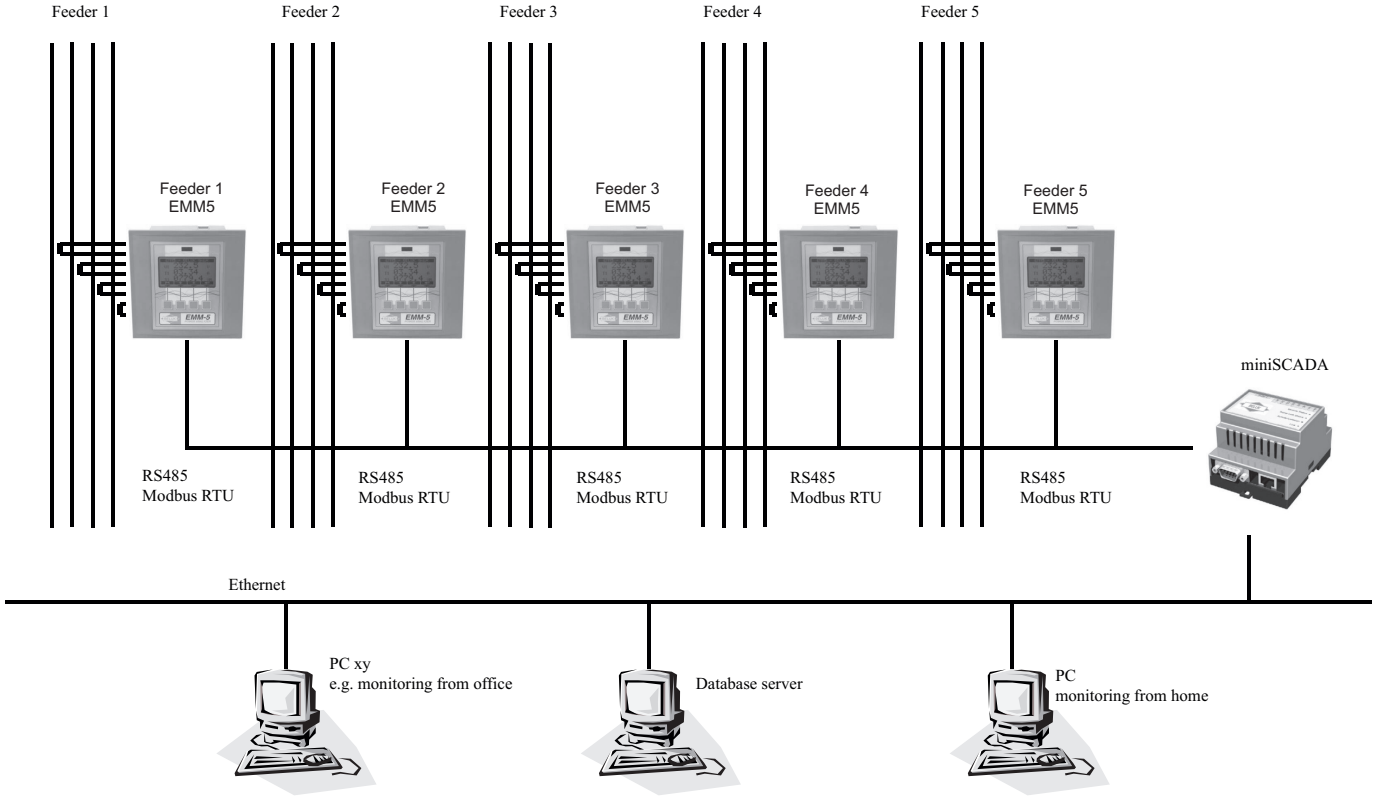
EMM5 - the power and energy monitoring and recording system

- ☞32 programable thresholds in EMM5
- ☞Selection of 52 different measuring values
- ☞Monitoring of exceeding and shortfall
- ☞Delay of alarming and drop-off in the range of 0-600 sec
- ☞Programmable announcement of alarm:
  2 C/O contacts (option -m)
  4 N/O contacts (option -a)
  Text message in LCD
- ☞Event logging with date and time of alarm and drop and information about threshold and max. values (option -DM)
- ☞Blocking of alarming in special situations (e.g. start of a motor) by signal at digital input (option -DM)
- ☞Alarm conditons can be read out by interface RS485 Modbus (Option -MB, -DM)
- ☞Recording of measuring values in programable intervals. Each interval is recorded with date, time, minimum, maximum and mean value of the measuring values. The data can be downloaded to pc by TTL-USB-Convertor and is saved in a csv-file, which can be used with all spread-sheets.

