DEIF

-power in control

CE

DATA SHEET



Advanced Energy Meter, AEM 380 & AEM 305

- Easy installation
- MID-approved
- 5 optional communication interfaces
- Phase error detection
- Low power consumption
- Two tariffs
- Two-pulse output

DEIF A/S · Frisenborgvej 33 · DK-7800 Skive
Tel.: +45 9614 9614 · Fax: +45 9614 9615
info@deif.com · www.deif.com

Document no.: 4921210134B
SW version: N/A

1. General information

1.1 Application and overview

1.1.1 Application

The energy meters “with a green back-lighted LCD screen for perfect reading” are used to measure three-phase systems or single-phase like in Residential, Utility and Industrial applications. Monitoring of the energy consumption goes via a S0 pulse output. The products can be set up to communicate with LAN, Modbus RTU/ASCII, MBus, and KNX interfaces are used to analyse the energy consumption to reduce the running cost to a minimum for Industrial plants and buildings like offices, hospitals, universities etc.

1.1.2 Overview

Active energy meters for three-phase alternating current with one 7.1 digit digital counter. These meters have 2 S0 output generating pulses for remote processing of the instantaneous energy active and reactive measurements for 2 tariff.

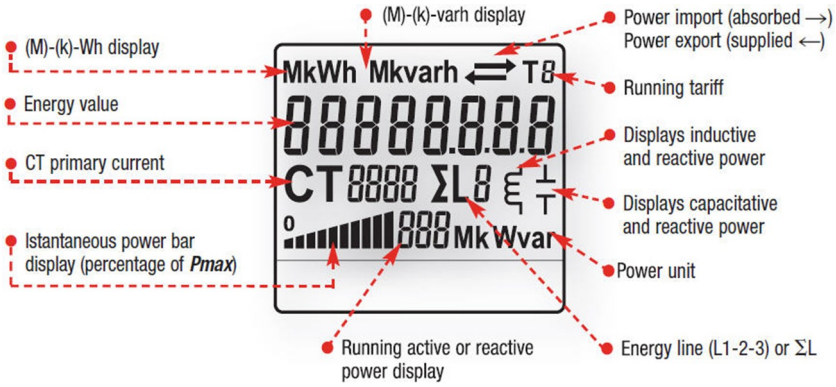
- Green backlighted LCD
- For direct connection 80 A, or for transformer .../5 A
- For transformer primary current of 5 A to 10.000/5 A. Input is in 5 A increments
- 7.1 digit display for energy values indication
- Parameter also readings from front mounted IR in accordance with EN 62056-21
- Detection of connection errors (phase transposition)
- Accuracy class 1 for active energy according to EN 50470-3 (B)
- Accuracy class 2 for reactive energy according to EN 62053-23
- The standard versions are designed to be combined with communication interfaces
- Energy register for import and export
- Instantaneous power active and reactive display
- Sealable terminal covers
- 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
Reactive energy	Tariff 1 Tariff 2	kvarh kvarh	Energy absorbed or supplied Energy absorbed or supplied
Active power		(k-M) W	Utilisation and instantaneous value
Reactive power		(k-M) var	Utilisation and instantaneous value
Connection errors			PHASE Err
Primary transformer	5 ... 10.000/5	A	CT (current transformer)

Display
The AEM 380/305 has been fitted with a liquid crystal display with illuminated green background.



1.1.4 AEM 380 standard module housing

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

1. Backlighting makes the display easy to read
2. Optic control IR for external communication
3. Precision control LED
4. Supply terminals 80 A direct connection
5. Terminals S0 pulse outlet and tariffs change command
6. Space for the certification data can be provided on request
7. Readout selection push-button

1.1.5 AEM 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. CT selection (5 to 10,000/5 A - 5 A step)
2. Backlighting makes the display easy to read
3. Optic control IR for external communication
4. Precision control LED
5. Supply terminals CT connection (5 to 10,000 A)
6. Terminals S0 pulse outlet and tariffs change command
7. Space for the certification data can be provided on request
8. Readout selection push-button

