | <table border="1"> <tr><td>Ø44</td><td>50x12</td><td>40x20</td></tr> </table>    | Ø44     | 50x12   | 40x20  |
| Ø44                                                                  | 50x12   | 40x20  |             |                                        |                                                                                  |         |         |        |
| V34-2504J                                                            | 1000/5A | 0.2s   | 15          | std current transformer                |                                                                                  |         |         |        |
| <b>ASK 61.4</b> current transformers                                 |         |        |             | <i>(H) 105.5 x (W) 96 x (D) 58 mm</i>  |                                                                                  |         |         |        |
| V41-2704J                                                            | 1250/5A | 0.2s   | 15          | std current transformer                | <table border="1"> <tr><td>Ø44</td><td>60x10</td><td>50x20</td></tr> </table>    | Ø44     | 60x10   | 50x20  |
| Ø44                                                                  | 60x10   | 50x20  |             |                                        |                                                                                  |         |         |        |
| V41-2804J                                                            | 1600/5A | 0.2s   | 15          | std current transformer                |                                                                                  |         |         |        |
| <b>ASK 123.3</b> current transformers                                |         |        |             | <i>(H) 184.8 x (W) 172 x (D) 52 mm</i> |                                                                                  |         |         |        |
| V56-2704F                                                            | 1250/5A | 0.2s   | 5           | std current transformer                | <table border="1"> <tr><td>Ø100</td><td>120x30</td><td>100x50</td></tr> </table> | Ø100    | 120x30  | 100x50 |
| Ø100                                                                 | 120x30  | 100x50 |             |                                        |                                                                                  |         |         |        |
| V56-2904J                                                            | 1600/5A | 0.2s   | 15          | std current transformer                |                                                                                  |         |         |        |
| V56-3004J                                                            | 2000/5A | 0.2s   | 15          | std current transformer                |                                                                                  |         |         |        |
| V56-3204J                                                            | 2500/5A | 0.2s   | 15          | std current transformer                |                                                                                  |         |         |        |
| V56-3304J                                                            | 3000/5A | 0.2s   | 15          | std current transformer                |                                                                                  |         |         |        |



