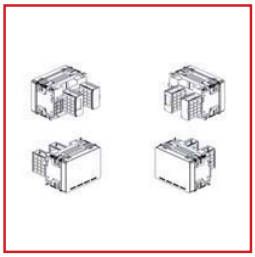
NET-ANALYSER NA96 AND NA96+


NA96


NA96+



GENERAL INFORMATION

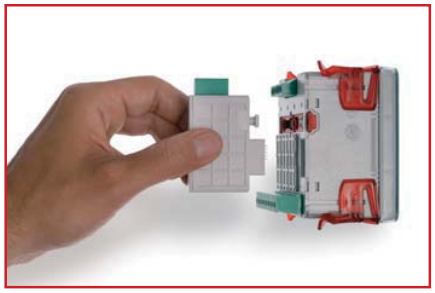
- Multifunction measurements (4 quadrants)
- Active energy metering (2 quadrants)
- AC supply
- Single-phase, three-phase or 4-wire (adjustable)
- Connection with external dedicated CT (optional)
- 2 pulse outputs (relay) for energy (optional module)
- 2 relay outputs (optional module)
- 2 analogue outputs (optional module)
- RS485 communication (optional module)
- Profibus communication (optional module)
- Lon-Works (optional module)
- M-bus (optional module)
- Fast mounting

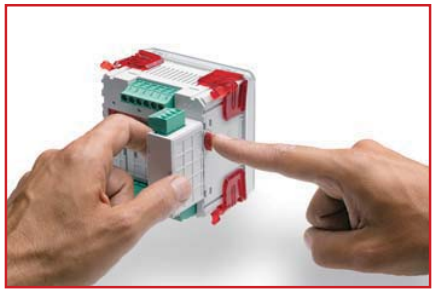
SCHRACK-INFO

- 4-quadrant measurement
- Voltage – phase - phase
- Minimum voltage per phase
- Maximum voltage per phase
- Harmonic content of each phase
- Current – phase and neutral, average per phase, maximum average per phase, total current, harmonic content of each phase
- Total output – active, reactive and apparent power, power per phase – active, reactive and apparent power, average, maximum average
- Power factor – overall, per phase
- Frequency
- Working hours
- Active energy– positive overall, positive for each phase
- Reactive energy– positive overall, positive for each phase
- Active energy – negative overall
- Reactive energy – negative overall

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APPLICATION







TECHNICAL DATA

HOUSING	
Panel cut-out flush mounting	92 x 92 mm
Front frame	96 x 96 mm
Depth	62 mm, 81 mm (including optional module)
Connection	Screw terminal, voltage – max. 4 mm^2, current – max. 6 mm^2
Housing material	Polycarbonate (self-extinguishing)
Degree of protection	IP 54 (front) – IP 20 (terminals)
AMBIENT CONDITIONS	
Reference temperature	23 °C + 2 °C
Operating temperature	-5 to 55 °C
Max. temperature range (storage/transport)	-25 to 70 °C
Temperature influence	≤ 0.1%/°C
Power loss	≤ 5 W
DISPLAY	
LCD backlit 68 x 65 mm	Backlighting switches off automatically after 20 seconds without operation
Measuring display	4 lines – 4 digits
Reading update:	1.1 seconds
Energy count	8 digits (6+2 decimals)
Accuracy (+ 1 digit)	
Active energy	NA96: Class 1 (EN62053-21), NA96+: Class 0.5 (EN62053-21)
Reactive energy	Class 2 (EN62053-23)
Voltage	NA96: ± 0.5% (80 .... 500 V phase-phase), NA96+: ± 0.2% (80 .... 690 V phase-phase)
Current	NA96: ± 0.5% (10 .... 120% I_n), NA96+: ± 0.2% (10 .... 120% In)
Power	NA96: ± 1% (10 .... 120% Pn, Qn, Sn), NA96+: ± 0.5% (10 .... 120% Pn, Qn, Sn)
Power factor	NA96: ± 1% (0.5 ind ….. 0.5 cap), NA96+: ± 0.5% (0.5 ind ….. 0.5 cap)
Frequency	± 0.15 Hz
PROGRAMMING	4 front keys, access protected by password Parameter retention in non-volatile memory
PROGRAMMABLE PARAMETERS	
Mains type	1-phase or 3/4-phase connection
Current rating	1 – 5 A
Transformer ratio	NA96: 1...10 (voltage – max. primary voltage 1,200 V) NA96+: 1...3000 (voltage – max. primary voltage 300,000 V) 1...9999 (current – max. primary current 50 kA/5 A – 10 kA/1 A)
Communication (optional modules)	e.g.: RS 232, address, baud rate, parity bit
Pulse value	Active or reactive energy, significance, pulse duration
Relay	Allocation of measured variable, threshold, min. or max. – NO or NC, hysteresis, On delay, Off delay
Current and power average	Integration time 5/8/10/15/20/30/60 minutes
Display	Contrast: 4 levels
Backlight	0–30 – 70–100%
Display page	After switch-on (measured quantity)
INPUT	AC, three-phase mains 3- and 4-wire connection
Voltage	NA96: 80 .... 500 V (three-phase AC mains phase-phase), NA96+: 80 .... 690 V (three-phase AC phase-phase) NA96: 50 ..... 290 V (AC mains), NA96+: 50 ..... 400 V (AC mains)
Current rating	5 A – 1 A – only current transformer connection
Max. current I_{max}	1.2 In continuous
Overload	20 In/0.5 s
Nominal frequency	50 Hz
Operating frequency	47 .... 63 Hz
Type of measurement	Tue RMS value
Harmonic content	NA96: up to the 16th harmonic, NA96+: up to the 22nd harmonic
Start of measurement (energy meter)	< 5 s
Intrinsic consumption	Voltage path: < 0.5 VA (per phase), current path: < 0.5 VA (per phase)

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TECHNICAL DATA – continued

AUXILIARY VOLTAGE	
Auxiliary voltage	80 ..... 265 V AC
Nominal frequency	50 Hz
Operating frequency	47 .... 63 Hz
Intrinsic consumption	≤ 4 VA (without optional modules)
Auxiliary voltage	110 ..... 300 V DC
Intrinsic consumption	< 3.5 W (without optional modules)
Reverse polarity protection	
INSULATION	
Installation category	III
Pollution degree	2
Insulation voltage rating	300 V (phase - neutral)
Surge voltage protection	6 kV, 1.2/50 µs, 0.5 J
Test circuit	Measurement input, auxiliary voltage
Test voltage	4 kV, rms, 50 Hz/1 min
Test circuit	All circuits and earth
ELECTROMAGNETIC COMPATIBILITY	
Emission and immunity tests	Acc. to EN 62052-11
AMBIENT CONDITIONS	
Reference temperature	23 °C ± 2 °C
Operating temperature	–5 ... 55 °C
Limit range for storage and transport	–25 ... 70 °C
Temperature influence	≤ 0.1%/°C
Power dissipation for thermal dimensions of the control cabinet	≤ 5 W

DESCRIPTION	EAN CODE	AVAILABLE	ORDER NO.
Net analyser NA96 basic unit	9004840550993		MGF39000
Net analyser NA96+ basic unit	9004840618419		MGF39001



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PLUG-IN MODULE ALARM CONTACTS, 2 INDEPENDENT AND INSULATED LIMIT CONTACTS

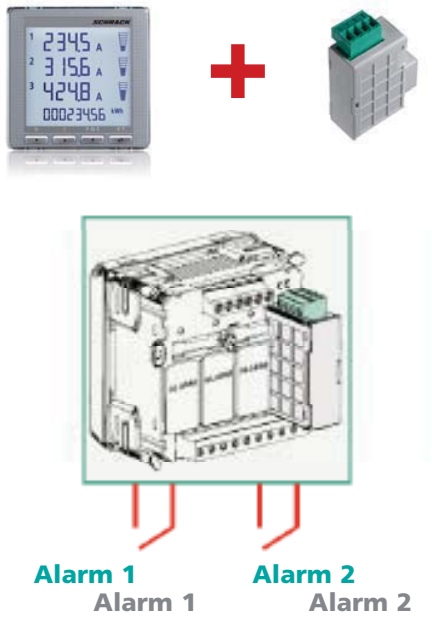


MGF3900A

SCHRACK-INFO

Programming of: measured quantity, limit value, type of alarm, relay behaviour, hysteresis, On delay, and Off delay. The NA96 and NA96+ modules in conjunction with the multi-function module allow the monitoring of two measured quantities by two limit contacts. Each multi-function module, NA96 and NA96+, can accommodate up to two MGF3900A modules so that 4 limit contacts are available.

