

## MMB 700 - Modular measuring equipment for the DIN top hat rail

Download data sheet



### MMB 700

The MMB 700 is a compact high-end power quality measuring device for DIN top hat rail installation. It measures up to 15 currents and 3 voltages in 4-quadrant operation in class 0.05 and thus the work in class 0.2s, as well as all usual network quantities, e.g. harmonics up to the 128th harmonic. The device maps network quality according to EN 50160, EN 61000-2-2, EN 61000-2-4, EN 61000-2-12 and measures in class A\* according to EN 61000-4-30. It has a large 512 MB memory. The device can be accessed via the Ethernet interface and live measured values can be observed using the web browser via the corresponding web server. This enables internet protocols such as NTP to also be read in and PLC systems and building management systems to be connected easily. A serial RS485 interface and a front USB port are also integrated.



The GO firmware module is used to activate oscilloscope functions for current and voltage, and to set trigger signals for limit value events. The PQ A\* software module continuously records and evaluates the power quality according to DIN EN 50160.

3 current inputs are for 5 A transformers and 12 further current channels for feeder measurements via the integrated MMI. The associated 333 mV transformers are conveniently connected with plug-in contacts. Additional MMI 12 modules can be connected to the MMB 700 via RJ45 cable for feeder measurements in transformer stations or LVU. Up to 12 currents can be detected at each of these modules. With a maximum of 5 interconnected modules, up to 60 currents (e.g. 20 x 3-phase loads) can be measured. The current inputs are designed for our J3CT (3-phase transformer set) or the JC (1-phase cable conversion transformer) transformers with 333 mV and offer connection via RJ12 plugs.

\* with FW module PQ A

### Application

The device is used to monitor the voltage quality in computing centres, buildings or at energy suppliers continuously. Furthermore, the MMB 700 is used for multi-channel feeder measurement.

#### Standard

<b>INPUTS</b> 3U, 15I	<b>MEASUREMENT</b> U, I, P, Q	<b>PF, cos, THD</b>	<b>+/-</b> Wh, varh	<b>HARMONICS</b> 128	<b>SAMPLING</b> 28,8 kHz	<b>SUPPLY</b> 24V	<b>CAT IV</b>
<b>NTP</b>	<b>INPUTS</b> Pt100	<b>WEBSERVER</b>	<b>STANDARDS</b> class 0.2S IEC 62053-22	<b>STANDARDS</b> IEC 61557-12	<b>ETH</b>	<b>CURRENT INPUT</b> 333mV	
<b>BATTERY</b>	<b>FLASH</b> 512MB	<b>RS485</b>	<b>MODBUS</b>	<b>CURRENT INPUT</b> X/5A	<b>USB</b>	<b>LOCAL BUS</b>	

#### Optional

<b>STANDARDS</b> class A IEC 61000-4-30	<b>FIRMWARE</b> GO
<b>FIRMWARE</b> RCS	<b>STANDARDS</b> EN 50160

Supply voltage	Measurement voltage		Measuring inputs	Functions			Communication					Type	Item number
				Digital inputs/ outputs	Memory size in MB	Clock	Local Bus	RS485	Ethernet	Gateway Modbus master	USB		
24 V DC	5 - 1470 V LL	8 - 620 V LL	Number	-	512	•	•	•	•	•	•	MMB 700	11.48.2110

## Technical specifications - MMB 700

MMB 700						
Inputs and outputs	Digital inputs/outputs	None				
	Relay inputs/outputs	None				
	Analogue inputs/outputs	None				
	Differential current inputs	None				
	Temperature inputs	None				
Communication	Interfaces	RS485, Ethernet, Front-USB, Local Bus				
	Communication protocols	Modbus RTU, Modbus TCP/IP, SMTP, SNMP, DHCP, JSON				
Further functions	Alarms	integrated logic: Limit values for exceeding/falling below freely defined values				
	Internal temperature measurement	-40 ... 85 °C				
Data logger	Storage capacity and allocation	512 MB flash freely partitionable into several archives				
	Measured value storage	Freely configurable measured values with different averaging intervals				
Electrical connection	Supply voltage	24 V variant: 12 - 26 V AC / 10 - 30 V DCc				
	Power input	4 W				
	Overvoltage category	CAT IV / 300 V				
Accuracy classes	Voltage:	Cl. 0.1	Current:	Cl. 0.1	Frequency:	Cl. 0.02
	Active power:	Cl. 0.2	Reactive power:	Cl. 1	Apparent power:	Cl. 0.2
	Harmonic oscillations:	Cl. 1	Power factor:	Cl. 0.5	cos phi:	Cl. 0.5
	Real energy:	Cl. 0.2	Reactive energy:	Cl. 2	Apparent energy	Cl. 0.5
Measuring inputs	Voltage	U L-N: 3 - 850 V AC U L-L: 5 - 1470 V AC				
	Overload voltage	Permanent U L-N: 4200 V AC / peak overload for max. 1 sec. U L-N: 5600 V AC				
	Input impedance voltage	8.96 MOhm				
	Input load voltage	< 0.1 VA				
	Frequency	40 ... 70 Hz (DC-500 mode: 0 ... 500 Hz)				
	Transformers	3x 1 / 5 A + 12x 333 mV				
	Overload current	Permanent: 15 AAC (666 mV) / peak overload for max. 1 sec: 70 AAC (3,33 V)				
	Input impedance current	< 10 mOhm				
	Input load current	< 1 VA				
	Sampling rate	28.8 kHz				
	Harmonics per order	1st ... 128. for current and voltage; Optional: Supraharmonics from 2 kHz ... 9 kHz				
	Measurement procedure	IEC 61000-4-30 Cl. A				
	Mechanical attributes	Operating temperature range	-25 - 60 °C at < 95 % relative humidity			
Bearing temperature range		-30 - 80 °C at < 95 % relative humidity				
Protection class front / total		IP 40 / IP 20				
Dimensions WxHxD		167 x 90 x 61 mm				
Weight		0.35 kg				
Internal real-time clock	Accuracy	+/- 0.2 s per day at 0 - 40 °C				
	Possible synchronisation	NTP/SNTP; External GPS receiver; External pulses; System frequency; PC time				
FW Module		PQ A: optional		GO: optional		RCS: optional
		MM: optional		UDP: optional		IEC104: optional
		SH: optional				

\* depending on the variant