WSK 40



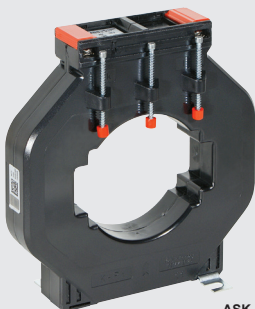
SUSK 4



ASK 41.4



ASK 61.4



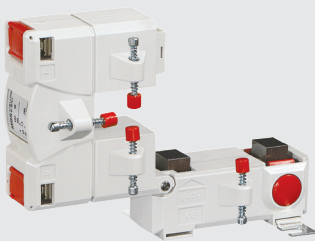
ASK 103.3

| type                                                                 | ratio      | class | Burden (VA) | description               | dimensions (mm)         |         |         |     |       |       |
|----------------------------------------------------------------------|------------|-------|-------------|---------------------------|-------------------------|---------|---------|-----|-------|-------|
|                                                                      |            |       |             |                           | (H)                     | (W)     | (D)     |     |       |       |
| <b>Primary wound current transformers 5A secondary - class 1</b>     |            |       |             |                           |                         |         |         |     |       |       |
| <b>WSK 30 primary wound current transformers</b>                     |            |       |             |                           |                         |         |         |     |       |       |
| 30022                                                                | 5/5A       | 1     | 5           | wound current transformer | 79                      | 61      | 35      |     |       |       |
| 30024                                                                | 10/5A      | 1     | 5           | wound current transformer | 79                      | 61      | 35      |     |       |       |
| 30026                                                                | 15/5A      | 1     | 5           | wound current transformer | 79                      | 61      | 35      |     |       |       |
| 30028                                                                | 20/5A      | 1     | 5           | wound current transformer | 79                      | 61      | 35      |     |       |       |
| <b>WSK 40 primary wound current transformers</b>                     |            |       |             |                           |                         |         |         |     |       |       |
| 31070                                                                | 25/5A      | 1     | 10          | wound current transformer | 89                      | 71      | 45      |     |       |       |
| 31074                                                                | 30/5A      | 1     | 10          | wound current transformer | 89                      | 71      | 45      |     |       |       |
| <b>Summation current transformers 5A secondary - class 1</b>         |            |       |             |                           |                         |         |         |     |       |       |
| <b>KSU 2/3 summation current transformers</b>                        |            |       |             |                           |                         |         |         |     |       |       |
| 41015                                                                | 5+5/5A     | 1     | 10          | summation transformer     | 94                      | 127     | 57      |     |       |       |
| 41031                                                                | 5+5+5/5A   | 1     | 10          | summation transformer     | 94                      | 127     | 57      |     |       |       |
| <b>SUSK 4 summation current transformers</b>                         |            |       |             |                           |                         |         |         |     |       |       |
| 40027                                                                | 5+5+5+5/5A | 1     | 10          | summation transformer     | 137                     | 156     | 65      |     |       |       |
| <b>1A secondary - class 1 Busbar mounted current transformers</b>    |            |       |             |                           |                         |         |         |     |       |       |
| type                                                                 | ratio      | class | Burden (VA) | description               | max. hole diameter (mm) |         |         |     |       |       |
|                                                                      |            |       |             |                           | round                   | B/bar 1 | B/bar 2 |     |       |       |
| <b>ASK 41.4 current transformers (H) 85.5 x (W) 71 x (D) 58 mm</b>   |            |       |             |                           |                         |         |         |     |       |       |
| 13239                                                                | 75/1A      | 1     | 1.5         | std current transformer   | Ø32                     | 40x10   | 30x15   |     |       |       |
| 13244                                                                | 100/1A     | 1     | 2.5         | std current transformer   |                         |         |         |     |       |       |
| 13248                                                                | 150/1A     | 1     | 5           | std current transformer   |                         |         |         |     |       |       |
| 13250                                                                | 200/1A     | 1     | 5           | std current transformer   |                         |         |         |     |       |       |
| 13254                                                                | 250/1A     | 1     | 10          | std current transformer   |                         |         |         |     |       |       |
| 13257                                                                | 300/1A     | 1     | 10          | std current transformer   |                         |         |         |     |       |       |
| 13262                                                                | 400/1A     | 1     | 15          | std current transformer   |                         |         |         |     |       |       |
| 13266                                                                | 500/1A     | 1     | 15          | std current transformer   |                         |         |         |     |       |       |
| 13270                                                                | 600/1A     | 1     | 15          | std current transformer   |                         |         |         |     |       |       |
| 13273                                                                | 750/1A     | 1     | 15          | std current transformer   |                         |         |         |     |       |       |
| 13277                                                                | 800/1A     | 1     | 15          | std current transformer   |                         |         |         |     |       |       |
| <b>ASK 51.4 current transformers (H) 85.5 x (W) 71 x (D) 58 mm</b>   |            |       |             |                           |                         |         |         |     |       |       |
| 16260                                                                | 500/1A     | 1     | 15          | std current transformer   |                         |         |         | Ø44 | 50x10 | 40x30 |
| 16264                                                                | 600/1A     | 1     | 15          | std current transformer   |                         |         |         |     |       |       |
| 16268                                                                | 750/1A     | 1     | 15          | std current transformer   |                         |         |         |     |       |       |
| 16271                                                                | 800/1A     | 1     | 15          | std current transformer   |                         |         |         |     |       |       |
| 16275                                                                | 1000/1A    | 1     | 15          | std current transformer   |                         |         |         |     |       |       |
| <b>ASK 61.4 current transformers (H) 105.5 x (W) 96 x (D) 58 mm</b>  |            |       |             |                           |                         |         |         |     |       |       |
| 19265                                                                | 600/1A     | 1     | 15          | std current transformer   | Ø44                     | 60x10   | 50x30   |     |       |       |
| 19269                                                                | 750/1A     | 1     | 15          | std current transformer   |                         |         |         |     |       |       |
| 19273                                                                | 800/1A     | 1     | 15          | std current transformer   |                         |         |         |     |       |       |
| 19285                                                                | 1250/1A    | 1     | 30          | std current transformer   |                         |         |         |     |       |       |
| <b>ASK 81.4 current transformers (H) 123.5 x (W) 120 x (D) 58 mm</b> |            |       |             |                           |                         |         |         |     |       |       |
| 21253                                                                | 800/1A     | 1     | 15          | std current transformer   | Ø55                     | 80x10   | 60x30   |     |       |       |
| 21256                                                                | 1000/1A    | 1     | 15          | std current transformer   |                         |         |         |     |       |       |
| 21264                                                                | 1250/1A    | 1     | 15          | std current transformer   |                         |         |         |     |       |       |
| 21272                                                                | 1600/1A    | 1     | 30          | std current transformer   |                         |         |         |     |       |       |
| <b>ASK 103.3 current transformers (H) 185 x (W) 172 x (D) 52 mm</b>  |            |       |             |                           |                         |         |         |     |       |       |
| 23251                                                                | 1250/1A    | 1     | 30          | std current transformer   | Ø85                     | 100x30  | 80x50   |     |       |       |
| 23258                                                                | 1600/1A    | 1     | 30          | std current transformer   |                         |         |         |     |       |       |
| 23262                                                                | 2000/1A    | 1     | 30          | std current transformer   |                         |         |         |     |       |       |
| 23266                                                                | 2500/1A    | 1     | 30          | std current transformer   |                         |         |         |     |       |       |
| 23270                                                                | 3000/1A    | 1     | 30          | std current transformer   |                         |         |         |     |       |       |

new



KBR 28



KBU 23



KBU 816

**Split-core current transformers**

The split measuring system facilitates simple installation into existing panel boards without additional mounting requirements. Simply open the locking mechanism of the current transformer place around the primary conductor and lock ensuring that the circuit is closed. Once secondary conductors are connected the unit is ready for operation.