NA96 AND NA96+ MGF3900A



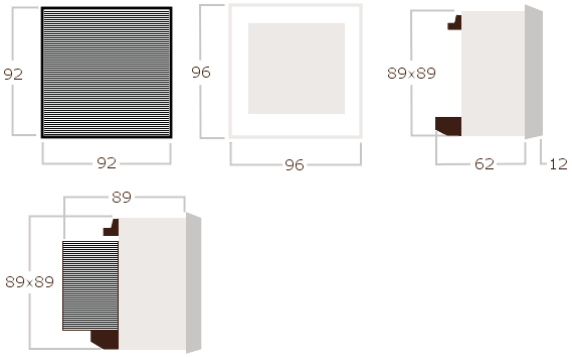
PROGRAMMABLE PARAMETERS

Measured quantity: for each output according to the table below

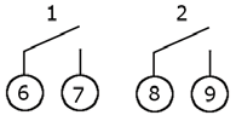
MEAS			
3n3E	**3-3E**	**3-2E**	**1-n1E**
U1			**U1**
U2			
U3			
U12	**U12**	**U12**	
U23	**U23**	**U23**	
U31	**U31**	**U31**	
A1	**A1**	**A1**	**A2**
A2	**A2**	**A2**	
A3	**A3**	**A3**	
P1			
P2			
P3			
VAr1			
VAr2			
VAr3			
P	**P**	**P**	**P**
Var	**Var**	**Var**	**Var**
PF	**PF**	**PF**	**PF**
FrEg	**FrEg**	**FrEg**	**FrEg**

3n3E	4-wire three-phase mains, 3 current transformers
3-3E	3-wire three-phase main, 3 current transformers
3-2E	3-wire three-phase power, 2 current transformers (ARON)
1n1E	AC mains
U1-U2-U3	Phase voltage
U12-U23-U31	Phase-to-phase voltage
A1-A2-A3	Phase current
P1-P2-P3	Active power (phase)
P	Active power (total); single-phase for mains type 1n1E
VAr1-VAr2-VAr3	Reactive power (phase)
VAr	Reactive power (total); single-phase for mains type 1n1E
PF	Power factor
FrEq	Frequency
Limit value	
Alarm type:	Min and Max contact
Relay state:	Relay On or Off in normal state
Hysteresis:	0…20%
On delay:	0…99 s
Off delay:	0…99 s

DIMENSIONS



CONNECTION DIAGRAM



Page 549

TECHNICAL DATA

OUTPUT	
2 relays with CO contacts SPDT-NO, potential-free	
Contact load:	5 A 250 V AC cosj 1 – 3A 250 V AC - cosφ 0.4 – 5 A 30 V DC
AUXILIARY VOLTAGE (data apply to a combination of NA96 + MGF3900A module)	
Intrinsic consumption MGF3900A:	≤ 1 VA
Intrinsic consumption NA96 + module MGF3900A:	≤ 5 VA
Intrinsic consumption NA96 + 2 modules MGF3900A:	≤ 6 VA
ELECTRICAL SAFETY (data apply to a combination of NA96 + MGF3900A module)	
Test voltage:	2 kV rms 50 Hz/1 min
Test circuits:	Measurement input, auxiliary voltage, output 1 - output 2
HOUSING	
Housing:	Module with connector (for connecting to NA96)
Housing depth:	81 mm (NA96 + module)
Connection:	Screw terminal
Connection:	Rigid cable max. 4.5 mm², flexible cable max. 2.4 mm²
Housing material:	Polycarbonate, self extinguishing
Weight:	40 grams

DESCRIPTION	EAN CODE	AVAILABLE	ORDER NO.
Plug-in module for alarm output, 2 limit contacts	9004840551006		MGF3900A



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PLUG-IN MODULE WITH PULSE OUTPUT FOR ENERGY MEASUREMENTS 2 INDEPENDENT AND GALVANICALLY ISOLATED OUTPUTS



MGF3900I

SCHRACK-INFO

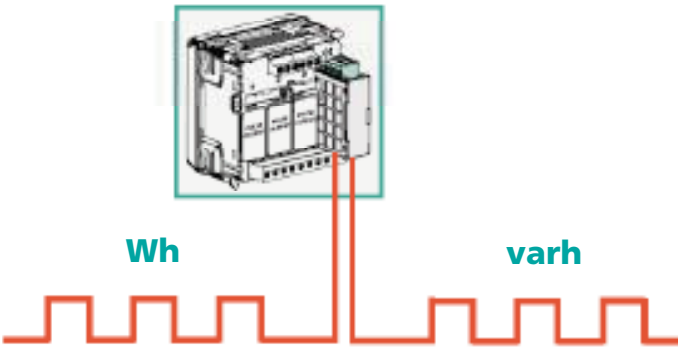
Programming of: Energy allocation (active and/or reactive), pulse value and pulse duration. The module MGF3900I in combination with a device of type NA96 and NA96+ allows the transfer of energy values. Both independent and galvanically isolated pulse outputs can be freely allocated to active and/ or reactive energy. For each device (NA96), a maximum of two modules MGF3900I can be used, resulting in 4 pulse outputs.

NA96 AND NA96+

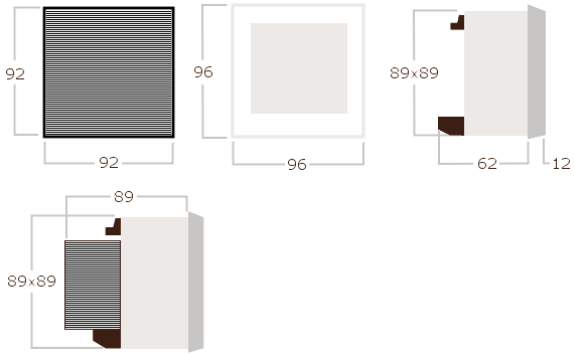


MGF3900I

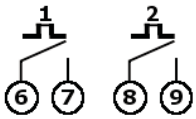




DIMENSIONS



CONNECTION DIAGRAM



TECHNICAL DATA

PROGRAMMABLE PARAMETERS (for each output)	
Allocatable quantity:	Active or reactive energy
Pulse value:	1 pulse/10 Wh - 100 Wh - 1 kWh - 10 kWh - 100 kWh - 1 MWh - 10 MWh
	1 pulse/10 Varh - 100 Varh - 1 kvarh - 10 kvarh - 100 kvarh - 1 Mvarh - 10 Mvarh
Pulse duration:	50 - 100 - 200 - 300 ms
OUTPUT	
2 optical relays with potential-free contacts SPST-NO	
Loading capacity:	110 V AC / DC - 50 mA
AUXILIARY VOLTAGE (data apply to a combination of NA96 + module MGF3900I)	
Intrinsic consumption MGF3900I:	≤ 1 VA
Intrinsic consumption NA96 + module MGF3900I:	≤ 5 VA
Intrinsic consumption NA96 + 2 modules MGF3900I:	≤ 6 VA
ELECTRICAL SAFETY (data apply to a combination of NA96 + module MGF3900I)	
Test voltage:	2 kV rms 50 Hz/1 min
Test circuits:	Measurement input, auxiliary voltage, output 1 - output 2
HOUSING	
Housing:	Plug-in housing with connection for NA96
Housing depth:	81 mm (NA96 + module)
Connection:	Screw terminal
Connection:	Rigid cable max. 4.5 mm², flexible cable max. 2.5 mm²
Housing material:	Polycarbonate, self extinguishing
Weight:	40 grams

DESCRIPTION	EAN CODE	AVAILABLE	ORDER NO.
Plug-in module for pulse output	9004840551020		MGF3900I

PLUG-IN MODULE ANALOGUE OUTPUT, 2 INDEPENDENT AND ISOLATED OUTPUTS

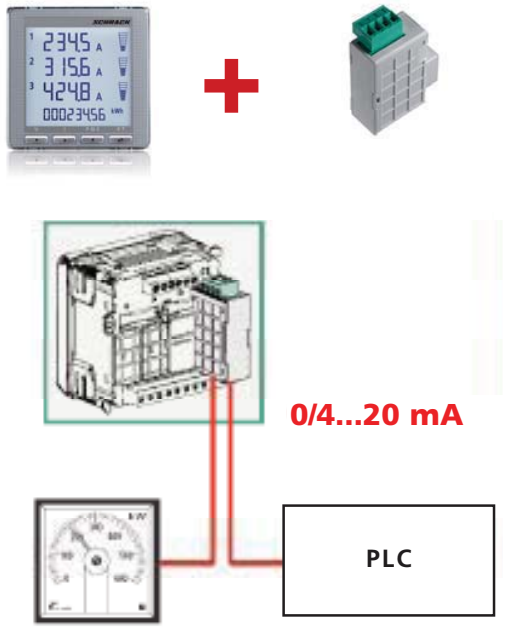


MGF3900M

SCHRACK-INFO

Programming of: Measured quantity, initial value of the measuring range, final value of the measuring range, output 0...20 mA - 4...20 mA. The module MGF3900M in conjunction with the multi-function module NA96 and NA96+ allows the mapping of two measured quantities to the analogue signal 0... 20 mA signal and/or 4... 20 mA. Each multi-function module NA96 and NA96+ can accommodate a maximum of 2 modules MGF3900M so that 4 analogue outputs are available.

