

# Single phase electricity meters A42, 16,7 Hz EQ meters traction version from ABB

The compact and versatile EQ meters A42 are single phase meters with outstanding performance. They are intended for applications where reliable and trustworthy metering is needed for 16,7 Hz.

EQ meters A42 in Platinum version can be used in stand-alone applications or metering network installations with the option of inbuilt M-Bus or Modbus.

## General features

The A42 16,7 Hz meters are ideal for many applications in peripheral equipment where 16,7 Hz is needed but they work also fine in 50 or 60 Hz networks. They are fully four quadrant enabled with active/reactive energy and import/export values in separate registers. The meters support a wide voltage range (100 – 288 VAC) as well as a wide temperature range (-40 to +70 °C). The wide temperature range makes them easy to place in various environments. The display is pixel-oriented and can display up to four quantities at the same time. The power consumption of the meter is very low, less than 0.8 VA which means that even a larger population of meters is not energy demanding hence cheaper to operate.

## Communication

Data from A42 in Platinum version can be collected via pulse output or serial communication. The meters are equipped with four configurable inputs/outputs for 5-240 V AC/DC external supply. Inputs can be used for tariff control, pulses or signals. Outputs can be used for S0 pulses proportionally to the measured energy, signals or various alarms. The meters are available with built-in serial communication interfaces for Modbus RTU (RS-485) or M-Bus.

## Approvals

EQ meters A42 for 16,7 Hz carry a CoC (Certificate of Conformity), which declare that they fulfill the demands raised by the EN standards for compatibility (EMC), electrical requirements, mechanical requirements and accuracy. No tests for smoke and fire or vibrations except what is included in the here mentioned standards have been conducted by ABB.

## MID

When used in 50 Hz applications the A42 552-120 and A42 553-120 meters are MID approved and verified according to appendix D. There are no paragraphs in the EN 50470-3



standards for 16,7 or 60 Hz hence it is not possible to have a MID approval in these frequencies. Still the EQ 16,7 Hz meters are verified in the production for 16,7 Hz according to the same procedure as for 50 Hz.

## Instrumentation

The A42 meters in Platinum version support reading of instrument values.

A large number of electrical properties can be read.

- Active power - Total and per phase
- Reactive power - Total and per phase
- Apperent power - Total and per phase
- Current - Total and per phase
- Voltage - Total and per phase
- Power factor
- Frequency

## Ordering details

6 A transformer CTVT, 4 DIN with IR port

Voltage V	Communication	Type	Order code	Weight 1 pc
<b>Platinum</b>				
Active and reactive measurements, 4 configurable, import/export, tariffs 1-4, tariff control via inputs, communication or clock, previous values, max and min demand, advanced load profiles, harmonics and THD. Cl. 0.5 S, reactive Cl. 2.				
100...288 V AC	RS-485	A42 552 - 120	2CMA170518R1000	0.20
	M-Bus	A42 553 - 120	2CMA170519R1000	0.20

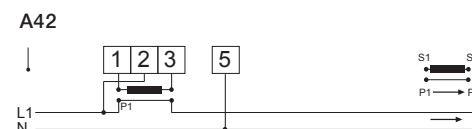
See also catalog 2CMC481003C0201 for the rest of the EQ meters program.