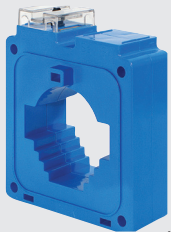
MBS AG current transformers conform fully to: DIN VDE 0414/1 - DIN 42600 - IEC 61869/1+2 - VBG 4

| type                                                           | ratio                           | class | Burden (VA) | description                             | hole diameter (mm) round | B/bar  |
|----------------------------------------------------------------|---------------------------------|-------|-------------|-----------------------------------------|--------------------------|--------|
| <b>KBR series - Split-core CT's</b>                            |                                 |       |             |                                         |                          |        |
|                                                                |                                 |       |             | <b>5A secondary - class 1</b>           |                          |        |
| • Delivered with 0.5m connection cable 2 x 1.5 mm <sup>2</sup> |                                 |       |             |                                         |                          |        |
| <b>KBR 18L</b>                                                 | split-core current transformers |       |             | <i>(H) 80.1 x (W) 49 x (D) 59 mm</i>    |                          |        |
| <b>18L-5001</b>                                                | 150/5A                          | 1     | 1           | split-core current transformer          | Ø18.4                    | -      |
| <b>18L-5002</b>                                                | 200/5A                          | 1     | 1.5         | split-core current transformer          |                          |        |
| <b>18L-5004</b>                                                | 250/5A                          | 1     | 2           | split-core current transformer          |                          |        |
| <b>KBR 28</b>                                                  | split-core current transformers |       |             | <i>(H) 79.5 x (W) 49 x (D) 59 mm</i>    |                          |        |
| <b>28-5002</b>                                                 | 300/5A                          | 1     | 1.5         | split-core current transformer          | Ø26                      | -      |
| <b>28-5003</b>                                                 | 400/5A                          | 1     | 2.5         | split-core current transformer          |                          |        |
| <b>28-5005</b>                                                 | 500/5A                          | 1     | 3.0         | split-core current transformer          |                          |        |
| <b>KBR 42</b>                                                  | split-core current transformers |       |             | <i>(H) 96 x (W) 67 x (D) 69 mm</i>      |                          |        |
| <b>42-5003</b>                                                 | 500/5A                          | 1     | 5           | split-core current transformer          | Ø42.4                    | -      |
| <b>42-5005</b>                                                 | 600/5A                          | 1     | 5           | split-core current transformer          |                          |        |
| <b>42-5009</b>                                                 | 800/5A                          | 1     | 5           | split-core current transformer          |                          |        |
| <b>42-5011</b>                                                 | 1000/5A                         | 1     | 5           | split-core current transformer          |                          |        |
| <b>KBU series - Split-core CT's</b>                            |                                 |       |             |                                         |                          |        |
|                                                                |                                 |       |             | <b>5A secondary - class 3 / 1 / 0.5</b> |                          |        |
| <b>KBU 23</b>                                                  | split-core current transformers |       |             | <i>(H) 106 x (W) 93 x (D) 58 mm</i>     |                          |        |
| <b>80048</b>                                                   | 100/5A                          | 3     | 1.25        | split-core current transformer          | Ø20                      | 20x30  |
| <b>80030</b>                                                   | 150/5A                          | 3     | 1.50        | split-core current transformer          |                          |        |
| <b>80031</b>                                                   | 200/5A                          | 3     | 2.50        | split-core current transformer          |                          |        |
| <b>80044</b>                                                   | 250/5A                          | 1     | 3.75        | split-core current transformer          |                          |        |
| <b>KBU 58</b>                                                  | split-core current transformers |       |             | <i>(H) 158 x (W) 125 x (D) 58 mm</i>    |                          |        |
| <b>80061</b>                                                   | 250/5A                          | 1     | 1.5         | split-core current transformer          | Ø 50                     | 50x80  |
| <b>80062</b>                                                   | 300/5A                          | 1     | 2.5         | split-core current transformer          |                          |        |
| <b>80063</b>                                                   | 400/5A                          | 1     | 2.5         | split-core current transformer          |                          |        |
| <b>80038</b>                                                   | 400/5A                          | 0.5   | 2.5         | split-core current transformer          |                          |        |
| <b>80064</b>                                                   | 500/5A                          | 1     | 5.0         | split-core current transformer          |                          |        |
| <b>80054</b>                                                   | 500/5A                          | 0.5   | 2.5         | split-core current transformer          |                          |        |
| <b>80065</b>                                                   | 600/5A                          | 1     | 5.0         | split-core current transformer          |                          |        |
| <b>80055</b>                                                   | 600/5A                          | 0.5   | 2.5         | split-core current transformer          |                          |        |
| <b>80067</b>                                                   | 800/5A                          | 1     | 7.5         | split-core current transformer          |                          |        |
| <b>80057</b>                                                   | 800/5A                          | 0.5   | 2.5         | split-core current transformer          |                          |        |
| <b>80068</b>                                                   | 1000/5A                         | 1     | 10          | split-core current transformer          |                          |        |
| <b>80058</b>                                                   | 1000/5A                         | 0.5   | 5           | split-core current transformer          |                          |        |
| <b>KBU 812</b>                                                 | split-core current transformers |       |             | <i>(H) 198 x (W) 155 x (D) 58 mm</i>    |                          |        |
| <b>80098</b>                                                   | 1000/5A                         | 1     | 10          | split-core current transformer          | Ø80                      | 120x80 |
| <b>80100</b>                                                   | 1250/5A                         | 1     | 15          | split-core current transformer          |                          |        |
| <b>80080</b>                                                   | 1250/5A                         | 0.5   | 7.5         | split-core current transformer          |                          |        |
| <b>KBU 816</b>                                                 | split-core current transformers |       |             | <i>(H) 243 x (W) 195 x (D) 79 mm</i>    |                          |        |
| <b>80147</b>                                                   | 1600/5A                         | 1     | 15          | split-core current transformer          | Ø 80                     | 160x80 |
| <b>80115</b>                                                   | 1600/5A                         | 0.5   | 15          | split-core current transformer          |                          |        |
| <b>80149</b>                                                   | 2000/5A                         | 1     | 15          | split-core current transformer          |                          |        |
| <b>80117</b>                                                   | 2000/5A                         | 0.5   | 15          | split-core current transformer          |                          |        |
| <b>80151</b>                                                   | 2500/5A                         | 1     | 15          | split-core current transformer          |                          |        |
| <b>80120</b>                                                   | 2500/5A                         | 0.5   | 15          | split-core current transformer          |                          |        |
| <b>80153</b>                                                   | 3000/5A                         | 1     | 30          | split-core current transformer          |                          |        |
| <b>80122</b>                                                   | 3000/5A                         | 0.5   | 15          | split-core current transformer          |                          |        |
| <b>80155</b>                                                   | 4000/5A                         | 1     | 30          | split-core current transformer          |                          |        |
| <b>80157</b>                                                   | 5000/5A                         | 1     | 30          | split-core current transformer          |                          |        |