NA96 AND NA96+ MGF3900M



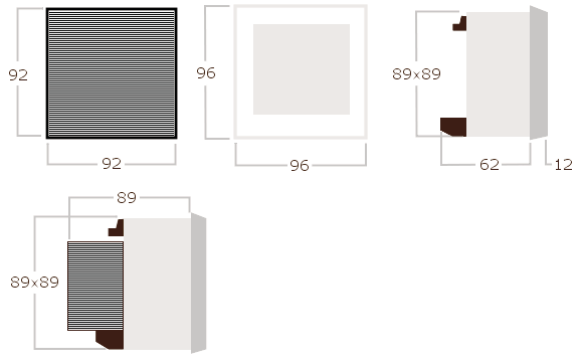
PROGRAMMABLE PARAMETERS

Measured quantity: for each output according to the table below

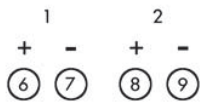
MEAS			
3n3E	**3-3E**	**3-2E**	**1-n1E**
U1			U1
U2			
U3			
U12	U12	U12	
U23	U23	U23	
U31	U31	U31	
A1	A1	A1	A2
A2	A2	A2	
A3	A3	A3	
P1			
P2			
P3			
VAr1			
VAr2			
VAr3			
P	P	P	P
Var	Var	Var	Var
PF	PF	PF	PF
FrEg	FrEg	FrEg	FrEg

3n3E	4-wire three-phase mains, 3 current transformers
3-3E	3-wire three-phase main, 3 current transformers
3-2E	3-wire three-phase power, 2 current transformers (ARON)
1n1E	AC mains
U1-U2-U3	Phase voltage
U12-U23-U31	Phase-to-phase voltage
A1-A2-A3	Phase current
P1-P2-P3	Active power (phase)
P	Active power (total); single-phase for mains type 1n1E
VAr1-VAr2-VAr3	Reactive power (phase)
VAr	Reactive power (total); single-phase for mains type 1n1E
PF	Power factor
FrEq	Frequency
Output signal:	0...20 mA - 4...20 mA
Initial value of the measuring range:	Value of the measured quant. that is 0 mA (for output 0 .. 20 mA) or 4 mA (for output 4...20 mA).
Final value of the measuring range:	Value of the measured quantity that is 20 mA

DIMENSIONS



CONNECTION DIAGRAM



TECHNICAL DATA

OUTPUT	
Type:	Unidirectional
Accuracy:	Class 0.5
Set time:	≤ 600 ms
Nominal current:	0...20 and 4...20 mA
Output burden:	≤ 750 Ω
AUXILIARY VOLTAGE (data apply to a combination of NA96 + module MGF3900M)	
Intrinsic consumption MGF3900M:	≤ 1 VA
Intrinsic consumption NA96 + module MGF3900M:	≤ 6 VA
Intrinsic consumption NA96 + 2 modules MGF3900M:	≤ 8 VA
ELECTRICAL SAFETY (data apply to a combination of NA96 + module MGF3900M)	
Test voltage:	2 kV rms 50 Hz/1 min
Test circuits:	Measurement input, auxiliary voltage, output 1 - output 2
HOUSING	
Housing:	Module with connector (for connecting to NA96)
Housing depth:	81 mm (NA96 + module)
Connection:	Screw terminal
Connection:	Rigid cable max. 4.5 mm², flexible cable max. 2.4 mm²
Housing material:	Polycarbonate, self extinguishing
Weight:	40 grams

DESCRIPTION	EAN CODE	AVAILABLE	ORDER NO.
Plug-in module for analogue values	9004840551013		MGF3900M



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PLUG-IN MODULE M-BUS INTERFACE FOR NA96 AND NA96+

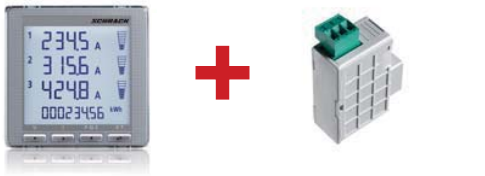

NA96

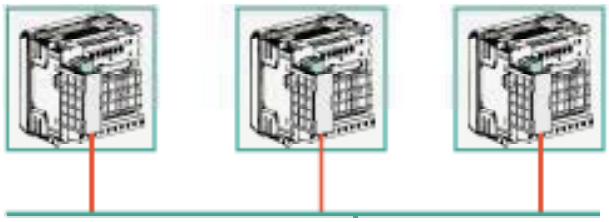

MGF3900B

SCHRACK-INFO

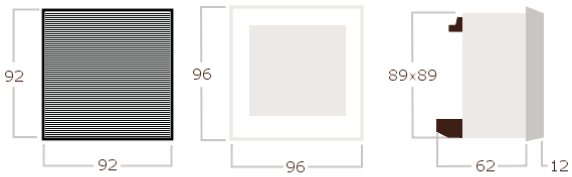
The module MGF3900B in conjunction with the device of type NA 96 allows reading of kWh by the M-bus interface. Not calibratable!

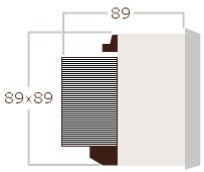
NA96 AND NA96+ MGF3900B



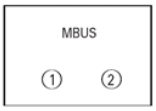


DIMENSIONS





CONNECTION DIAGRAM



TECHNICAL DATA

M-BUS COMMUNICATION – Galvanic isolation between input and supply (NA96/NA96+)

Standard:	EN1434-3
Transfer:	Asynchronous serial
Protocol:	M-BUS
Number of bits:	8
Stop bit:	1

PROGRAMMABLE PARAMETERS

Address:	0...250
Baud rate:	300 - 600 - 1,200 - 2,400 - 4,800 - 9,600 bps

AUXILIARY VOLTAGE (The quantities depend on the combination NA96/ NA96+ and module)

Intrinsic consumption:	≤ 5 VA

ELECTRICAL SAFETY (The data depend on the combination of from NA96/NA96+ and module MGF39000B)

Test voltage:	AC 2 kV rms 50 Hz/1 min
Test circuits:	Measurement input, auxiliary voltage

HOUSING

Housing:	Plug-in housing with connection for NA96
Max housing depth:	81 mm (NA96 + module)
Connections:	Screw terminals
Input terminals:	Rigid cable max. 4.5 mm², flexible cable max. 2.5 mm²
Housing material:	Self-extinguishing plastic
Weight:	30 grams

DESCRIPTION	EAN CODE	AVAILABLE	ORDER NO.
Plug-in module for M-bus	9004840665994		MGF3900B

PLUG-IN MODULE PROFIBUS COMMUNICATION FOR NA96 AND NA96+



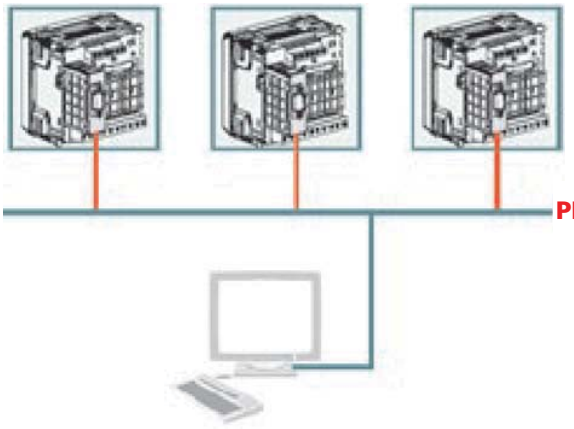
MGF3900P

SCHRACK-INFO

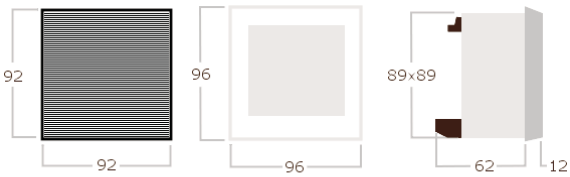
The module MGF3900P in conjunction with the multi-function module NA 96 and NA96+ allows the readout of all measured values and configuration parameters via PROFIBUS communication.

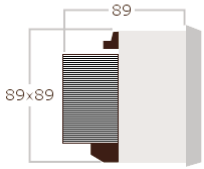
NA96 AND NA96+ MGF3900P



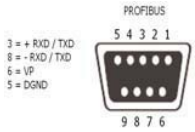


DIMENSIONS





CONNECTION DIAGRAM



TECHNICAL DATA

PROFIBUS COMMUNICATION – Galvanic isolation between input and auxiliary voltage (NA96)

Standard:	PROFIBUS EN50170
Response time:	≤ 10 ms
Maximum distance from master:	Standard
Baud rate:	up to 3 Mbps

PROGRAMMABLE PARAMETERS

Address:	1...127

AUXILIARY VOLTAGE (data apply to a combination of NA96 + module MGF3900P)

Intrinsic consumption:	≤ 5 VA

ELECTRICAL SAFETY (data apply to a combination of NA96 + module MGF3900P)

Test voltage:	2 kV rms 50 Hz/1 min
Test circuits:	Measurement input, auxiliary voltage, output 1 - output 2

HOUSING

Housing:	Module with connector (for connecting to the device NA96)
Housing depth:	81 mm (NA96 + module)
Connection:	SUB-D, 9-pole
Housing material:	Polycarbonate, self extinguishing
Weight:	50 grams

DESCRIPTION	EAN CODE	AVAILABLE	ORDER NO.
Plug-in module for Profibus	9004840554281		MGF3900P

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PLUG-IN MODULE LONWORKS FOR NA96 AND NA96+



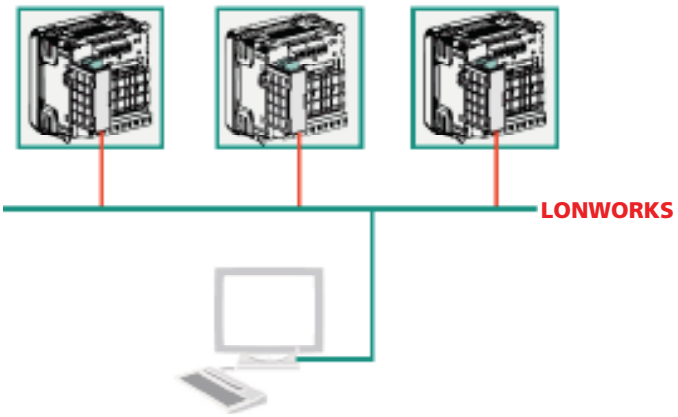
MGF3900L

NA96 AND NA96+

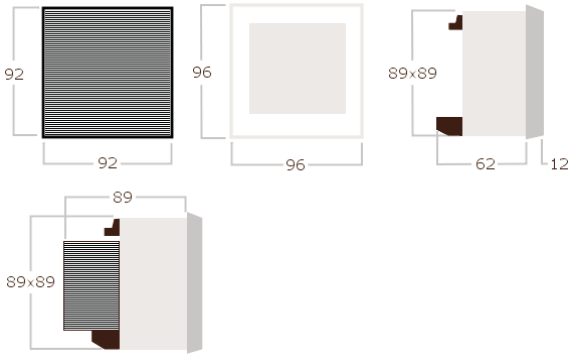


MGF3900M





DIMENSIONS



TECHNICAL DATA

LONWORKS COMMUNICATION – Galvanic isolation between input and auxiliary voltage (NA96)