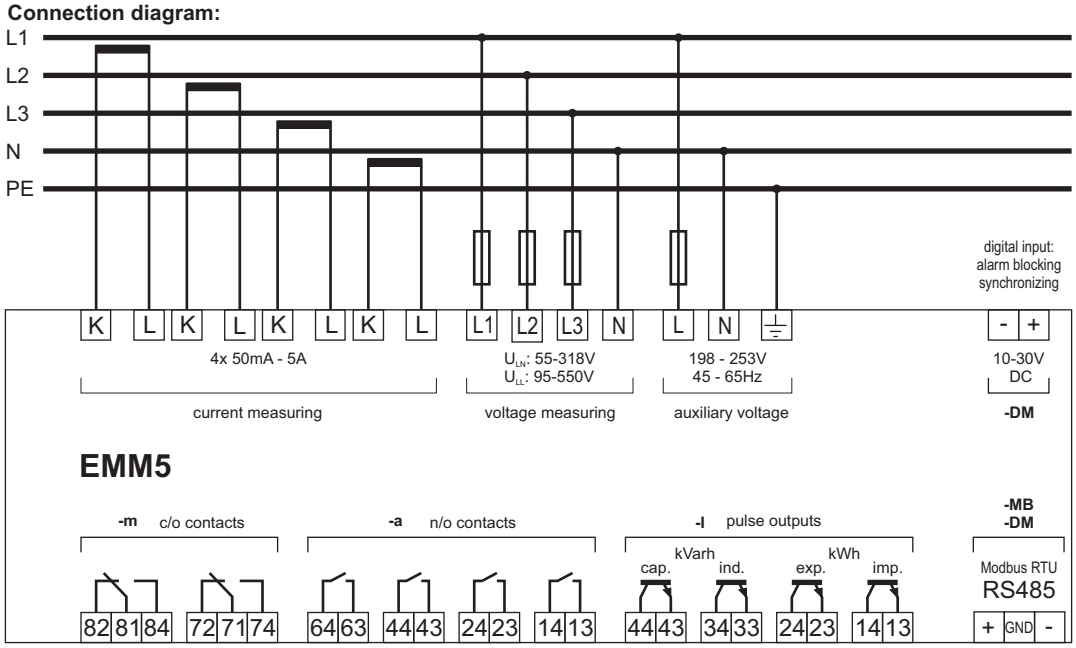
EMM5 and MiniSCADA - the network solution for power applications

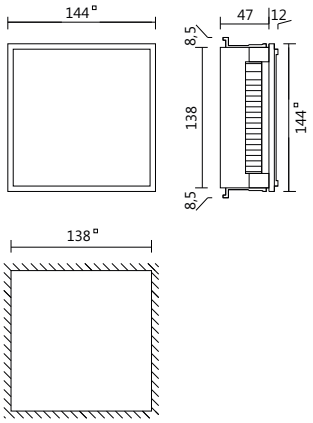


Features EMM5 - MiniSCADA:

- Simple installation
- Complet SCADA System in one device
- DIN-rail mounting of MiniSCADA
- Display and parametering is done by using a web-browser
- No software installation at pc
- Licence fee is included in hardware
- access also by internet
- MiniSCADA is working as Modbus Master
- internal webserver with upto 30 pages
- 64 programable Alarms in MiniSCADA
- Alarming by e-mail
- Alarming by SMS (MiniSCADA2 is necessary)
- Programable command structure for alarm messaging
- Data logging in MiniSCADA with data transmission by e-mail
- MiniSCADA2 is equipped with internal GPRS-modem
- Integration of BLR-CM, BLR-CM3phase and KSR is provided
- Integration of external devices offering a RS485 Modbus RTU slave interface is possible
- 1 MiniSCADA can connect upto 32 devices

Connection diagram:





Measuring Values (display / monitoring / recording)