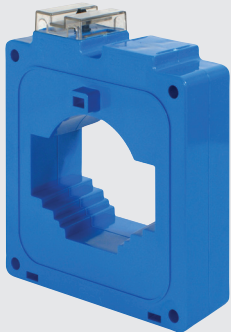
**Note:** Available with 1A secondary on request.



IMN1...



IBR1...



IBR3...



ACN30-5



ACN60-5

| type                               | ratio  | description              | class                           | VA  | dimensions (mm) |     |     |
|------------------------------------|--------|--------------------------|---------------------------------|-----|-----------------|-----|-----|
|                                    |        |                          |                                 |     | (H)             | (W) | (D) |
| <b>IMN1 ring type transformers</b> |        |                          | <b>Ø round conductor: 32 mm</b> |     |                 |     |     |
| IMN1/05                            | 50/5A  | ring current transformer | 3                               | 1.3 | 87              | 64  | 42  |
| IMN1/06                            | 60/5A  | ring current transformer | 3                               | 1.3 | 87              | 64  | 42  |
| IMN1/07                            | 75/5A  | ring current transformer | 3                               | 1.3 | 87              | 64  | 42  |
| IMN1/10                            | 100/5A | ring current transformer | 1                               | 2.5 | 87              | 64  | 42  |
| IMN1/12                            | 125/5A | ring current transformer | 1                               | 2.5 | 87              | 64  | 42  |
| IMN1/15                            | 150/5A | ring current transformer | 1                               | 3.8 | 87              | 64  | 42  |
| IMN1/16                            | 160/5A | ring current transformer | 1                               | 3.8 | 87              | 64  | 42  |
| IMN1/20                            | 200/5A | ring current transformer | 1                               | 5   | 87              | 64  | 42  |
| IMN1/25                            | 250/5A | ring current transformer | 1                               | 7.5 | 87              | 64  | 42  |