Standard:	FTT10

AUXILIARY VOLTAGE (data apply to a combination of NA96 + module MGF3900L)

Intrinsic consumption:	≤ 5 VA

ELECTRICAL SAFETY (data apply to a combination of NA96 + module MGF3900L)

Test voltage:	1 kV rms 50 Hz/1 min

HOUSING

Housing:	Module with connector (for connecting to the device NA96)
Housing depth:	81 mm (NA96 + module)
Housing material:	Polycarbonate, self extinguishing
Weight:	50 grams

DESCRIPTION	EAN CODE	AVAILABLE	ORDER NO.
Plug-in module for LonWorks	9004840586107		MGF3900L

PLUG-IN MODULE RS485 INTERFACE FOR NA96 AND NA96+

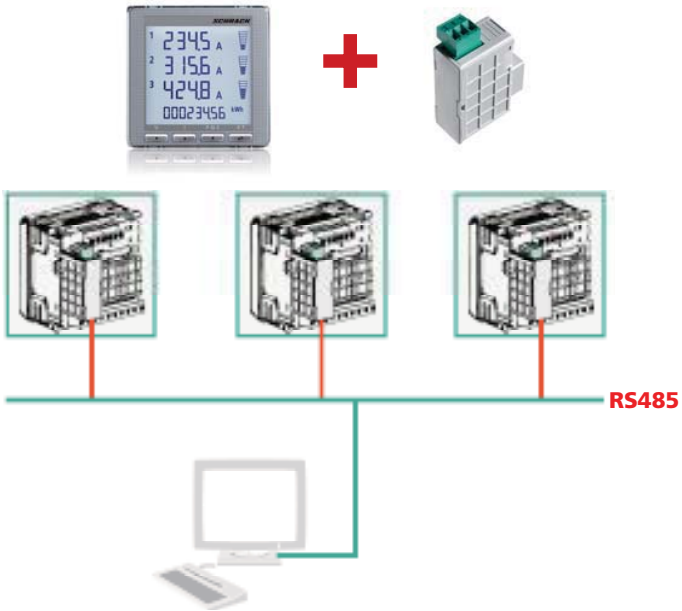


MGF3900R

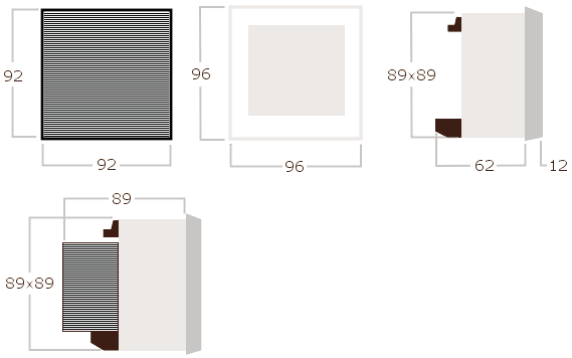
SCHRACK-INFO

The module MGF3900R in conjunction with the device of type NA 96 and NA96+ allows read-out of all available parameterized data through the RS485 interface.

NA96 AND NA96+ MGF3900R



DIMENSIONS



CONNECTION DIAGRAM



TECHNICAL DATA

RS485 INTERFACE – Galvanic isolation between input and supply (NA96)

Standard:	RS485 - 3-wire
Transfer:	Asynchronous serial
Protocol:	Compatible with JBUS / MODBUS
Number of bits / stop bits:	8 / 1
Data read-out time:	≤ 200 ms
Number of devices to be connected:	32 (up to 255 with RS485 repeater)
Maximum distance of devices:	1200m

PROGRAMMABLE PARAMETERS

Address:	1...255
Transfer speed:	4,800 - 9,600 - 19,200 - 38,400 bps
Parity bit:	none - even - odd

AUXILIARY VOLTAGE (data apply to a combination of NA96 + module MGF3900R)

Intrinsic consumption:	≤ 5 VA

ELECTRICAL SAFETY (data apply to a combination of NA96 + module MGF3900R)

Test voltage:	2 kV rms 50 Hz/1 min
Test circuits:	Measurement input, auxiliary voltage, output 1 - output 2

HOUSING

Housing:	Plug-in housing with connection for NA96
Housing depth:	81 mm (NA96 + module)
Connection:	Screw terminal
Connection:	Rigid cable max. 4.5 mm², flexible cable max. 2.5 mm²
Housing material:	Polycarbonate, self extinguishing
Weight:	30 grams

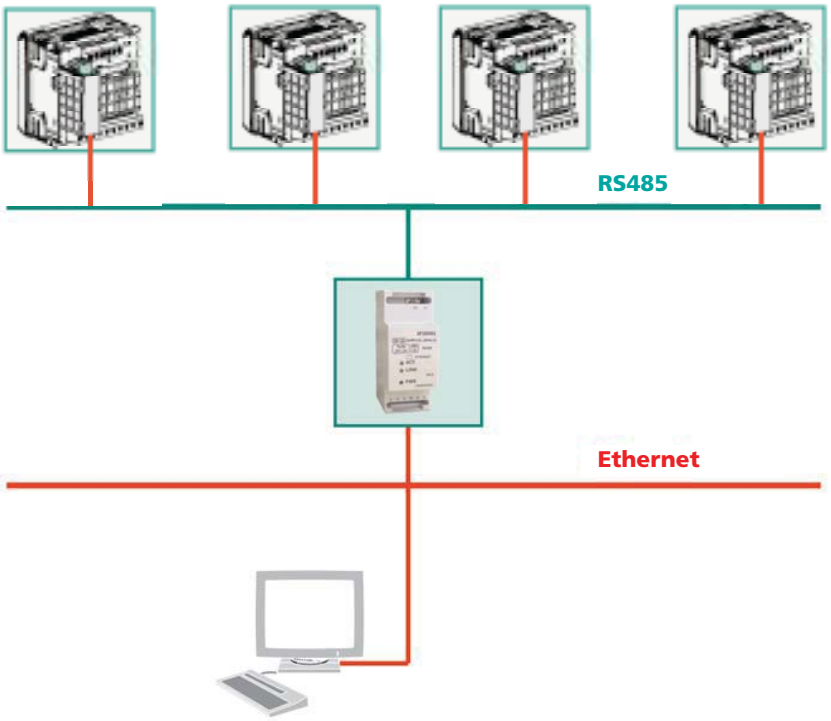
DESCRIPTION	EAN CODE	AVAILABLE	ORDER NO.
Plug-in module for RS485 interface	9004840551037		MGF3900R

Order no. blue: on stock, usually ready for delivery on the day of order!

ETHERNET INTERFACE RS485 COMMUNICATION, 2 MODULES, FOR NA96 AND NA96+

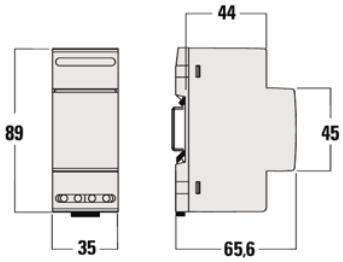


MGZEM001

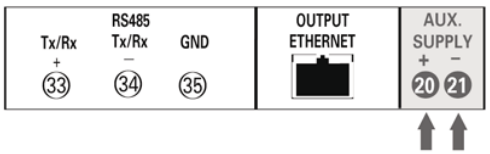


up to 32 devices!

DIMENSIONS



CONNECTION DIAGRAM



TECHNICAL DATA

ETHERNET INTERFACE RS485 COMMUNICATION - Input and power supply galvanically isolated	
Standard:	IEEE802.3
PROGRAMMABLE PARAMETERS	
IP address	
STATUS LEDS	
ACT:	Yellow LED, active connection
LINK:	Green LED, Ethernet network On
PWR:	Green LED power indicator
AUXILIARY VOLTAGE	
Auxiliary voltage:	22...260 V DC/AC
Frequency:	47...63 Hz
Intrinsic consumption:	≤ 4 VA
INSULATION (EN61010-1)	
Installation category:	III
Pollution degree:	2
AC test voltage:	2.5 kV TRMS 50 Hz/1 min
Concerned circuits:	Power supply - RS485 and Ethernet
AC test voltage:	1.5kV TRMS 50 Hz/1 min
Concerned circuits:	RS485 to Ethernet
AC test voltage:	4kV TRMS 50 Hz/1 min
Concerned circuits:	All circuits and earth
TEST FOR EMC COMPATIBILITY	
Emission and immunity tests:	According to EN61326
AMBIENT CONDITIONS	
Reference temperature:	23 °C ± 2 °C
Maximum operating temperature:	-5...55 °C
Maximum storage and transport temperature:	-25...70 °C
Maximum heat dissipation for the thermal calculation of distributor:	3.5 W
HOUSING	
Housing:	2 MW according to DIN43880
CONNECTIONS	
Power supply:	Screw terminals
RS485:	Plug connector
Ethernet:	RJ-45 connector
Mounting:	Snap-on DIN rail (35mm)
DIN rail:	TH35-15 (EN60715)
Housing material:	Polycarbonate
Weight:	110 grams

