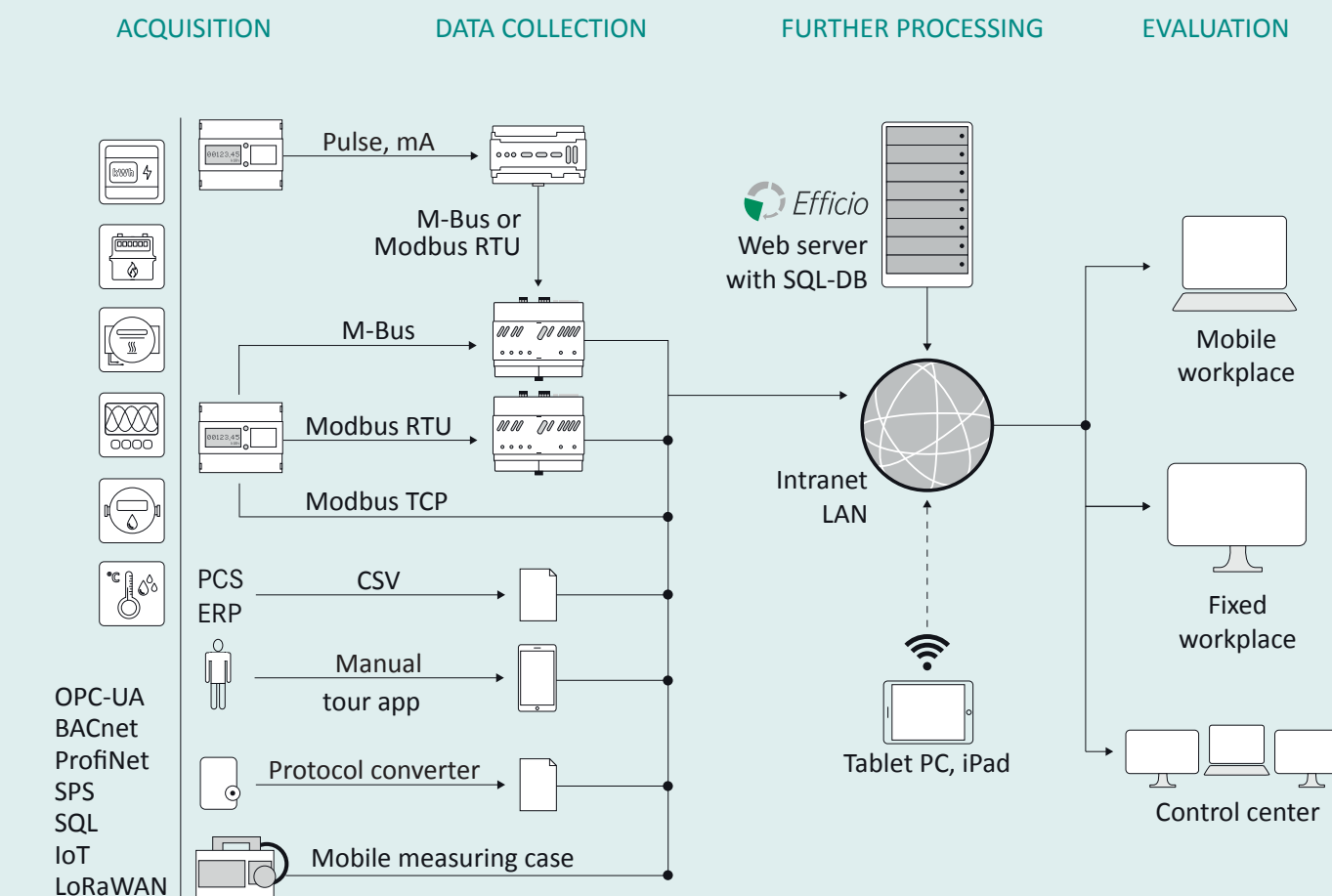




Smart Energy and Load Management

Electricity meter and network analyzers from Berg provide precise, reproducible, and reliable measurement results. Via standardized interfaces like M-Bus, BACnet or Modbus TCP, your measuring devices can be integrated into your energy management software very easily. With the energy monitoring system Efficio, you can reduce your energy costs with full transparency, having absolute energy cost control. With the load management system Optimo, you can optimize your energy supply by reducing your grid charges and thereby minimize your costs for maximum savings in energy, time, and money.