|                                            |        |                          |                                 |    |    |    |    |
|--------------------------------------------|--------|--------------------------|---------------------------------|----|----|----|----|
| <b>IMN2 current transformers</b>           |        |                          | <b>Ø round conductor: 38 mm</b> |    |    |    |    |
| <b>Primary bar conductor: 40 x 12.5 mm</b> |        |                          |                                 |    |    |    |    |
| IMN2/16                                    | 160/5A | ring current transformer | 1                               | 10 | 99 | 75 | 42 |
| IMN2/20                                    | 200/5A | ring current transformer | 1                               | 10 | 99 | 75 | 42 |
| IMN2/25                                    | 250/5A | ring current transformer | 1                               | 10 | 99 | 75 | 42 |
| IMN2/30                                    | 300/5A | ring current transformer | 1                               | 15 | 99 | 75 | 42 |
| IMN2/40                                    | 400/5A | ring current transformer | 1                               | 25 | 99 | 75 | 42 |
| IMN2/50                                    | 500/5A | ring current transformer | 1                               | 30 | 99 | 75 | 42 |
| IMN2/60                                    | 600/5A | ring current transformer | 1                               | 30 | 99 | 75 | 42 |







|                                          |         |                          |                                 |     |     |     |    |
|------------------------------------------|---------|--------------------------|---------------------------------|-----|-----|-----|----|
| <b>IBR1 current transformers</b>         |         |                          | <b>Ø round conductor: 60 mm</b> |     |     |     |    |
| <b>Primary bar conductor: 60 x 20 mm</b> |         |                          |                                 |     |     |     |    |
| IBR1/06                                  | 600/5A  | ring current transformer | 0.5                             | 7.5 | 115 | 104 | 45 |
| IBR1/08                                  | 800/5A  | ring current transformer | 0.5                             | 15  | 115 | 104 | 45 |
| IBR1/10                                  | 1000/5A | ring current transformer | 0.5                             | 30  | 115 | 104 | 45 |
| IBR1/12                                  | 1250/5A | ring current transformer | 0.5                             | 30  | 115 | 104 | 45 |

|                                           |         |                          |                                  |    |     |     |    |
|-------------------------------------------|---------|--------------------------|----------------------------------|----|-----|-----|----|
| <b>IBR3 current transformers</b>          |         |                          | <b>Ø round conductor: 110 mm</b> |    |     |     |    |
| <b>Primary bar conductor: 100 x 30 mm</b> |         |                          |                                  |    |     |     |    |
| IBR3/12                                   | 1250/5A | ring current transformer | 0.5                              | 15 | 170 | 152 | 45 |
| IBR3/16                                   | 1600/5A | ring current transformer | 0.5                              | 30 | 170 | 152 | 45 |
| IBR3/20                                   | 2000/5A | ring current transformer | 0.5                              | 30 | 170 | 152 | 45 |
| IBR3/25                                   | 2500/5A | ring current transformer | 0.5                              | 30 | 170 | 152 | 45 |
| IBR3/30                                   | 3000/5A | ring current transformer | 0.5                              | 30 | 170 | 152 | 45 |

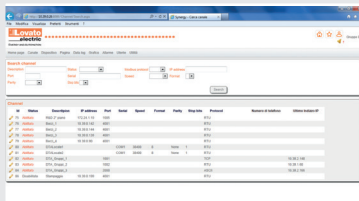
|                                                |       |                  |     |   |     |    |    |
|------------------------------------------------|-------|------------------|-----|---|-----|----|----|
| <b>IBNP primary wound current transformers</b> |       |                  |     |   |     |    |    |
| IBNP/05                                        | 5/5A  | primary wound CT | 0.5 | 5 | 111 | 68 | 43 |
| IBNP/10                                        | 10/5A | primary wound CT | 0.5 | 5 | 111 | 68 | 43 |
| IBNP/15                                        | 15/5A | primary wound CT | 0.5 | 5 | 111 | 68 | 43 |
| IBNP/20                                        | 20/5A | primary wound CT | 0.5 | 5 | 111 | 68 | 43 |
| IBNP/25                                        | 25/5A | primary wound CT | 0.5 | 5 | 111 | 68 | 43 |
| IBNP/30                                        | 30/5A | primary wound CT | 0.5 | 5 | 111 | 68 | 43 |
| IBNP/40                                        | 40/5A | primary wound CT | 0.5 | 5 | 111 | 68 | 43 |