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DESCRIPTION	EAN CODE	AVAILABLE	ORDER NO.
Ethernet module	9004840666007		MGZEM001



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NET-ANALYSER MF7



SCHRACK-INFO

- Low voltage network monitor
- Three-phase network 340...450 V (phase - phase)
- Single-phase network 195...260 V (phase - neutral)
- Connection with dedicated CT
- Programmable primary CT 5...8000 A (41 range)
- True RMS value measurement

TECHNICAL DATA

Display	Voltage phase-phase and phase-N Current wire and neutral wire current Frequency Average current Maximum value of average current Working hours (hours and minutes)
Display	LCD backlit
Backlight	Turns off automatically after 20 seconds without operation
Display	10,000 points (4 digits)
Engineering units	Automatic, depending on the setting of the transformer primary current
Resolution	Automatic, with the highest possible decimal places
Reading update	1.2 seconds
Accuracy (of reading)	
Voltage	± 0.5% (80..450 V phase - phase)
Current	± 0.5% (10...120% I_n)
Neutral wire current	± 2%
Frequency	± 0.2 Hz

TECHNICAL DATA

DISPLAY		
Type of display:	LCD backlighted	
	Automatic backlit reduction after 20s from last key activation	
Measurement display:	Subdivided on various pages, with manual or automatic scanning	
Display pages:	**Three-phase 4-network:**	**Single-phase network:**
Page 1	Phase current	Current + frequency + voltage
Page 2	Phase voltage	Current demand, max. current demand
Page 3	Linked voltage	Working hours and minutes
Page 4	Neutral current + frequency	
Page 5	Current demand	
Page 6	Current max. demand	
Page 7	Working hours and minutes	
N° of display points:	10.000 (4 digits)	
Engineering units:	Automatic display	
Resolution:	Automatic, with the highest possible number of decimals	
Run hour meter:	Hours and minutes	
Reading update:	1,2 seconds	
Accuracy (of the reading)		
- Voltage:	± 0,5% (80...600V phase - phase)	
- Current:	± 0,5% (10...120% In)	
- Neutral current:	± 2%	
- Frequency:	± 0,2 Hz	
CURRENT DEMAND		
Display:	Current demand and max. current demand	
Averaging period:	Only for current and power	
Value selectable:	5/8/10/15/20/30/60 minutes selectable	
Calculation:	Average on the selected period	
Max. demand reset:	By hand, by keyboard	
PROGRAMMING		
Parameters programming:	Front keyboard, 2 keys	
Programming access:	Key combination	
Data and configuration parameters retention:	Non volatile memory (no battery)	
PROGRAMMABLE PARAMETERS		
Connection:	Single-phase - three-phase 3 and 4 wire	
External CT primay:	41 ranges (see table)	

Programmable primary currents (A)														
5					10			15		20	25	30		40
50	60	70	75	80	100	120	125	150	160	200	250	300		400
500	600	700	750	800	1000	1200	1250	1500	1600	2000	2500	3000	3200	4000
5000	6000	7000	7500	8000										

Current max. demand:	Delay time, reset
Working hours:	Reset
INPUT	
Single-phase and three-phase 4-wire network	
Three-phase voltage:	340...450V (phase-phase)
Single-phase voltage:	195...260V
Current rating In:	5A or 1A
Continuous overload:	1,2In
Istantaneous overload:	20In/0,5 seconds
Connection with external dedicated current transformer	
Inputs have a common point	
Frequency rating fn:	50Hz
Tolerance:	47...63Hz
Type of measurement:	True RMS
Harmonic content:	Up to the 16th harmonic
Voltage rated burden:	≤1VA (each phase)
Current rated burden:	≤0,5VA (each phase)

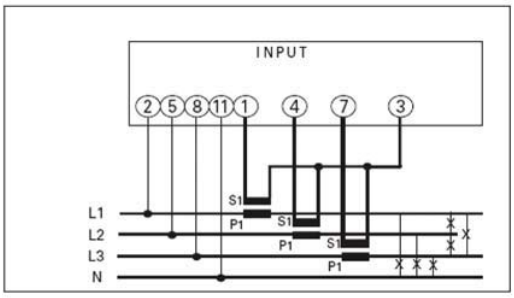
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TECHNICAL DATA – continued

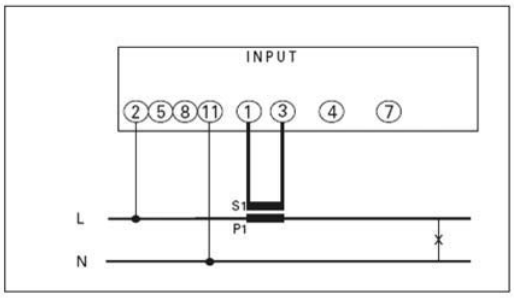
AUXILIARY SUPPLY	
Taken from measurement (selfsupplied)	
INSULATION	
Installation category:	III
Pollution degree:	2
Insulation voltage rating:	660V
A.C. voltage test 4kV r.m.s. value 50Hz/1min – Considered circuits:	All circuits and earth
TESTS FOR ELETROMAMAGNETIC COMPATIBILITY	
Emission tests according to EN 61000-6-3	
Immunity tests according to EN 61000-6-2	
ENVIRONMENTAL CONDITIONS	
Reference temperature:	23°C ± 2°C
Specified operating range:	-5...55°C
Limit range for storage and transport:	-25...70°C
Variation of the class index:	≤0,1% /°C
Max. power dissipation for switchboard thermal calculation:	≤6,8W
HOUSING	
Housing:	Flush mounting (panel cutout 68x68mm)
Front frame:	72x72mm
Depth:	75 mm
Ammetric terminals range:	Rigid cable min.0,05mm² / max. 4mm² Flexible cable min.0,05mmv / max. 2,5mm²
Volmetric terminals range:	Rigid cable min. 0,05mm² / max. 4mm² Flexible cable min.0,05mm² / max. 2,5mm²
Housing material:	Self-extinguishing makrolon
Protection degree (EN60529):	IP54 front frame, IP20 terminals
Weight:	250 grams

CIRCUIT DIAGRAMS

4-wire three-phase network



Single-phase network



DESCRIPTION	EAN CODE	AVAILABLE	ORDER NO.
Net analyser 72 x 72	9004840546385		MGF37000



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MODULAR NET-ANALYSER



SCHRACK-INFO

- Three-phase network 80...600 V (phase - phase)
- Single-phase network 50...350 V (phase - neutral)
- Connection with dedicated CT
- Primary CT 5...8000 A
- 41 primary currents settable
- True RMS measurement
- Display with manual or automatic scanning

TECHNICAL DATA

DISPLAY		
Type of display:	LCD backlighted	
	Automatic backlit reduction after 20s from last key activation	
Measurement display:	Subdivided on various pages, with manual or automatic scanning	
Display pages:	**Three-phase 4-network:**	**Single-phase network:**
Page 1	Phase voltage	Voltage - Current
Page 2	Phase current	Active, reactive, apparent power
Page 3	Linked voltage	Frequency - Power factor
Page 4	Phase active power	Working hours and minutes
Page 5	Phase reactive power	Power demand - Power Max. demand
Page 6	Active, reactive, apparent power	Current demand, max. current demand
Page 7	Neutral current, frequency, power factor	
Page 8	Working hours and minutes	
Page 9	Power demand - Power Max. demand	
Page 10	Phase current demand	
Page 11	Phase current max. demand	
N° of display points:	10.000 (4 digits)	
Engineering units:	Automatic display according to the set CT ratios	
Resolution:	Automatic, with the highest possible number of decimals	
Run hour meter:	Hours and minutes	
Reading update:	1,2 seconds	
Accuracy (of the reading)		
- Voltage:	± 0,5% (340...450V phase - phase)	
- Current:	± 0,5% (10...120% In)	
- Neutral current:	± 2%	
- Power:	± 1,5% (10...120% Pn/qn/sn cosj 0,5 ind...0,5cap)	
- Power factor:	± 2%	
- Frequency:	± 0,2 Hz	
CURRENT DEMAND - POWER DEMAND		
Display:	Current and active power demand, max. current demand and max. power demand	
Averaging period:	Only for current and power	
Value selectable:	5/8/10/15/20/30/60 minutes	
Calculation:	Average on the selected period	
Max. demand reset:	By keyboard	
PROGRAMMING		
Parameters programming:	Front keyboard, 2 keys	
Programming access:	Key combination	
Data and configuration parameters retention:	Non volatile memory (no battery)	

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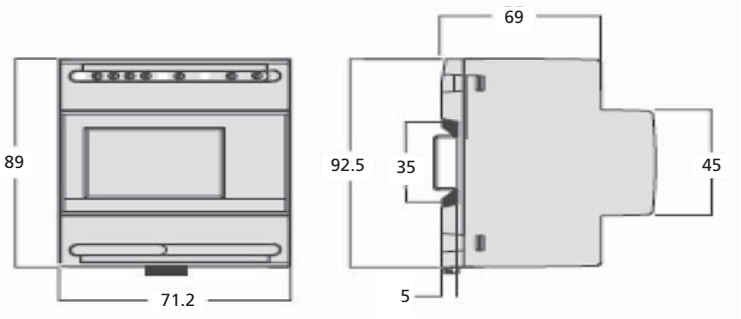
TECHNICAL DATA – continued