Overview Diagram of Energy Data Acquisition



Your Advantages with Our Energy and Load Management Solutions

- + Energy monitoring and load management in just one system
- + Full transparency through extensive analysis and reports
- + Quick installation, implementation, and handling
- + Quick identification of possible savings and potential for improvements
- + Securing of green image advantages over competitors
- + Switch or control electrical power generators and power consumers

From the Calibrated Current Transformer to the Rogowski Coil



- Cable conversion current transformer KBR**
- + Current transformer with divisible core
 - + Usable only for round conductors
 - + Primary currents between 50 A and 1,000 A



- Cable conversion current transformer KBU**
- + Current transformer with divisible core
 - + Usable for round conductors and conductor rails
 - + Primary currents between 100 A and 5,000 A



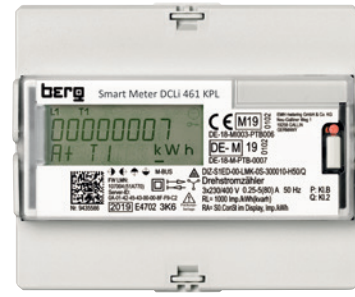
- Plug-in current transformer (E)ASK**
- + Usable for round conductors and conductor rails
 - + Primary currents between 75 A and 750 A
 - + Approved as EASK for billing measurements



- Flexible Rogowski coil MFC150**
- + In connection with UBN 40/309 KIT
 - + No need to disconnect the conductors
 - + Current range from mA up to 100 kA

Electrical Measurement Technology

The Basis for the Valid Acquisition of Energy Data



ELECTRICITY METER

DCLi

DCi/DCMi/DCMOi

B23/B24

BME-series

MCI/MCMi

POWER ANALYZERS

UBN 40/UBN 40 KIT

UBN 309/UBN 309 KIT

Electricity meter with long-term storage

Digital industrial electricity meter

Compact low voltage electricity meter

Compact low voltage electricity meter

Single-phase electricity meter

Network analyzer for DIN rail mounting

Network analyzer for panel mounting

Accuracy class kWh (EN50470-1/-3)	B (class 1)	B (class 1)	B (class 1) direct / C (class 0.5) transducer	B (class 1)	B (class 1)
Accuracy class kVarh (EN62023-23)	Class 2	Class 2	Class 2	Class 2	–
Energy counters	1 tariff	2 tariffs (dig. tariff input)	4 tariffs (dig. tariff input)	4 tariffs (dig. tariff input) + 4 tariffs (bus)	1 tariff
Measurement type	4 quadrants ($\pm P/\pm Q$)	• 2 quadrants ($\pm P$)/◦ 4 quadrants ($\pm P/\pm Q$)	4 quadrants ($\pm P/\pm Q$)	4 quadrants ($\pm P/\pm Q$)	1 quadrant (+P)
Connection type	2-, 3-, and 4-wire network	2-, 3-, and 4-wire network	3- and 4-wire network	4-wire network	2-wire network
Limit current direct meter	80 A	80 A	65 A	80 A	32 A
Limit current transformer meter	6 A	6 A	6 A	6 A	–
Connection cross sections	25 mm ² direct/4 mm ² transducer	25 mm ² direct/4 mm ² transducer	25 mm ² direct/10 mm ² transducer	16 mm ² direct/4 mm ² transducer	6 mm ² direct
Voltage conductor/additional clamps (I/O)	2.5 mm ² voltage/2.5 mm ² I/O	2.5 mm ² voltage/2.5 mm ² I/O	2.5 mm ² voltage/1.0 mm ² I/O	2.5 mm ² voltage/2.5 mm ² I/O	2.5 mm ² I/O
Nominal voltage 4-wire networks	3× 58/100 V, 3× 63/110 V, 3× 230/400 V	3× 58/100 V, 3× 63/110 V, 3× 230/400 V	3× 230/400 V	3× 230/400 V	–
Nominal voltage 2-wire or 3-wire networks	1× 230 V 3× 100 V, 3× 230 V, 3× 400 V	1× 230 V 3× 100 V, 3× 230 V, 3× 400 V	3× 400 V	–	1× 230 V
Frequency	50 Hz	50...60 Hz	50...60 Hz	50...60 Hz	50 Hz
S0-pulse EN62053-31 (quantity)	• (2)	• (2)	• (2)	• BME 461/462 IMPULS (2)	• (1)
M-Bus	• M-Bus over RS485 (fix 9,600 baud)	◦ DIN EN 13757-2/-3 (300...9,600 baud)	◦ DIN EN 13757-2/-3 (2,400...19,200 baud)	◦ DIN EN 13757-2/-3 (300...9,600 baud)	◦ DIN EN 13757-2/-3 (300...9,600 baud)
Modbus RTU	–	◦ EIA485 (300...57,600 baud)	◦ EIA485 (1,200...115,200 baud)	◦ EIA485 (300...115,200 baud)	–
Modbus TCP/BACnet IP	–	–	–	◦ IEC 61158 (300...115,200 baud) DIN EN 16484-5 (300...76,800 baud)	–
LON-Bus	–	–	–	◦ ISO/IEC 14908-2 (1,200...76,800 baud)	–
Display	LCD, 2 lines, 8 digits	LCD, 2 lines, 8 digits	LCD, 1 line, 7 digits	LCD, 2 lines, 8 digits	LCD, 1 line, 6 digits
Dimensions (W × H × D) in mm	107.5 × 89.5 × 64.0	107.5 × 89.5 × 64.0	70.0 × 97.0 × 65.0	72.0 × 90.0 × 69.0	17.5 × 90.0 × 69.0
Mounting	DIN rail	DIN rail	DIN rail	DIN rail	DIN rail
Approvals	MID + PTB-A 50.7/50.8	MID	MID	MID	MID
Operating temperature/humidity	–25...+55°C/<95% not condensing	–25...+55°C/<95% not condensing	–30...+70°C/<75% annual average	–25...+55°C/<75% annual average	–25...+55°C/<95% not condensing
Electromagnetic compatibility	IEC 61000-4	IEC 61000-4	IEC 60060-1, IEC 61000-4	IEC 61000-4	IEC 61000-4
Special features	+ MID + PTB-A 50.7/50.8 + PTB-compliant meter reading + For different voltage levels + Future-proof LMN-interface for smart meter gateway refitting	+ Industrial all-round meter + Multimeter display (U,I,P,Q,f) + For different voltage levels + Interfaces for different bus protocols additionally with 2 S0 pulse outputs	+ Precision meter for LV network + Multimeter display (U,I,P,Q,f) + Compact design + Interfaces for standard bus protocols additionally with 2 S0 pulse outputs	+ Network connection RJ45 (optional) + Multimeter function with THD U, I + Direct connection up to 80A + Display color change if connection is incorrect	+ Ultracompact design + Approved for billing measurements + Direct connection up to 32A + S0 pulse output with optional M-Bus interface