| <b>DC shunts</b> |       |      | <b>50mV output</b>                     |     |    |      |      |
|------------------|-------|------|----------------------------------------|-----|----|------|------|
| – Accuracy:      |       |      | 0.5%                                   |     |    |      |      |
| – Overload:      |       |      | 120% continuously, 1000% for 5 seconds |     |    |      |      |
|                  |       |      | dimensions (mm)                        |     |    |      |      |
|                  |       |      | A                                      | B   | C  | D    | E    |
| ACN01-5          | 10A   | 50mV | 105                                    | 25  | 35 | 14.3 | 5.5  |
| ACN02-5          | 20A   | 50mV | 105                                    | 25  | 35 | 14.3 | 5.5  |
| ACN03-5          | 30A   | 50mV | 105                                    | 25  | 35 | 14.3 | 5.5  |
| ACN04-5          | 40A   | 50mV | 105                                    | 25  | 35 | 14.3 | 5.5  |
| ACN05-5          | 50A   | 50mV | 105                                    | 25  | 35 | 19   | 9.5  |
| ACN06-5          | 60A   | 50mV | 105                                    | 25  | 35 | 19   | 9.5  |
| ACN08-5          | 80A   | 50mV | 105                                    | 25  | 35 | 19   | 9.5  |
| ACN10-5          | 100A  | 50mV | 105                                    | 25  | 35 | 19   | 9.5  |
| ACN15-5          | 150A  | 50mV | 105                                    | 25  | 35 | 19   | 14.3 |
| ACN20-5          | 200A  | 50mV | 105                                    | 25  | 35 | 24.5 | 16   |
| ACN25-5          | 250A  | 50mV | 135                                    | 40  | 50 | 50.8 | 12.7 |
| ACN30-5          | 300A  | 50mV | 135                                    | 40  | 50 | 50.8 | 12.7 |
| ACN40-5          | 400A  | 50mV | 135                                    | 50  | 50 | 38   | 31.5 |
| ACN50-5          | 500A  | 50mV | 135                                    | 50  | 50 | 38   | 31.5 |
| ACN60-5          | 600A  | 50mV | 135                                    | 65  | 50 | 38   | 31.5 |
| ACN75-5          | 750A  | 50mV | 135                                    | 65  | 50 | 38   | 31.5 |
| ACN80-5          | 800A  | 50mV | 135                                    | 75  | 50 | 38   | 31.5 |
| ACN100-5         | 1000A | 50mV | 135                                    | 105 | 50 | 38   | 31.5 |

Intermediate and larger sizes up to 10.000A available on request.

