



## Device overview and technical data

	B21 Single-phase energy meter	B23 Three-phase energy meter, direct measurement	B24 Three-phase energy meter, CT measurement	A44 Three-phase energy meter, CT measurement
<b>Voltage/current inputs</b>				
Rated voltage	230 V AC	3 x 230/400 V AC	3 x 230/400 V AC	3 x 230/400 V AC
Voltage range	220 – 240 V AC (–20% – +15%)	3 x 220 – 240 V AC (–20% – +15%)	3 x 220 – 240 V AC (–20% – +15%)	3 x 57,7–288/100–500 V (–20 % – +15 %) 3 x 100–400/173–690 V (–20 % – +15 %)
Power dissipation, voltage circuits	1.0 VA (0.4 W) total	1.6 VA (0.7 W) total	1.6 VA (0.7 W) total	0,8 VA (0,8 W) insgesamt
Power dissipation, current circuits	0.007 VA (0.007 W) at 230 V AC and $I_b$	0.007 VA (0.007 W) per phase at 230 V AC and $I_b$	0.007 VA (0.007 W) per phase at 230 V AC and $I_b$	0,001 VA (0,001 W) pro Phase bei 230 VAC und $I_{ref}$
Reference current $I_{ref}$	5 A	5 A	1 A	1 A
Transition current $I_{tr}$	0.5 A	0.5 A	0.05 A	0,05 A
Max. current $I_{max}$	65 A	65 A	6 A	6 A
Min. current $I_{min}$	0.25 A	0.25 A	0.02 A	0,02 A
Start-up current $I_{st}$	< 20 mA	< 20 mA	< 1 mA	< 1 mA
Connection cross-section	1 – 25 mm <sup>2</sup>	1 – 25 mm <sup>2</sup>	0.5 – 10 mm <sup>2</sup>	0,5 – 10 mm <sup>2</sup>
Recommended tightening torque	3 Nm	3 Nm	1.5 Nm	2 Nm
<b>Transformer ratio</b>				
Configurable current ratio (CT)	–	–	9999/1-6	9999/1-6
<b>Pulse display (LED)</b>				
Pulse frequency	1000 imp/kWh	1000 imp/kWh	5000 imp/kWh	5000 imp/kWh
Pulse length	40 ms	40 ms	40 ms	40 ms
<b>General information</b>				
Frequency	50 or 60 Hz ± 5%	50 or 60 Hz ± 5%	50 or 60 Hz ± 5%	50 or 60 Hz ± 5%
Precision class	B (cl. 1) and reactive power cl. 2	B (cl. 1) and reactive power cl. 2	B (cl. 1) and reactive power cl. 2	B (cl. 1) and reactive power cl. 2
Effective power	1%	1%	0,5%, 1%	0,5%, 1%
Energy display	LCD with 6 digits	LCD with 7 digits	LCD with 7 digits	LCD with 7 digits
<b>Environmental</b>				
Operating temperature	-40 °C – +70 °C	-40 °C – +70 °C	-40 °C – +70 °C	-40 °C – +70 °C
Storage temperature	-40 °C – +85 °C	-40 °C – +85 °C	-40 °C – +85 °C	-40 °C – +85 °C
Humidity	75% annual average, 95% on 30 days/year	75% annual average, 95% on 30 days/year	75% annual average, 95% on 30 days/year	75% annual average, 95% on 30 days/year
Fire and heat resistance	Terminal 960 °C, covering 650 °C (IEC 60695-2-1)	Terminal 960 °C, covering 650 °C (IEC 60695-2-1)	Terminal 960 °C, covering 650 °C (IEC 60695-2-1)	Terminal 960 °C, covering 650 °C (IEC 60695-2-1)
Water and dust resistance	IP20 on terminal strip without protective housing and IP51 in protective housing, per IEC 60529	IP20 on terminal strip without protective housing and IP51 in protective housing, per IEC 60529	IP20 on terminal strip without protective housing and IP51 in protective housing, per IEC 60529	IP20 on terminal strip without protective housing and IP51 in protective housing, per IEC 60529
Mechanical environment	Class M1 per Measuring Instrument Directive (MID), (2004/22/EC)	Class M1 per Measuring Instrument Directive (MID), (2004/22/EC)	Class M1 per Measuring Instrument Directive (MID), (2004/22/EC)	Class M1 per Measuring Instrument Directive (MID), (2004/22/EC)
Electromagnetic environment	Class E2 per Measuring Instrument Directive (MID), (2004/22/EC)	Class E2 per Measuring Instrument Directive (MID), (2004/22/EC)	Class E2 per Measuring Instrument Directive (MID), (2004/22/EC)	Class E2 per Measuring Instrument Directive (MID), (2004/22/EC)