• Standard equipment / ◦ Option

Accuracy class active energy	Class 1 (EN62053-21)	Class 0.5 (EN61557-12)
Accuracy class reactive energy	Class 2 (EN62053-23)	Class 2 (EN61557-12)
Energy counters	1 tariff	1 tariff
Measurement type	4 quadrants ($\pm P/\pm Q$)	4 quadrants ($\pm P/\pm Q$)
Connection type	2-, 3-, and 4-wire network	2-, 3-, and 4-wire network
Limit current direct measurement	80 A	–
Limit current converter measurement	5A converter/Rogowski coils 0.5/4/20 kA	5A converter/Rogowski coils 0.5/4/20 kA
Connection cross sections	35 mm ² direct/6 mm ² transducer	35 mm ² direct/6 mm ² transducer
Voltage conductor/additional clamps (I/O)	2.5 mm ² voltage/2.5 mm ² I/O	2.5 mm ² voltage/2.5 mm ² I/O
Measuring voltage	3× 10/17...3× 285/495 V AC	3× 600 V AC
Security	300 V CAT III	300 V CAT III
External auxiliary voltage	• 85...265 V AC 50/60 Hz	• 230 V AC $\pm 15\%$ 50/60 Hz ◦ 85...265 V AC/110 V DC $\pm 15\%$
Frequency	45...65 Hz	45...65 Hz
Measured values (mom./min./max.)	U, I, P, Q, S, PF, THD U, THD I	U, I, P, Q, S, PF, THD U, THD I
Phase or total	\pm kWh, \pm kVarh (ind./cap.), \pm kVAh	\pm kWh, \pm kVarh (ind./cap.), \pm kVAh
Digital output (quantity)	• Parameterizable pulse/alarm (1)*	• Parameterizable pulse/alarm (2)
Analog output (quantity)	–	◦ Parameterizable 0/4...20 mA (1)
Modbus RTU	• EIA485 (300...57,600 baud)	• EIA485 (300...57,600 baud)
Modbus TCP	◦ 10/100 Mbps (LAN version)	◦ 10/100 Mbps (LAN version)
Display	LCD 43 × 29 mm, 3 lines, 4 digits	LCD 78 × 61 mm, 3 lines, 4 digits
Dimensions (W × H × D) in mm	72.0 × 90.0 × 65.0	96.0 × 96.0 × 39.0
Mounting	DIN rail	Panel mounting (96 × 96 mm)
Result and measured value storage	• RAM (8 MB)	• RAM (B=1 MB/E=8 MB)
Operating temperature/humidity	–25...+55°C/<80% not condensing	–25...+55°C/<80% not condensing
Electromagnetic compatibility	IEC 61000-4	IEC 61000-4
Special features	+ Multi-measuring device for DIN rail + Measuring set with Rogowski coils (KIT) + Monitoring function with alarm output + Integrated web server with measured value display and memory (LAN version)	+ Just 39 mm installation depth + Measuring set with Rogowski coils (KIT) + Analog output for current values + Integrated web server with measured value display and memory (LAN version)

* Just UBN40 RS

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