|                                                                                                                                                                                                                    | type       | range      | description                           | 48 mm <sup>2</sup> | 72 mm <sup>2</sup> | 96 mm <sup>2</sup> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|---------------------------------------|--------------------|--------------------|--------------------|
|                                                                                                                                   | BEA40A     |            |                                       |                    |                    |                    |
|                                                                                                                                   | BEV40A     |            |                                       |                    |                    |                    |
|                                                                                                                                  | BEF50AP    |            |                                       |                    |                    |                    |
|                                                                                                                                 | BEF50AR    |            |                                       |                    |                    |                    |
|                                                                                                                                 | BEHCD      |            |                                       |                    |                    |                    |
|                                                                                                                                 | BEHCA4     |            |                                       |                    |                    |                    |
| <b>Ammeters (AC) moving iron (overscale 2 x I<sub>n</sub>) (90° movement)</b>                                                                                                                                      |            |            |                                       |                    |                    |                    |
|                                                                                                                                                                                                                    | BEA01A*    | 1A         | direct reading AC ammeter             |                    |                    |                    |
|                                                                                                                                                                                                                    | BEA05A*    | 5A         | direct reading AC ammeter             |                    |                    |                    |
|                                                                                                                                                                                                                    | BEA10A*    | 10A        | direct reading AC ammeter             |                    |                    |                    |
|                                                                                                                                                                                                                    | BEA15A*    | 15A        | direct reading AC ammeter             |                    |                    |                    |
|                                                                                                                                                                                                                    | BEA25A*    | 25A        | direct reading AC ammeter             |                    |                    |                    |
|                                                                                                                                                                                                                    | BEA40A*    | 40A        | direct reading AC ammeter             |                    |                    |                    |
|                                                                                                                                                                                                                    | BEA01AT**  | /1A        | CT operated AC ammeter                |                    |                    |                    |
|                                                                                                                                                                                                                    | BEA05AT**  | /5A        | CT operated AC ammeter                |                    |                    |                    |
| <b>Voltmeters (AC) moving iron (90° movement)</b>                                                                                                                                                                  |            |            |                                       |                    |                    |                    |
|                                                                                                                                                                                                                    | BEV25A*    | 250V       | direct reading AC voltmeter           |                    |                    |                    |
|                                                                                                                                                                                                                    | BEV40A*    | 400V       | direct reading AC voltmeter           |                    |                    |                    |
|                                                                                                                                                                                                                    | BEV50A*    | 500V       | direct reading AC voltmeter           |                    |                    |                    |
|                                                                                                                                                                                                                    | BEV60A*    | 600V       | direct reading AC voltmeter           |                    |                    |                    |
| <b>Frequency meters (90° movement)</b>                                                                                                                                                                             |            |            |                                       |                    |                    |                    |
|                                                                                                                                                                                                                    | BEF50AP*   | 45 - 55Hz  | frequency (pointer type) 110 - 380V   |                    |                    |                    |
|                                                                                                                                                                                                                    | BEF50AR*   | 47 - 53Hz  | frequency (vibrating reed) 110 - 230V |                    |                    |                    |
|                                                                                                                                                                                                                    | BEF50AR*3  | 47 - 53Hz  | frequency (vibrating reed) 380 - 500V |                    |                    |                    |
| <b>Maximum demand ammeters (90° movement) delay time: 15 min (standard)</b>                                                                                                                                        |            |            |                                       |                    |                    |                    |
|                                                                                                                                                                                                                    | ERB01A**   | /1A        | maximum demand ammeters               |                    |                    |                    |
|                                                                                                                                                                                                                    | ERB05A**   | /5A        | maximum demand ammeters               |                    |                    |                    |
| <b>Combination maximum demand ammeters</b>                                                                                                                                                                         |            |            |                                       |                    |                    |                    |
|                                                                                                                                                                                                                    | ERBC01A**  | /1A        | com. Max. demand ammeters             |                    |                    |                    |
|                                                                                                                                                                                                                    | ERBC05A**  | /5A        | com. Max. demand ammeters             |                    |                    |                    |
| <b>Note: ** For scale change, add /... (scale value) to the end of the part number<br/>e.g. ERBC05A7/100 = (100 / 5A AC, 72 mm<sup>2</sup>)<br/>Standard ranges: 50/75/100/150/200/250/300/400/500/600...2000A</b> |            |            |                                       |                    |                    |                    |
| <b>Ammeters (DC) moving coil (90° movement)</b>                                                                                                                                                                    |            |            |                                       |                    |                    |                    |
|                                                                                                                                                                                                                    | BEA05D*    | 5A         | direct reading DC ammeter             |                    |                    |                    |
|                                                                                                                                                                                                                    | BEA10D*    | 10A        | direct reading DC ammeter             |                    |                    |                    |
|                                                                                                                                                                                                                    | BEA15D*    | 15A        | direct reading DC ammeter             |                    |                    |                    |
|                                                                                                                                                                                                                    | BEA20D*    | 20A        | direct reading DC ammeter             |                    |                    |                    |
|                                                                                                                                                                                                                    | BEA25D*    | 25A        | direct reading DC ammeter             |                    |                    |                    |
|                                                                                                                                                                                                                    | BEA30D*    | 30A        | direct reading DC ammeter             |                    |                    |                    |
|                                                                                                                                                                                                                    | BEV50MVD** | 50mV       | shunt operated ammeter                |                    |                    |                    |
|                                                                                                                                                                                                                    | BEA01MAD*  | 1mA        | DC (low current) ammeter              |                    |                    |                    |
|                                                                                                                                                                                                                    | BEA20MAD*  | 4 - 20mA   | DC (low current) ammeter              |                    |                    |                    |
| <b>** For DC shunts please refer to page E-22</b>                                                                                                                                                                  |            |            |                                       |                    |                    |                    |
| <b>Voltmeter (DC) (90° movement)</b>                                                                                                                                                                               |            |            |                                       |                    |                    |                    |
|                                                                                                                                                                                                                    | BEV03D*    | 0 - 30V    | DC voltmeter                          |                    |                    |                    |
|                                                                                                                                                                                                                    | BEV15D*    | 1 - 150V   | DC voltmeter                          |                    |                    |                    |
|                                                                                                                                                                                                                    | BEV60D*    | 150 - 600V | DC voltmeter                          |                    |                    |                    |
| <b>Running hour meters</b>                                                                                                                                                                                         |            |            |                                       |                    |                    |                    |
|                                                                                                                                                                                                                    | BEHCA*     | AC         | running hour meter 24/110/230/380 VAC |                    |                    |                    |
|                                                                                                                                                                                                                    | BEHCD*     | DC         | running hour meter 10 - 80 VDC        |                    |                    |                    |
| <b>* 4 = 48 x 48 mm<sup>2</sup> / 7 = 72 x 72 mm<sup>2</sup> / 9 = 96 x 96 mm<sup>2</sup></b>                                                                                                                      |            |            |                                       |                    |                    |                    |





EXC M4G 01



EXC GL A01



EXC GL AX1

**Synergy** is a supervision and energy management web-based software that provides the monitoring and control of the electrical installation. In addition to electrical quantities, it allows to check all environmental and process information (*operating status, alarms, etc.*), acquired from LOVATO Electric products, equipped with communication port.