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<b>Digital outputs</b>				
Current	2 – 100 mA	2 – 100 mA	2 – 100 mA	2 – 100 mA
Voltage	24 V AC – 240 V AC, 24 V DC – 240 V DC. With meters with only 1 output, 5 – 40 V DC	24 V AC – 240 V AC, 24 V DC – 240 V DC. With meters with only 1 output, 5 – 40 V DC	24 V AC – 240 V AC, 24 V DC – 240 V DC. With meters with only 1 output, 5 – 40 V DC	24 V AC – 240 V AC, 24 V DC – 240 V DC. With meters with only 1 output, 5 – 40 V DC
Output pulse frequency	Programmable: 1 – 999999 pulse/kWh, pulse/MWh	Programmable: 1 – 999999 pulse/kWh, pulse/MWh	Programmable: 1 – 999999 pulse/kWh, pulse/MWh	Programmable: 1 – 999999 pulse/kWh, pulse/MWh
Pulse length	10 – 990 ms	10 – 990 ms	10 – 990 ms	10 – 990 ms
Connection cross-section	0,5 – 1 mm <sup>2</sup>	0,5 – 1 mm <sup>2</sup>	0,5 – 1 mm <sup>2</sup>	0,5 – 1 mm <sup>2</sup>
Recommended tightening torque	0.25 Nm	0.25 Nm	0.25 Nm	0.25 Nm
<b>Digital inputs</b>				
Voltage	0 – 240 V AC/DC	0 – 240 V AC/DC	0 – 240 V AC/DC	0 – 240 V AC/DC
OFF	0 – 12 V AC/DC	0 – 12 V AC/DC	0 – 12 V AC/DC	0 – 20 V AC/DC
ON	57 – 240 V AC/24 – 240 V DC	57 – 240 V AC/24 – 240 V DC	57 – 240 V AC/24 – 240 V DC	45 – 240 V AC/DC
Min. pulse length	30 ms	30 ms	30 ms	30 ms
Connection cross-section	0,5 – 1 mm <sup>2</sup>	0,5 – 1 mm <sup>2</sup>	0,5 – 1 mm <sup>2</sup>	0,5 – 1 mm <sup>2</sup>
Recommended tightening torque	0,25 Nm	0.25 Nm	0.25 Nm	0,25 Nm
<b>Electromagnetic compatibility</b>				
Surge voltage testing	6 kV 1,2/50 $\mu$ s (IEC 60060-1)	6 kV 1,2/50 $\mu$ s (IEC 60060-1)	6 kV 1,2/50 $\mu$ s (IEC 60060-1)	6 kV 1,2/50 $\mu$ s (IEC 60060-1)
Voltage swell testing	4 kV 1,2/50 $\mu$ s (IEC 61000-4-5)	4 kV 1,2/50 $\mu$ s (IEC 61000-4-5)	4 kV 1,2/50 $\mu$ s (IEC 61000-4-5)	4 kV 1,2/50 $\mu$ s (IEC 61000-4-5)
Cable-based transients	4 kV (IEC 61000-4-4)	4 kV (IEC 61000-4-4)	4 kV (IEC 61000-4-4)	4 kV (IEC 61000-4-4)
Immunity from interference from electromagnetic HF fields	80 MHz – 2 GHz (IEC 61000-4-6)	80 MHz – 2 GHz (IEC 61000-4-6)	80 MHz – 2 GHz (IEC 61000-4-6)	80 MHz – 2 GHz (IEC 61000-4-6)
Immunity from interference from conducted interference	150 kHz – 80 MHz (IEC 61000-4-6)	150 kHz – 80 MHz (IEC 61000-4-6)	150 kHz – 80 MHz (IEC 61000-4-6)	150 kHz – 80 MHz (IEC 61000-4-6)
Immunity from interference with harmonics	2 kHz – 150 kHz	2 kHz – 150 kHz	2 kHz – 150 kHz	2 kHz – 150 kHz
High frequency emissions	EN 55022, class B (CISPR22)	EN 55022, class B (CISPR22)	EN 55022, class B (CISPR22)	EN 55022, class B (CISPR22)
Electrostatic discharge	15 kV (IEC 61000-4-2)	15 kV (IEC 61000-4-2)	15 kV (IEC 61000-4-2)	15 kV (IEC 61000-4-2)
Standards	IEC 62052-11, IEC 62053-21 class 1 & 2, IEC 62053-22 class 0,5S, IEC 62053-23 class 2, IEC 62054-21, GB/T 17215.211-2006, GB/T 17215.312-2008 class 1 & 2, GB/T 1725.322-2008 class 0.5S, GB 4208-2008, EN 50470-3 category A, B & C			IEC 62052-11, IEC 62053-21 class 1 & 2, IEC 62053-23 class 2, IEC 62054-21, GB/T 17215.211-2006, GBT 17215.321-2008 class 1 & 2, GB 4208-2008, EN 50470-1, EN 50470-3 category A & B
<b>Mechanical</b>				
Material	Polycarbonate in transparent front glass, top and bottom housing and terminal covering			
Dimensions	<b>35 x 97 x 65 mm (W x H x D)</b>	<b>70 x 97 x 65 mm (W x H x D)</b>	<b>70 x 97 x 65 mm (W x H x D)</b>	<b>123 x 97 x 65 mm (W x H x D)</b>
DIN modules	2	4	4	7