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-power in control

CE

DATA SHEET



Basic Energy Meter, BEM 380 & BEM 305

- Easy installation
- MID-approved (option)
- Phase error detection
- Low power consumption
- Two-pulse output
- Two tariffs

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1. General information

2. Technical information

3. Ordering information

1. General information

1.1 Application and overview

1.1.1 Application

The energy meters “LCD screen for perfect reading” are used to measure and show three-phase systems like in residential, utility and industrial applications.

1.1.2 Overview

Active energy meters for three-phase alternating current with one 7.2 digit digital counter. These meters have 2 S0 output generating pulses for remote processing of the instantaneous active energy measurements for 2 tariffs.

- For direct connection 80 A, or for transformer .../5 A
- For transformer primary current of 5 A to 10.000/5 A. Input is in 5 A increments
- 9 digits - 4 display for energy values indication
- Detection of connection errors (phase transposition and phase missing)
- Accuracy class 1 for active energy according to EN 50470-3 (B)
- Most actrative operating range current (Ist ... Imax) for direct connection 80 A = 0.015 ... 80 A for connection by CT .../5 A = 0.003 ... 5 A
- Energy register zero setting (not MID)
- Energy register for import and export
- Sealable terminal covers (only MID)
- 4 DIN modules wide (72 mm)

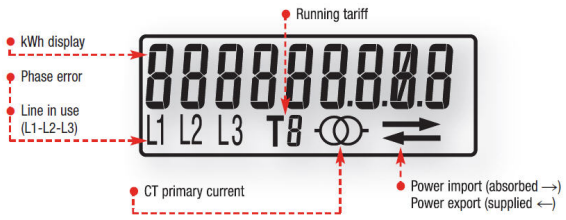
1.1.3 Functionality

Readouts

		Unit	ID
Active energy	Tariff 1 Tariff 2	kWh kWh	Energy absorbed or supplied Energy absorbed or supplied
Phase connection errors			Phase Err
Active phases			L1 - L2 - L3
Primary transformer	5 ... 10.000/5	A	CT (current transformer)

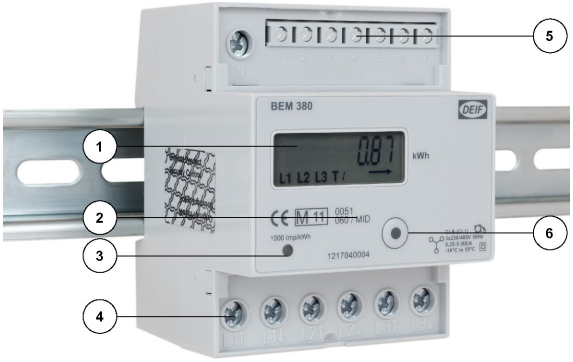
Display

The BEM 380/305 has been fitted with a liquid crystal display.



1.1.4 BEM 380 standard module housing

The standard module housing is suitable for DIN rail mounting, direct connection 80 A.



1. Easy-to-read display
2. Space for the certification can be provided on request MID (the picture shows the MID version)
3. Precision-control LED
4. Supply terminals 80 A direct connection
5. Terminals S0 pulse outlet and tariffs change command
6. Readout selection push-button

1.1.5 BEM 305 standard module housing

The standard module housing is suitable for DIN rail mounting, connection through CT .../5 A till 10.000/5 A.

1. Primary current CT selection (5 to 10,000/5 A 5 A step)
2. Easy-to-read display
3. Space for the certification data can be provided on request MID (the picture shows the MID version)
4. Precision-control LED
5. Terminals S0 pulse outlet and tariffs change command
6. Readout selection push-button
7. Supply terminals CT connection (5 to 10,000 A)