PROGRAMMABLE PARAMETERS	
Display:	Manual or automatic scanning
Connection:	Single-phase - three-phase 3 and 4 wire
External CT primay:	41 ranges (see table)

Selectable primary current (A)														
5					10			15		20	25	30		40
50	60	70	75	80	100	120	125	150	160	200	250	300		400
500	600	700	750	800	1000	1200	1250	1500	1600	2000	2500	3000	3200	4000
5000	6000	7000	7500	8000										

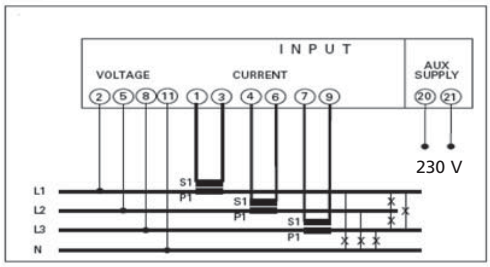
Current - Power max. demand:	Averaging time, max. demand reset
Working hours:	Reset
INPUT	
Single-phase network, three-phase network 3 and 4-wire	
Three-phase voltage:	80...600V (phase-phase)
Single-phase voltage:	50...350V
Current rating In:	5A or 1A
Continuous overload:	1,2In
Istantaneous overload:	20In/0,5 seconds
Connection with external dedicated current transformer	
Inputs have a common point (terminals 3 - 6 - 9)	
Frequency rating fn:	50Hz
Tolerance:	47...63Hz
Type of measurement:	True RMS
Harmonic content:	Up to the 16th harmonic
Voltage rated burden:	≤1VA (each phase)
Current rated burden:	≤0,5VA (each phase)
AUXILIARY SUPPLY	
Rated value Uaux ac:	115 – 230 e 240 - 400V
Tolerance:	0,85…1,1Uaux
Rated frequency:	50Hz
Working frequency:	47…63Hz
Rated burden:	≤5VA – 2,5W
INSULATION	
Installation category:	III
Pollution degree:	2
Insulation voltage rating:	660V
Impulse voltage test 6kV 1,2/50µs 0,5J – Considered circuits:	Measure, aux. supply
A.C. voltage test 2,5kV r.m.s. value 50Hz/1min – Considered circuits:	Measure, aux. supply
A.C. voltage test 4kV r.m.s. value 50Hz/1min – Considered circuits:	All circuits and earth
TESTS FOR ELETROMAMAGNETIC COMPATIBILITY	
Emission tests according to EN 61000-6-3	
Immunity tests according to EN 61000-6-2	
ENVIRONMENTAL CONDITIONS	
Reference temperature:	23°C ± 2°C
Specified operating range:	-5...55°C
Limit range for storage and transport:	-25...70°C
Variation of the class index:	≤0,1% /°C
Max. power dissipation for switchboard thermal calculation:	≤6,8W
HOUSING	
Custodia:	4 moduli DIN 43880
Connections:	Screw terminals
Ammetric terminals range:	Rigid cable min.0,05mm² / max. 4mm² Flexible cable min.0,05mm² / max. 2,5mm²
Volmetric terminals range:	Rigid cable min. 0,05mm² / max. 4mm² Flexible cable min.0,05mm² / max. 2,5mm²
Mounting:	Snap-on 35mm rail
Rail type:	Top hat TH35-15 (EN60715)
Housing material:	Self-extinguishing policarbonate
Protection degree (EN60529):	IP54 front frame, IP20 terminals
Weight:	260 grams

DIMENSIONS

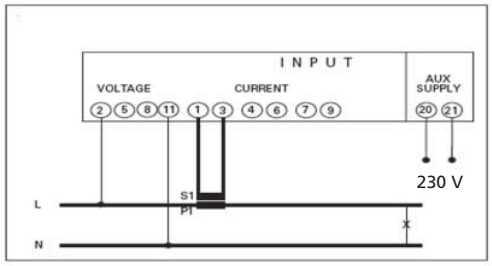


CIRCUIT DIAGRAMS

4-wire three-phase network



Single-phase network



DESCRIPTION	EAN CODE	AVAILABLE	ORDER NO.
Net analyser MF7-45	9004840588668		MGR30000



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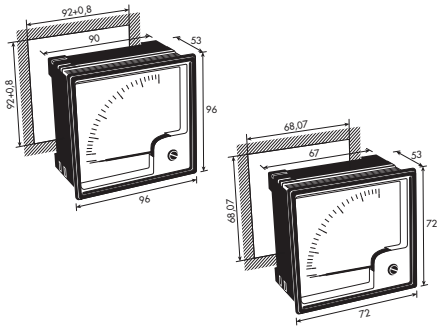
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Page 565

MEASURING INSTRUMENTS FOR PANEL INSTALLATION - GENERAL INFORMATION





TECHNICAL DATA

- Class ± 1.5
- Nominal voltage max. 500 V
- Test voltage 2 kV, 50 Hz, 1 min

ACCESSORIES

Scale plates
Terminal cover
Quick mounting

SYMBOLS AND THEIR MEANINGS

Symbols indicating the principle function of the instrument and accessory

Symbol	Specification
	Magnetoelectric instrument (with moving coil and permanent magnet)
	Instrument with moving iron
	Ferrodymanic instrument (electrodynamic with iron)
	Induction instrument
	Bimetal instrument
(1)	Electronic device in the measuring circuit
	Electronic device in an auxiliary circuit
	Shunt for measuring instrument
(2)	General accessory

If the (1) symbol is associated with the symbol of the instrument this means that the device is incorporated.
If the (1) symbol is associated with the (2) this means that the device is external.

Symbols indicating the characteristics of the instrument in relation to its connection with the network

Symbol	Specification
	Circuit with direct current
	Single-phase circuit with alternating current
	Single-phase direct and alternating current circuit
	Three-phase alternating current circuit (general symbol)
	Tree-phase alternating current circuit with unbalanced load (general symbol)
	A measuring element for 3 wire networks
	A measuring element for 4 wire networks
	Two measuring elements for 3 wire networks with unbalanced load
	Two measuring elemenrs for 4 wire networks with balanced load
	Three measuring elements for 4 wire networks with unbalanced load

Symbols for accuracy class

Symbol	Specification
1,5	Class indicator (eg. 1.5) with errors expressed in percentage of conventional value, except when the latter is as long as the graduation or the true value
1,5	Class indicator (eg. 1.5) when the conventional value corresponds to the true value.
5% 1	Class indicator of an instrument with a non linear scale, contracted in the case where the conventional value is as long as the graduation and the indication of the error is expressed ad a percentage of the true value. (for example: class indicator 1: relative error limit of 5%) (par. 2.3.11.36)

Symbols indicating the working position

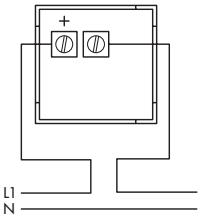
Symbol	Specification
	Instrument to use with the dial vertical
	Instrument to use with the dial horizontal
60°	Instrument to use with dial inclined (60° for example) in relation to the horizontal plane.

Symbols regarding safety

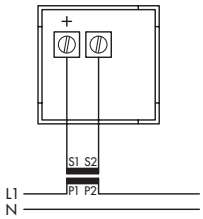
Symbol	Specification
	500V test voltage
2	Test voltage of more than 500V (2kV for example)
0	Instrument exempt from voltage test
V	High voltage on the accessory and/or on the instrument

AC AMMETER





Direct connection



Connection to current transformer

SCHRACK-INFO

The instruments with transformer connection are delivered without a scale-plate. The scale plate is chosen according to the CT. Therefore, the scale plate must be ordered separately.

TECHNICAL DATA

- Moving iron type, overcurrent range 2x In
- Frequency 45-65 Hz
- 0.5...60 A AC direct, 10 A...10 kA via current transformer connection

DESCRIPTION	EAN CODE	AVAILABLE	ORDER NO.
48x48			
AMMETER 48X48 5 A AC DIR.	9004840545616		**MGF54005**
Ammeter 48x48 10 A AC DIR.	9004840545609		**MGF54010**
Ammeter 48x48 15 A AC DIR.	9004840545586		**MGF54015**
Ammeter 48x48 25 A AC DIR.	9004840545593		**MGF54025**
Ammeter 48x48 for CT 5 A	9004840560329		**MGF54000**
72x72			
Ammeter 72x72 5 A AC DIR.	9004840546460		**MGF57005**
Ammeter 72x72 10 A AC DIR.	9004840546453		**MGF57010**
Ammeter 72x72 25 A AC DIR.	9004840546446		**MGF57025**
Ammeter 72x72 50 A AC DIR.	9004840546514		**MGF57050**
Ammeter 72x72 for CT 5 A	9004840545647		**MGF57000**
96x96			
Ammeter 96x96 10 A AC DIR.	9004840546545		MGF59010
Ammeter 96x96 15 A AC DIR.	9004840546538		**MGF59015**
Ammeter 96x96 25 A AC DIR.	9004840546521		**MGF59025**
Ammeter 96x96 50 A AC DIR.	9004840546507		**MGF59050**
Ammeter 96x96 for CT 5 A	9004840545715		**MGF59000**