# A series

## Technical data

A42	
<b>Voltage/current inputs</b>	
Nominal voltage	230 V AC
Voltage range	100 ... 288 VAC (-20% - +15%)
Power dissipation voltage circuits	0.8 VA (0.8 W) total
Power dissipation current circuits	0.001 VA (0.001 W) at 230 V AC and $I_n$
Rated current $I_n$	1 A
Transitional current $I_t$	0.05 A
Maximum current $I_{max}$	6 A
Minimum current $I_{min}$	0.01 A
Starting current $I_{st}$	< 1 mA
Terminal wire area	0.5 - 10 mm <sup>2</sup>
Recommended tightening torque	1.5 Nm
<b>Communication</b>	
Terminal wire area	0.5 - 1 mm <sup>2</sup>
Recommended tightening torque	0.25 Nm
<b>Transformer ratios</b>	
Configurable current ratio (VT)	1/999 - 999999/1
Configurable current ratio (CT)	1/9 - 9999/1
<b>Pulse indicator (LED)</b>	
Pulse frequency	5000 imp/kWh
Pulse length	40 ms
<b>General data</b>	
Frequency	16.7 Hz ± 5% and 50/60 Hz ± 5%
Accuracy Class	Cl. 0.5 S and reactive Cl. 2
Active energy	0.5 %
Display of energy	Pixel oriented
<b>Environmental</b>	
Operating temperature	-40°C - +70°C
Storage temperature	-40°C - +85°C
Humidity	75% yearly average, 95% on 30 days/year
Resistance to fire and heat	Terminal 960 °C, cover 650°C (IEC 60695-2-1)
Resistance to water and dust	IP20 on terminal block without protective enclosure and IP51 in protective enclosure, according to IEC 60529.
Mechanical environment	Class M2 in accordance with the Measuring Instrument Directive (MID), (2004/22/EC).
Electromagnetic environment	Class E2 in accordance with the Measuring Instrument Directive (MID), (2004/22/EC).
<b>Outputs</b>	
Current	2 - 100 mA
Voltage	5 - 240 V AC/DC
Pulse output frequency	Programmable: 1 - 999999 imp/kWh
Pulse length	Programmable: 10 - 990 ms
Terminal wire area	0.5 - 1 mm <sup>2</sup>
Recommended tightening torque	0.25 Nm
<b>Inputs</b>	
Voltage	0 - 240 V AC/DC
OFF	0 - 12 V AC/DC
ON	57 - 240 V AC/24 - 240 V DC
Min. pulse length	30 ms
Terminal wire area	0.5 - 1 mm <sup>2</sup>
Recommended tightening torque	0.25 Nm
<b>EMC compatibility</b>	
Impulse voltage test	6 kV 1.2/50µs (IEC 60060-1)
Surge voltage test	4 kV 1.2/50µs (IEC 61000-4-5)
Fast transient burst test	4 kV (IEC 61000-4-4)
Immunity to electromagnetic HF-fields	80 MHz - 2 GHz at 10 V/m (IEC 61000-4-3)
Immunity to conducted disturbance	150 kHz - 80 MHz (IEC 61000-4-6)
Immunity to disturbance with harmonics	2 kHz - 150 kHz
Radio frequency emission	EN 55022, class B (CISPR22)
Electrostatic discharge	15 kV (IEC 61000-4-2)
Standards	IEC 62052-11, IEC 62053-21 class 1 & 2, IEC 62053-22 class 0.5 S, IEC 62053-23 class 2, IEC 62054-21, GB/T 17215.211-2006, GB/T 17215.321-2008 class 1 & 2, GB/T 17215.322-2008 class 0.5 S, GB 4208-2008, EN 50470-1, EN 50470-3 category B & C
<b>Mechanical</b>	
Material	Polycarbonate in transparent front glass, bottom case, upper case and terminal cover. Glass reinforced polycarbonate in polycarbonate in terminal cover.
<b>Dimensions</b>	
Width	70 mm
Height	97 mm
Depth	65 mm
DIN modules	4

### Wiring diagram



### Dimensions

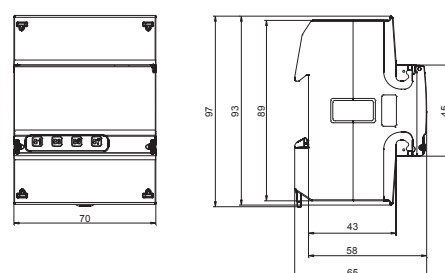


ABB AB Meters management system comply with International Railway Industry Standard (IRIS) Revision 02, May 2009 (Certificate-Register-No.: SWE-IR-000 369) which complements the internationally recognized ISO 9001 quality standard introducing rail specific requirements.

### ABB AB Meters

Low Voltage Products  
Box 1005

S-61129 Nyköping, Sweden  
Telephone +46 155 29 50 00

[www.abb.com/lowvoltage](http://www.abb.com/lowvoltage)

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