2. Technical information

2.1 Technical data

2.1.1 General characteristics

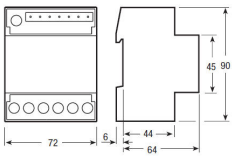
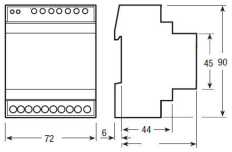
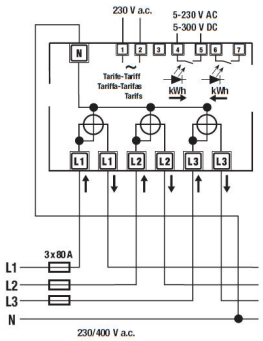
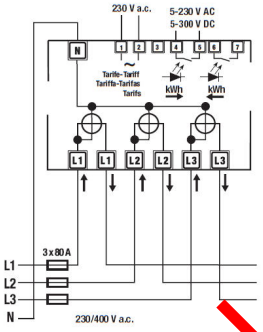
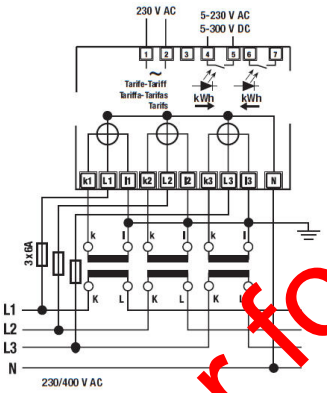
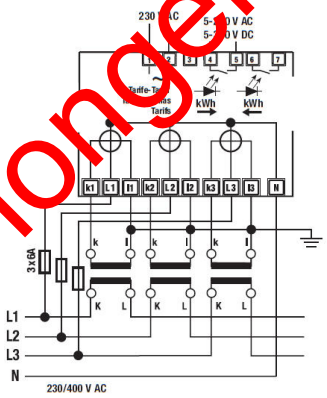
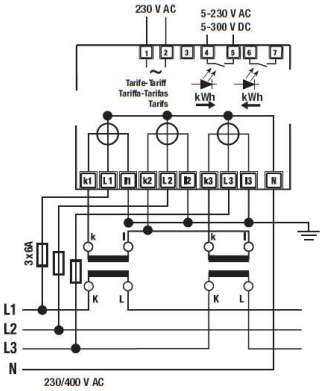
Technical data Data in compliance with EN 50470-1, EN 50470-3 and EN 62053-31			BEM 380 MID BEM 380 direct connec-tion 80 A	BEM 305 MID BEM 305 CT connection till 10,000/5 A
General characteristics				
Housing	DIN 43880	DIN	4 modules	4 modules
Mounting	EN 60715	35 mm	DIN rail	DIN rail
Depth		mm	70	70
Reference standard	active energy	-	EN 50470-1-3	EN 50470-1-3
	pulse output		EN 62053-31	EN 62053-31
Operating features				
Connectivity	to three-phase net-work	n° wires	4	4
Storage of energy values and configuration	digital display (EE-PROM)	-	yes	yes
Display tariffs identifier	for active energy	n° 2	T1 and T2	T1 and T2
Supply				
Rated control supply volt-age Un		V AC	230	230
Operating range voltage		V	184 ... 276	184 ... 276
Rated frequency fn		Hz	50	50
Rated power dissipation (max. for phase) Pv		VA (W)	< 8 (0.6)	< 8 (0.6)
Overload capability				
Voltage Un	continuous: phase/ phase	V AC	480	480
	1 second: phase/ phase	V AC	800	800
	continuous: phase/N	V AC	276	276
	1 second: phase/N	V AC	300	300
Current Imax	continuous	A	80	6
	momentary (0,5 s)	A	-	120
	momentary (10 ms)	A	2400	-

Technical data Data in compliance with EN 50470-1, EN 50470-3 and EN 62053-31			BEM 380 MID BEM 380 direct connec-tion 80 A	BEM 305 MID BEM 305 CT connection till 10,000/5 A
Display (readouts)				
Connection errors and phase out	discernible from phase-sequence in-dic.	-	PHASE Err	PHASE Err
Display type	LCD	n° digits	9 (2 decimal)	9 (2 decimal)
	digit dimensions	mm x mm	6.00 x 3	6.00 x 3
Active energy: 1 display, 9 digit -2 tariffs	min. measuring ener-gy	kWh	0.01	0.01
+ display import or export (arrow)	max. measuring overflow	kWh	9999999.99	9999999.99
Instantaneous tariff meas-urement	1 display, 1-digit	-	T1 or T2	T1 or T2
Transformer primary cur-rent		A	-	5 ... 10,000
Display period refresh		s	1	1
Measuring accuracy				
Active energy	acc.to EN 50470-3	class 1	B	B
Measuring input				
Type of connection			direct	transformer .../5 A
Voltage Un	phase/phase	V AC	400	400
	phase/N	V AC	230	230
Operating range voltage	phase/phase	V AC	319 ... 480	319 ... 480
	phase/N	V AC	184 ... 276	184 ... 276
Current Iref		A	5	-
Current In		A	-	5
Current Imin		A	0.25	0.05
Operating range current (Ist ... Imax)	direct connection	A	0.015 ... 80	-
	transformer connec-tion (CT)	A	-	0.003 ... 6
Transformer current	primary current of the transformer	A	-	5 ...10,000
	smallest input step adjus. in 5 A steps	A	-	5