AC AMMETER – continued

DESCRIPTION	EAN CODE	AVAILABLE	ORDER NO.
SCALE PLATES 48x48			
Scale plate 25 A/5 A 48x48	9004840560343		MGS54025
Scale plate 50 A/5 A 48x48	9004840560350		MGS54050
Scale plate 100 A/5 A 48x48	9004840560336		MGS54100
SCALE PLATES 72x72			
Scale plate 50/5 A AC 72x72	9004840553352		MGS57050
Scale plate 60/5 A AC 72x72	9004840553369		MGS57060
Scale plate 80/5 A AC 72x72	9004840553376		MGS57080
Scale plate 100/5 A AC 72x72	9004840553383		MGS57100
Scale plate 150/5 A AC 72x72	9004840551143		MGS57150
Scale plate 200/5 A AC 72x72	9004840553413		MGS57200
Scale plate 250/5 A AC 72x72	9004840553420		MGS57250
Scale plate 300/5 A AC 72x72	9004840553437		MGS57300
Scale plate 400/5 A AC 72x72	9004840553444		MGS57400
Scale plate 500/5 A AC 72x72	9004840545722		MGS57500
Scale plate 600/5 A AC 72x72	9004840553451		MGS57600
Scale plate 800/5 A AC 72x72	9004840553468		MGS57800
Scale plate 1000/5 A AC 72x72	9004840553390		MGS571K0
Scale plate 1500/5 A AC 72x72	9004840553406		MGS571K5
SCALE PLATES 96x96			
Scale plate 60/5 A AC 96x96	9004840551372		MGS59060
Scale plate 80/5 A AC 96x96	9004840551389		MGS59080
Scale plate 100/5 A AC 96x96	9004840545739		MGS59100
Scale plate 150/5 A AC 96x96	9004840551396		MGS59150
Scale plate 200/5 A AC 96x96	9004840551402		MGS59200
Scale plate 250/5 A AC 96x96	9004840551419		MGS59250
Scale plate 300/5 A AC 96x96	9004840551440		MGS59300
Scale plate 400/5 A AC 96x96	9004840551464		MGS59400
Scale plate 500/5 A AC 96x96	9004840545760		MGS59500
Scale plate 600/5 A AC 96x96	9004840551471		MGS59600
Scale plate 800/5 A AC 96x96	9004840551488		MGS59800
Scale plate 1000/5 A AC 96x96	9004840545746		MGS591K0
Scale plate 1500/5 A AC 96x96	9004840545753		MGS591K5
Scale plate 2000/5 A AC 96x96	9004840551426		MGS592K0
Scale plate 2500/5 A AC 96x96	9004840551433		MGS592K5
Scale plate 3000/5 A AC 96x96	9004840551457		MGS593K0

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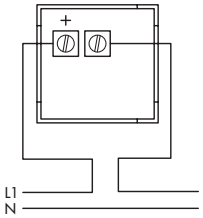
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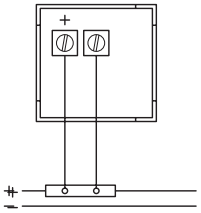
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- See availability and price immediately
- Order desired products easily

DC AMMETER





Direct connection



Connection to shunt 60 mV

SCHRACK-INFO

The instruments with shunt connection 60 mV are delivered without a scale-plate. The scale plate is chosen according to the shunt. The scale plate must be ordered separately.

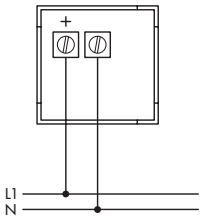
TECHNICAL DATA

- Moving coil type
- 1...60 A direct
- 10 A... 10 kA via shunt

DESCRIPTION	EAN CODE	AVAILABLE	ORDER NO.
72x72			
Ammeter 72x72 25 A DC DIR.	9004840545630		**MGF17025**
Ammeter 72x72 60 A DC DIR.	9004840548105		**MGF17060**
Ammeter 72x72 for shunt	9004840545623		**MGF17000**
SCALE PLATES 72x72			
Scale plate 60 A DC 72x72	9004840560770		**MGS17060**
Scale plate 100 A DC 72x72	9004840560763		**MGS17100**
Scale plate 300 A DC 72x72	9004840560794		**MGS17300**
Scale plate 500 A DC 72x72	9004840560817		MGS17500

AC VOLTMETER





Anschluß

SCHRACK-INFO

- Frequency 45-65 Hz
- Moving iron type
- 30...500 V AC direct
- Up to 800 V AC on request

DESCRIPTION	EAN CODE	AVAILABLE	ORDER NO.
48x48			
Voltmeter 48x48 500 V AC	9004840545654		**MGF64500**
72x72			
Voltmeter 72x72 30 V AC	9004840546477		MGF67030
Voltmeter 72x72 300 V AC	9004840546484		**MGF67300**
Voltmeter 72x72 500 V AC	9004840546491		**MGF67500**
96x96			
Voltmeter 96x96 300 V AC	9004840546576		MGF69300
Voltmeter 96x96 500 V AC	9004840546569		**MGF69500**

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VOLTMETER WITH INTEGRATED SWITCH



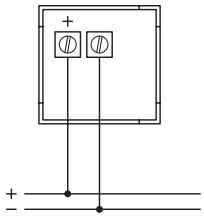
SCHRACK-INFO

- Frequency 45-65 Hz
- Moving iron type
- AC voltmeter with integrated switch
  L1-N, L2-N, L3-N, L1-L2, L2-L3, L3-L1

DESCRIPTION	EAN CODE	AVAILABLE	ORDER NO.
72x72			
Voltmeter 72x72 500 V AC	9004840545708		**MGF77500**
96x96			
Voltmeter 96x96 500 V AC	9004840545692		**MGF79500**

DC VOLTMETER





Connection

SCHRACK-INFO

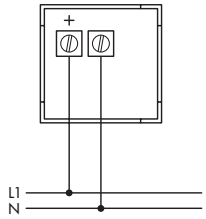
- Moving coil type
- 15... 300 V DC direct
- Up to 600 V DC on request

DESCRIPTION	EAN CODE	AVAILABLE	ORDER NO.
72x72			
Voltmeter 72x72 15 V DC	9004840545524		**MGF27015**
Voltmeter 72x72 30 V DC	9004840545531		**MGF27030**
Voltmeter 72x72 60 V DC	9004840545548		**MGF27060**
Voltmeter 72x72 300 V DC	9004840545555		**MGF27300**

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570

FREQUENCY METER





Anschluß

SCHRACK-INFO

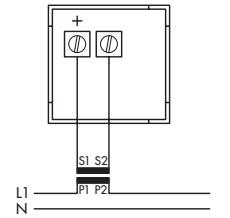
- 230 V
- Class 0.5

DESCRIPTION	EAN CODE	AVAILABLE	ORDER NO.
Frequency meter 72x72	9004840545685		**MGF87050**
Frequency meter 96x96	9004840545661		**MGF89050**

MAXIMUM DEMAND AMMETER







Connection to current transformer

SCHRACK-INFO

- These instruments consist of a bi-metal measuring mechanism which shows the maximum current recorded by a red drag pointer, and a moving iron measuring mechanism for measuring the momentary current.
- Moving iron mechanism, overcurrent range 2x I_n, intrinsic consumption max. 1.2 VA, class 1.5
- Bi-metal measuring mechanism, overcurrent range 1.2 I_n, intrinsic consumption 2.5 VA, class 3
- Response time 15 min., current transformer connection .. / 5 A, requires matching scale plate
- Frequency 45-65 Hz

DESCRIPTION	EAN CODE	AVAILABLE	ORDER NO.
Maximum demand ammeter	9004840564518		**MGF49005**
Scale 100-120-200/5 A	9004840551136		MGS49100

FRONT PROTECTION KIT IP 65



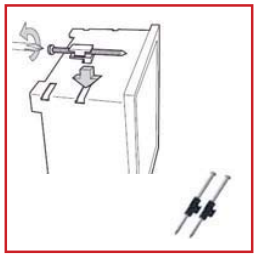
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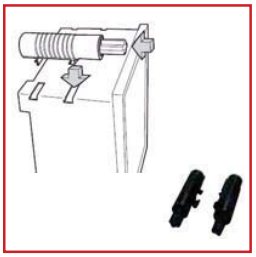
- Front protection kit for IP 65
- Additional 2 mounting fasteners

DESCRIPTION	EAN CODE	AVAILABLE	ORDER NO.
Front protection kit 72x72 IP65	9004840545784		**MGZD7000**
Front protection kit 96x96 IP65	9004840545791		**MGZD9000**

ACCESSORIES FOR MEASURING INSTRUMENTS FOR PANEL INSTALLATION







SCHRACK-INFO

- Terminal cover as touch protection suitable for all panel installation devices

DESCRIPTION	EAN CODE	AVAILABLE	ORDER NO.
REAR TERMINAL COVER			
Rear terminal cover 48x48	9004840143195		**MG900010**
Rear terminal cover 72x72	9004840090642		**MG900011**
Rear terminal cover 96x96	9004840090659		**MG900012**
FIXING SYSTEMS			
Additional fixing set	9004840546699		**MGZ00001**
Quick fixing set	9004840546682		**MGZ00002**

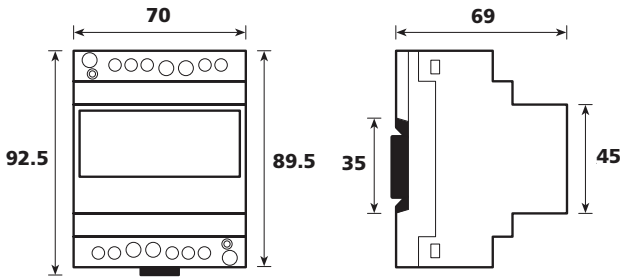
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ANALOGUE MEASURING INSTRUMENTS FOR RAIL MOUNTING – GENERAL INFORMATION



MEASURING INSTRUMENTS REG

DIMENSIONS



TECHNICAL DATA

Standards:	Electrical: CENELEC HD 233, IEC 51, VDE 0410, BS 89 Safety: CENELEC HD 215, IEC 414, DIN 57410, BS 5458
Ambient temperatures:	Temperature influence ± 0.03%/°C Operating temperature -20 °C to +50 °C Storage temperature -40 °C to +80 °C Vibration-proof
Overload capability:	Current paths 1.2x I_n continuous, 10x I_n 10 sec. Voltage paths 1.2x U_n continuous, 2x U_n 5 sec.
Stray field influence:	Up to 0.5 mT without additional errors
Accuracy class:	1.5
Response time:	max. 2 sec.
Width:	4 MW
Scale:	120°



I KNOW WHERE TO FIND IT!