2. Technical information

2.1 Technical data

2.1.1 General characteristics

Technical data In compliance with EN 50470-3, EN 62053-23 and EN 62053-31			Direct connection 80 A	CT connection till 10,000/5 AA
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		-		
	EN 62053-23-31		EN 62053-23-31	EN 62053-23-31
Operating features				
Connectivity	to single/three-phase network	n° wires	2-3-4	2-3-4
Storage of energy values and configuration	digital display (EEPROM)	-	yes	yes
Display tariffs identifier	for active and reactive energy	n° 2	T1 and T2	T1 and T2
Supply				
Rated control supply voltage Un		VAC	230	230
Operating range voltage		V	184 ... 276	184 ... 276
Rated frequency fn		Hz	50	50
Rated power dissipation Pv		VA (W)	<8 (0,6)	<8 (0,6)
Overload capability				
Voltage Un	continuous phase/phase	V	480	480
	1 second: phase/phase	V	800	800
	continuous phase/N	V	276	276
	1 second: phase/N	V	460	460
Current Imax	continuous	A	80	6
	momentary (0,5 s)	A	-	120
	momentary (10 ms)	A	2400	-

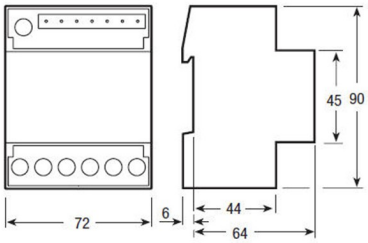
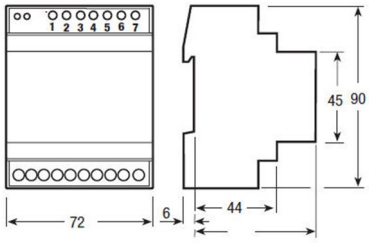
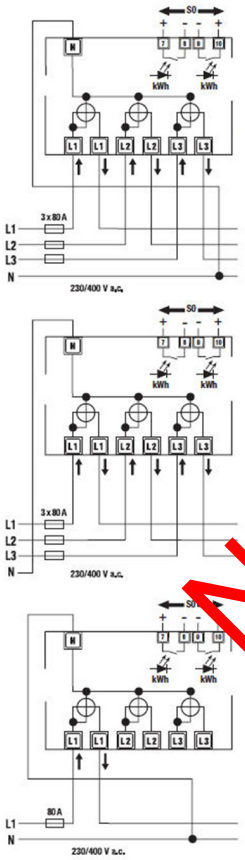
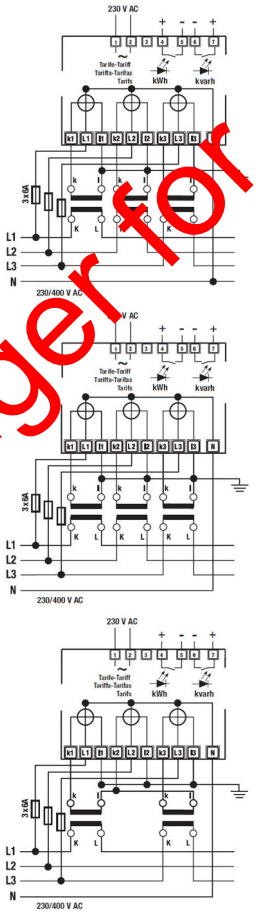
Technical data In compliance with EN 50470-3, EN 62053-23 and EN 62053-31			Direct connection 80 A	CT connection till 10,000/5 AA
Display (readouts)				
Connection errors and phase out	discernible from phase-sequence indic.	-	PHASE Err	PHASE Err
Display type	LCD	n° digits	8 (1 decimal)	8 (1 decimal)
	digit dimensions	mm x mm	6,00 x 3	6,00 x 3
Active energy: 1 display, 8 digit	tariffs 2	kWh	0000000,0 ... 9999999,9	0000000,0 ... 99999999
+ display import or export (arrow)	overflow	kWh	9999999,9 ... 0000000,0	99999999 ... 0000000,0
Reactive energy: 1 display, 8-digit	tariffs 2	kvarh	0000000,0 ... 9999999,9	0000000,0 ... 99999999
+ display import or export (arrow)	overflow	kvarh	9999999,9 ... 0000000,0	99999999 ... 0000000,0
Instantaneous active power: 1 display, 3-digit		W, kW or MW	000 ... 999	000 ... 999
Instantaneous reactive power: 1 display, 3-digit		var, kvar or Mvar	000 ... 999	000 ... 999
Instantaneous tariff measurement	1 display, 1-digit	-	T1 or T2	T1 or T2
Transformer primary current		A	-	5 ... 10,000
Display period refresh		s	2	2
Measuring accuracy	at 23 ±1 °C, referred to nominal values			
Active energy and power	acc.to EN 50470-3	class 1	±1% (B)	±1% (B)
Reactive energy and power	acc.to EN 62053-23	class 2	±2%	±2%
Measuring input				
Type of connection			direct	transformer .../5 A
Voltage Un	phase/phase	V	400	400
	phase/N	V	230	230
Operating range voltage	phase/phase	V	319 ... 480	319 ... 480
	phase/N	V	184 ... 276	184 ... 276
Current Iref		A	15	-
Current In		A	80 A	5
Current Imin		A	0,75	0,05