Technical data Data in compliance with EN 50470-1, EN 50470-3 and EN 62053-31			BEM 380 MID BEM 380 direct connec-tion 80 A	BEM 305 MID BEM 305 CT connection till 10,000/5 A
Frequency		Hz	50	50
Input waveform		-	sinusoidal	sinusoidal
Starting current for energy measurement (Ist)		mA	15	3
Pulse output SO	acc.to EN 62053-31			
Pulse output	for active energy T1 and T2	-	yes	yes
Quantity pulse output	for direct connection 80 A	Imp/kWh	500	-
	depending on the transf. factor.	Imp/kWh	-	100-10-1
Pulse duration		ms	30 ±2 ms	30 ±2 ms
Required voltage	min. (max.)	V AC (DC)	5 ... 230 ±5% (5 ... 300)	5 ... 230 ±5% (5 ... 300)
Permissible current	pulse ON (max. 230 V AC/DC)	mA	90	90
Permissible current	pulse OFF (leak. cur. max. 230 V AC/DC)	µA	1	1
Optical interfaces				
Front side (accuracy con-trol)	LED	imp/kWh	1000	10
Safety acc. to EN 50470-1				
Indoor meter		-	yes	yes
Degree of pollution		-	2	2
Operational voltage		V AC	300	300
AC voltage test (EN 50470-3, 7,2)		kV AC	4	4
Impulse voltage test		1.2/50 µ kV AC	6	6
Protection class (EN 50470)		class	II	II
Housing material flame re-sistance	UL 94	class	V0	V0

Technical data Data in compliance with EN 50470-1, EN 50470-3 and EN 62053-31			BEM 380 MID BEM 380 direct connec-tion 80 A	BEM 305 MID BEM 305 CT connection till 10,000/5 A
Safety-sealing between upper and lower housing part		yes/no	BEM 380 MID: Yes BEM 380: No	BEM 305 MID: Yes BEM 305: No
Connection terminals				
Type cage main current paths	screw head Z +/-	POZIDRIV	PZ2	PZ1
Type cage pulse output	blade for slotted screw	mm	0.8 x 3.5	0.8 x 3.5
Terminal capacity main current paths	solid wire min. (max.)	mm2	1.5 (35)	1.5 (6)
	stranded wire with sleeve min. (max.)	mm2	1.5 (35)	1.5 (6)
Terminal capacity pulse outlet	solid wire min. (max.)	mm2	0.14 (2.5)	0.14 (2.5)
	stranded wire with sleeve min. (max.)	mm2	0.14 (1.5)	0.14 (1.5)
Environmental conditions				
Mechanical environment		-	M1	M1
Electromagnetic environment		-	E2	E2
Operating temperature		°C	-10 ... +55	-10 ... +55
Limit temperature of transportation and storage		°C	-25 ... +70	-25 ... +70
Relative humidity (not condensation)		%	80	80
Vibrations	50 Hz sinusoidal vibration amplitude	mm	±0.075	±0.075
Degree protection	housing when mounted in front (term.)	-	IP51(*)/IP20	IP51(*)/IP20
(*) For the installation in a cabinet at least with IP51 protection.				

2.1.2 Dimensions and circuit diagrams

BEM 380	BEM 305
Overall dimensions	Overall dimensions
	
Circuit diagrams	Circuit diagrams
 	  

3. Ordering information

3.1 Order specifications and disclaimer

3.1.1 Order specifications

Type	Order details
BEM 380	Three phase energy meter, 80A, 2S0, 2 tariffs. Aux. supply: 230V AC/50 Hz DEIF no. 1217040003 EAN no. 5703727110186
BEM 305	Three phase energy meter, CT../5A, 2S0, 2 tariffs. Aux. supply: 230V AC/50 Hz DEIF no. 1217040001 EAN no. 5703727110162
BEM 380 (MID)	Three phase energy meter, 80A, 2S0, 2 tariffs, MID approved. Aux. supply: 230V AC/50 Hz DEIF no. 1217040004 EAN no. 5703727110193
BEM 305 (MID)	Three phase energy meter, CT../5A, 2S0, 2 tariffs, MID approved. Aux. supply: 230V AC/50 Hz DEIF no. 1217040002 EAN no. 5703727110179

3.1.2 Disclaimer

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