**Key software features:**

- Structure and applications based on MS SQL relational database management system
- Server with Multi Client capability
- Client view through web-browsers, compatible with various platforms and operating systems.
- Communication with all LOVATO Electric measurement and control devices, via serial ports, Ethernet or modem
- Automatic reports of consumption periods (*e.g. time bands*) in both analytical and graphic format
- Energy consumption reports, Graphic display of trends, Database of instantaneous values
- Alarm management, both locally and via e-mail
- Access level management of users

| type | description |
|------|-------------|
|------|-------------|

**Synergy customer server hosted software**

- |                   |                                                                   |
|-------------------|-------------------------------------------------------------------|
| <b>SYN1 SET</b>   | Licence for single host server install, includes 1 device licence |
| <b>SYN1 SLL</b>   | Licence for single LOVATO Electric device via Modbus-RTU          |
| <b>SYN1 SLX</b>   | Licence for single 3rd party device via Modbus-RTU                |
| <b>SYN1 SDLWS</b> | Licence for WEB API to access Synergy SQL database                |
| <b>SYN1 SLM</b>   | Licence for single device to access software updates              |

**Synergy cloud hosted software**

The Synergy cloud solution is specifically designed to make the software functions described previously available and accessible via PC or tablet on the LovatoElectric.com Internet portal. With Cloud, it is possible to collect and view production and consumption data with the management software without installing software and without a physical server. This saves on server purchasing, configuration and maintenance costs.

**Key software features:**

- Specific design for client requirements (*selection of measurement scenarios*)
- Low data traffic thanks to the extreme economy of the protocol used (Modbus)
- Instantaneous data acquisition from various devices that can even be located in different sites
- Simple and clear reporting of all energy data
- Limited subscription cost, yearly renewal required

- |                 |                                                          |
|-----------------|----------------------------------------------------------|
| <b>SYN1 CLL</b> | Cloud Licence for single LOVATO Electric device          |
| <b>SYN1 CLX</b> | Cloud Licence for single 3rd party device via Modbus-RTU |

**Synergy compatible hardware**

Hardware expansion modules to enable Lovato product to communicate to **Synergy** or **Synergy cloud**

**Compatible on DMG6XX/700/800/900, RGK610/750/800/900, ATL610/800/900, DCRG8x**

- |                |                                                                |                       |
|----------------|----------------------------------------------------------------|-----------------------|
| <b>EXP1012</b> | opto-isolated RS-485 interface                                 |                       |
| <b>EXP1013</b> | opto-isolated Ethernet interface                               | (only for DMG800/900) |
| <b>EXP1015</b> | GPRS/GSM modem without antenna                                 | (only for DMG800/900) |
| <b>CX03</b>    | GSM Quad-band antenna for EXP1015 modem (800/900/1800/1900MHz) |                       |

**Compatible on DMED310T2, DMG300**

- |                |                                                                 |
|----------------|-----------------------------------------------------------------|
| <b>EXM1012</b> | opto-isolated RS-485 interface                                  |
| <b>EXM1013</b> | opto-isolated Ethernet interface with Web server function       |
| <b>EXM1020</b> | opto-isolated RS-485 interface and 2 relay outputs (5A 250 VAC) |

**Compatible on Lovato devices with RS485 port**

- |                   |                                                                                           |
|-------------------|-------------------------------------------------------------------------------------------|
| <b>EXC M4G 01</b> | RS485 Gateway/4G modem, including antenna and programming cable (9.5-27 VAC / 9.5-35 VDC) |
|-------------------|-------------------------------------------------------------------------------------------|

**Synergy data logger**

**EXC GL A01** gateway is able to collect data from devices which are connected through Ethernet or RS485 port. Modbus RTU, ASCII and TCP protocols are supported. The data can be reviewed by a connection to Synergy Cloud service or to Ethernet local web server and a browser. Access to Internet for data sending can be achieved with Ethernet port or by adding **EXC GL AX1** 2G/3G modem.

- CPU ARM 1 GHz, with local memory
- 2 Ethernet port
- 1 RS232 / RS422/RS485 serial port
- 24 VDC (10...32 VDC) power supply
- Operating temperature -20...+60°C
- Simplified connection to Lovato Electric devices, up to 32 devices

- |                   |                                                                                  |
|-------------------|----------------------------------------------------------------------------------|
| <b>EXC GL A01</b> | Gateway data logger for data collecting via Modbus from the devices in the field |
| <b>EXC GL AX1</b> | 2G/3G modem communication module for EXC GL A01                                  |