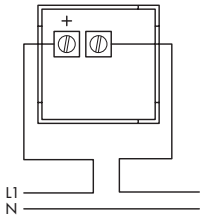
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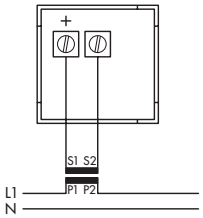
AC AMMETER



MG159010



Direct connection



Connection to current transformer

SCHRACK-INFO

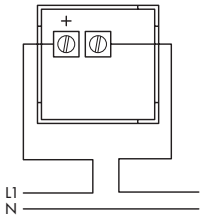
- Moving iron measuring mechanism
- Possible direct measurement ranges: 2, 5, 10, 25, 40 A
- 5 A transformer connection type available
- Standard scale $1xI_N$
- Overload scale $2xI_N$
- Frequency range 45-65 Hz
- Intrinsic consumption approx. 1.1 VA

DESCRIPTION	MW	DIM. (WxHxD) mm	WEIGHT (kg)	EAN CODE	AVAILABLE	ORDER NO.
AC AMMETER						
5 A direct or CT	4	70x92.5x69	0.13	9004840058338		**MG159005**
10 A direct	4	70x92.5x69	0.13	9004840058345		**MG159010**
25 A direct	4	70x92.5x69	0.13	9004840136906		**MG159025**
40 A direct	4	70x92.5x69	0.13	9004840058352		**MG159040**
SCALE PLATES						
Scale plate 50 A	4	-	-	9004840080421		MG95A050
Scale plate 100 A	4	-	-	9004840080438		MG95A100
Scale plate 150 A	4	-	-	9004840080445		MG95A150
Scale plate 200 A	4	-	-	9004840080452		MG95A200
Scale plate 250 A	4	-	-	9004840080469		MG95A250
Scale plate 400 A	4	-	-	9004840080476		MG95A400

DC AMMETER



MG154010



Direct connection

SCHRACK-INFO

- Moving coil measuring mechanism

DESCRIPTION	MW	DIM. (WxHxD) mm	WEIGHT (kg)	EAN CODE	AVAILABLE	ORDER NO.
10 A direct	4	70x92.5x69	0.12	9004840058307		MG154010
25 A direct	4	70x92.5x69	0.12	9004840058314		MG154025

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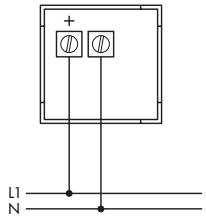
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AC VOLTMETER



MG059250



Direct connection

SCHRACK-INFO

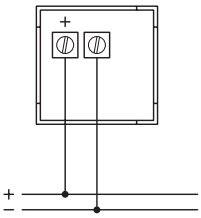
- Moving iron measuring mechanism
- Transformer connection 100-110 V possible
- Possible direct measurement ranges: 250, 500 V
- Frequency range: 45-65 Hz
- Intrinsic consumption approx. 3 VA

DESCRIPTION	MW	DIM. (WxHxD) mm	WEIGHT (kg)	EAN CODE	AVAILABLE	ORDER NO.
250 V	4	70x92.5x69	0.13	9004840058185		MG059250
500 V	4	70x92.5x69	0.13	9004840058192		MG059500

DC VOLTMETER



MG054100



Direct connection

SCHRACK-INFO

- Moving coil measuring mechanism
- Possible direct measurement ranges: 1-100 V
- Intrinsic consumption: 1 mA at 0.5-600 V (1000 Ohm/V)
- Type 60 mV for connection to shunt

DESCRIPTION	MW	DIM. (WxHxD) mm	WEIGHT (kg)	EAN CODE	AVAILABLE	ORDER NO.
100 V	4	70x92.5x69	0.12	9004840058161		MG054100

FREQUENCY METER



MG359055

SCHRACK-INFO

- Pointer frequency meter 45 to 55 Hz, 400 V
- Accuracy ±1% of scale length
- Intrinsic consumption approx. 4 VA
- Permissible voltage fluctuation ±15%

DESCRIPTION	MW	DIM. (WxHxD) mm	WEIGHT (kg)	EAN CODE	AVAILABLE	ORDER NO.
45-55 Hz, 400 V	4	70x92.5x69	0.2	9004840058383		MG359055



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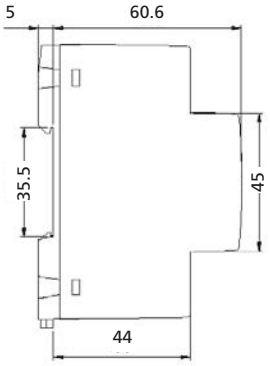
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DIGITAL MEASURING INSTRUMENTS FOR RAIL MOUNTING – GENERAL INFORMATION



MEASURING INSTRUMENTS REG DIGITAL



SCHRACK-INFO

- Overload indicator
- 3-digit display, max. display: 999
- Display digits: green, 14 mm high
- Test voltage: 2 kV, 50 Hz
- Accuracy: Class 1 + 1 digit
- Terminals: Screw terminals
- Temperature range: 5 °C to 40 °C
- Limit temperature range: -40 °C to +70 °C

TECHNICAL DATA

Continuous overload:

- 1.2x U_n
- 1.2x I_n

Short overload:

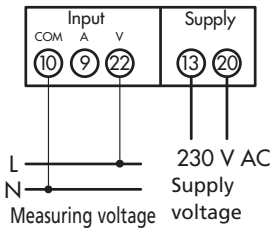
- 2x U_n/5 sec.
- 10x I_n/10 sec.

AC VOLTMETER/AMMETER

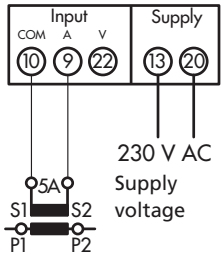


MGU076K8

Connection as voltmeter



Connection as ammeter with current transformer



SCHRACK-INFO

- Can be used as voltmeter or ammeter
- Current measuring ranges settable from 5-8000 A by key (CT connection)
- Voltage range 0-500 V with overload indicator up to 600 V
- Auxiliary voltage 230 V, 50 Hz
- Nominal frequency 50 Hz, working frequency range 47-420 Hz
- TRMS measurement type

DESCRIPTION	MW	DIM. (WxHxD) mm	WEIGHT (kg)	EAN CODE	AVAILABLE	ORDER NO.
5-8000 A for transformer connection x/5 A						
0-500 (600) V AC	4	70x92.5x69	0.3	9004840449945		**MGU076K8**

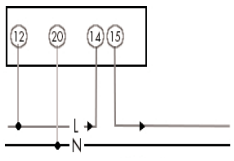
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AC AMMETER



MG109020

AC ammeter with measurement input direct connection



SCHRACK-INFO

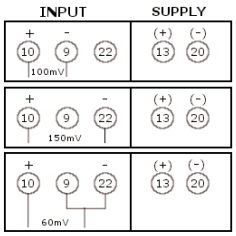
- Frequency range: 45-65 Hz
- Intrinsic consumption approx. 1 VA
- Possible measuring ranges: 10, 20 A

DESCRIPTION	MW	DIM. (WxHxD) mm	WEIGHT (kg)	EAN CODE	AVAILABLE	ORDER NO.
10 A direct	4	70x92.5x69	0.3	9004840058222		MG109010
20 A direct	4	70x92.5x69	0.3	9004840058246		**MG109020**

DC AMMETER



MG10D999-A



SCHRACK-INFO

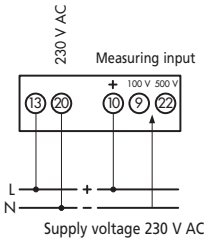
- Possible measuring ranges: 5 – 8000 A settable by key
- Can optionally connected to 60/100/150 mV shunt
- Overload 1.2 I_N

DESCRIPTION	MW	DIM. (WxHxD) mm	WEIGHT (kg)	EAN CODE	AVAILABLE	ORDER NO.
5-8000 A,						
via shunt 60/100/150 mV	4	70x92.5x67	0.3	9004840449952		MG10D999-A

DC VOLTMETER



MG004600-A



SCHRACK-INFO

- Measuring range 0-99.9 V and 0-500 V optionally connectable
- Overload indicator 1.2 U_N
- Supply voltage 230 V AC

DESCRIPTION	MW	DIM. (WxHxD) mm	WEIGHT (kg)	EAN CODE	AVAILABLE	ORDER NO.
100 (120) V/500 (600) V	4	70x92.5x67	0.3	9004840449976		MG004600-A



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