Technical data In compliance with EN 50470-3, EN 62053-23 and EN 62053-31			Direct connection 80 A	CT connection till 10,000/5 AA
Operating range current (Ist ... Imax)	direct connection	A	0,025 ... 80	-
	transformer connection	A	-	0,010 ... 6
Transformer current	primary current of the transformer	A	-	5 ...10,000
	smallest input step adjus. in 5 A steps	A	-	5
Frequency		Hz	50	50
Input waveform		-	sinus. symm.	sinus. symm.
Starting current for energy measurement (Ist)		mA	25	10
Pulse output SO	acc.to EN 62053-31			
Pulse output	for act. and react. energy T1 and T2	-	yes	yes
Terminal output	for direct connection 80 A	Imp/kWh	500	-
	depending on the transf. factor, adjus.	Imp/kWh	-	100-10-1
Pulse duration		ms	50 ±2 ms	50 ±2 ms
Required voltage	min. (max.)	VAC (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	Imp. OFF (leak. cur. max. 230 V AC/DC)	ìA	1	1
Optical interfaces				
Front side (accuracy control)	LED	imp/kWh	1000	10
Safety acc. to EN 50470-1				
Indoor meter	-	yes	yes	
Degree of pollution	-	4	4	
Operational voltage	V	600	600	
Impulse voltage test	1,2/50 is-kV	6	6	
Housing material flame resistance UL 94	class	V0	V0	

Technical data In compliance with EN 50470-3, EN 62053-23 and EN 62053-31			Direct connection 80 A	CT connection till 10,000/5 AA
Safety-sealing between upper and lower housing part	-	yes	yes	
Adaptor for Communication				
Plug-and-play technology		-		
LAN (TCP/IP)	Ethernet 802,3	-	10/100 Mbps	10/100 Mbps
Modbus RTU, Ascii	RS-485 -2 wires	-	up to 19,200 bps	up to 19,200 bps
MBus	2 wires	-	up to 9,600 bps	up to 9,600 bps
KNX	KNX-standard	-	up to 9,600 bps	up to 9,600 bps
Connection terminals				
Type cage main current paths	screw head Z +/-	POZI-DRIV	PZ2	PZ1
Type cage pulse output	blade for slotted screw	mm	0,6 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	-25 ... +55	-25 ... +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

Technical data In compliance with EN 50470-3, EN 62053-23 and EN 62053-31			Direct connection 80 A	CT connection till 10,000/5 AA
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

AEM 380	AEM 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
AEM 380	Three phase energy meter, 80A, 2S0, 2 tariffs, MID approved. Aux. supply: 230V AC / 50Hz DEIF no. 1217010002 EAN no. 5703727110063
AEM 305	Three phase energy meter, CT../5A, 2S0, 2 tariffs, MID approved, Aux. supply: 230V AC / 50Hz DEIF no. 1217010004 EAN no. 5703727110070
Optional interfaces	
Modbus Interface	MODBUS -Rtu/ASCII for energy and power communication. Aux. supply: 230V AC / 50Hz DEIF no. 1217030001 EAN no. 5703727110100
MBus Interface	M-BUS for energy and power communication DEIF no. 1217030002 EAN no. 5703727110117
KNX Interface	KNX for energy and power communication DEIF no. 1217030003 EAN no. 5703727110124
LAN Interface	LAN TCP/IP server for energy and power measurements. Aux. supply: 230V AC / 50Hz DEIF no. 1217030004 EAN no. 5703727110131
SD Datalog Interface	SD card Data logger, 2GB SD card. Aux. Supply: 12-24V AC/DC DEIF no. 1217030006 EAN no. 5703727110148
SD Power supply	Power supply, 12 VAC 3VA (up to 6 SD Datalog interfaces) DEIF no. 1217030007 EAN no. 5703727110155

3.1.2 Disclaimer

DEIF A/S reserves the right to change any of the contents of this document without prior notice.