U_{LN}:	55-318V	+/-0,5%
U_{LL}:	95-550V	+/-0,5%
I L1, L2, L3, N	0,05-5A	+/-0,5%
I_{th} L1, L2, L3, N	0,05-5A	+/-0,5%
I_F L1, L2, L3, N	0,05-5A	+/-0,5%
F:	45-65Hz	+/-0,1Hz
rotation field	right/left	
cosφ L1, L2, L3	c0,00 - i0,00	+/-0,01
Λ L1, L2, L3	0,00 - 1,00	+/-0,01
S L1, L2, L3, tot	0 - 35GVA	+/-0,5%
P L1, L2, L3, tot	0 - 35GW	+/-0,5%
Q L1, L2, L3, tot	0 - 35Gvar	+/-0,5%
THD U	0 - 100%	
THD I	0 - 100%	
Harm. U 2nd - 63rd	0 - 100%	
Harm. I 2nd - 63rd	0 - 100%	
Temperature:	5°C - 80°C	

Metering:

Tariff 1:		
active work import	L1, L2, L3, total	0000000.00kWh - 4000000.00GWh
active work export	L1, L2, L3, total	0000000.00kWh - 4000000.00GWh
reactive work ind	L1, L2, L3, total	0000000.00kvarh - 4000000.00Gvarh
reactive work cap	L1, L2, L3, total	0000000.00kvarh - 4000000.00Gvarh
Tariff 2 (only option -DM):		
active work import	L1, L2, L3, total	0000000.00kWh - 4000000.00GWh
active work export	L1, L2, L3, total	0000000.00kWh - 4000000.00GWh
reactive work ind	L1, L2, L3, total	0000000.00kvarh - 4000000.00Gvarh
reactive work cap	L1, L2, L3, total	0000000.00kvarh - 4000000.00Gvarh

Due to separate metering of all three phases plus total value, EMM5 provides 32 meters.
With option -DM every day the meters are saved, to get a history of the meters.
Tariff switch-over can be done either by an external signal at digital input or every day at a preset time.

Technische Daten:

Auxiliary voltage:	230V +/- 10%, 45-65Hz, 8VA, max. fuse 6A (also available 110V AC, 110V DC, further ratings on request)
Voltage measuring:	U_{LL}: 95V - 550V, U_{LN}: 55 - 318V, 45-65Hz, VT-ratio 1 - 4000
Current measuring:	50mA - 6A, 50A for 1 sec., burden < 1VA, ext. CT is required, CT-ratio 1 - 10000
Temperature measuring:	+5°C - 80°C, temperature sensor on rear
Switching outputs: (optional available)	-a: 4 n/o contacts, voltfree, 250V AC / 5A, 110V DC / 0,3A (induktiv) -m: 2 c/o contacts, voltfree, 250V AC / 5A, 110V DC / 0,3A (induktiv) -I: 4 pulse outputs, solid state, max. 250V DC / 0,1A
Interfaces:	standard: serial interface with TTL signals optional: RS485 Modbus RTU
Display:	graphical LCD 128x64 pixel with backlit, menues in cleartext
Operating:	membrane keyboard with 4 softkeys
Ambient temperature:	operation: -20°C...+70°C; storage: -30°C...+80°C
Humidity:	0% - 95%, without moisture condensation
Overvoltage category:	II, pollution degree 3 (DIN VDE 0110, Teil 1 / IEC 60664-1)
Standards:	DIN VDE 0110-1 (IEC 60664-1:1992 +A1:2000 +A2:2002) VDE 0411-1 (DIN EN 61010-1 / IEC 61010-1:2001) VDE 0843-20 (DIN EN 61326 / IEC 61326)
Approvals:	
Connection:	plugable terminals, screw type, max. 4 sqmm rigid wire
Case:	front: instrument case, plastic (UL94-VO) rear: metal
Protection class:	front IP50 (IP54 by mounting with gasket), rear IP20
Weight:	approx. 650gr
Dimensions:	144x144x58mm, cutout 138(+0,5)x138(+0,5)mm

Available types:

EMM5	standard
EMM5 -m	2 c/o contacts
EMM5 -am	2 c/o contacts 4 n/o contacts
EMM5 -Im	2 c/o contacts 4 pulse outputs

Optional features:

-MB	RS485 Modbus RTU
-DM	RS485 Modbus RTU event logger measuring recorder real time clock digital input 2048 kB

Assesories:

MiniSCADA	web-gateway RS485 Modbus ethernet alarming by e-mail webserver
MiniSCADA2	web-gateway RS485 Modbus ethernet alarming by e-mail alarming by SMS webserver internal GPRS modem
UMS9	TTL-USB converter