

Multifunction Meter Q96U4



TECHNICAL DATA:

accuracy (class)	0,2; 2,0 (kWh); 3,0 (kvarh)
measuring type	TRMS
display	LCD backlighted 16 characters per line 4 lines
number of display lines	4 lines
standard resolution	4 digits (9999) with floating point
resolution for energy data	8 digits (max. 99999999 GWh/Gvarh)
bidirectional	active power and reactive power
memory	kWh- and kvarh-data, user settings
frequency	45...65Hz
input voltage	100...400V
input current	1...5A
input range	5...120% Un, 5...120% In
continuous overload	2In; 1,2Un
short-term overload (1sec.)	20In; 2Un
self-consumption: voltage	< 0,5VA
current	< 0,5VA
test voltage	2kV-50Hz-60s
surge test	5kV; 1,2/50µs
protection	IP50 front; IP20 back
operating temperature	-10...50°C
storage temperature	-30...70°C
weight	0,5 kg
complete galvanic separation	

alarm output / pulse output max. 100mA / 250V DC (Photo-MOS)

Auxiliary voltage

standard auxiliary voltage	115 and 230V ±10% 50/60Hz (6VA)
on demand auxiliary voltage AC	24V, 48V or 400V
on demand auxiliary voltage DC	24V, 48V, 110V or 220V

ModBus RTU

interface	RS485 (ModBus RTU)
speed (bps)	9600/19200 bps
communication parameters	1,8,N,2/1,8,E,1/1,8,O,1
addressing range	1..247 (adjustable)

ModBus TCP / Webservice

ethernet interface	IEEE 802.3(u) 10 Base T / 100 Base TX
speed	10/100 Mbit/s (auto-negotiation)
duplex	half/full (auto-negotiation)

Profibus DP V0

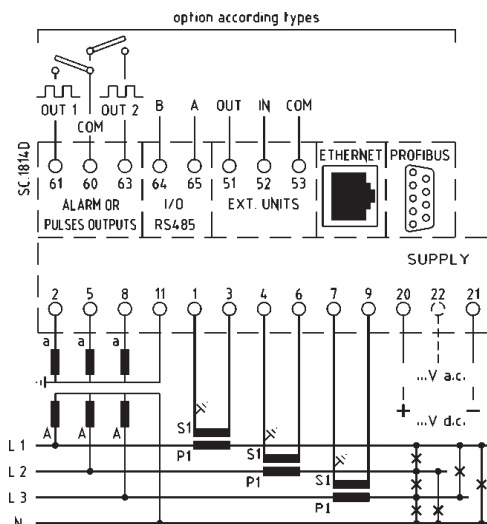
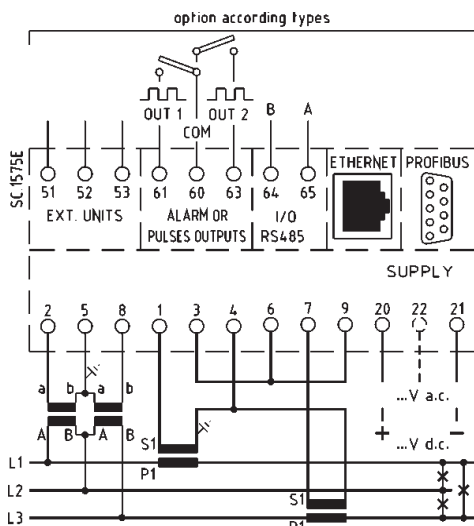
network	NRZ asynchronous
baud rate	9,6kbit/s...12Mbit/s
addressing range	1...99 (adjustable)
manufactured according to	EN 50170

Alarm and pulse output

Each unit is equipped with four zero potential alarm or pulse outputs. All four outputs may be programmed as alarm output. Alarm signal is available for pre-defined minimum or maximum values. A switching delay between 0 and 99 seconds may be adjusted. Alternatively two outputs may be programmed as pulse output. Pulse values are proportional with active energy and adjustable. (e.g.: 1 Imp./1kWh)

Harmonic analysis (Q96U4H only)

Measurement of the main variables (current and voltage) is performed as TRMS. The instrument performs a harmonic analysis on each phase for voltage and current, providing the entire THD-value (total harmonic distortion) and the single harmonic. Values may also be displayed as percentage of the TRMS value.



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Multifunction Meter Q96U4

Add-on modules

With external modules the functional range of this unit is expandable with additional contact respectively analog outputs.

Each module has two additional alarm outputs and either two or four analog outputs.

Up to 3 modules at the same time may be contacted to one multifunction meter, which provides 6 alarm and 12 analog outputs in total.

(detailed information see page 40)

```

U1E 998A 396.0V
U2E 997A 396.7V
U3E 1011A 395.0V
Σ 547kW 0.80L
    
```

```

UN 1002A 227.6V
EN 998A 229.2V
LN 1011A 229.1V
QΣ 414kr 50.0Hz
    
```

```

P1E 189.8 kW
P2E 172.7 kW
P3E 187.1 kW
PΣ 548.5 kW
    
```

```

Q1E 123.0 kvar L
Q2E 150.5 kvar L
Q3E 135.0 kvar L
QΣ 413.5 kvar L
    
```

```

S1E 227.8 kVA
S2E 228.5 kVA
S3E 230.8 kVA
SΣ 687.1 kVA
    
```

```

P.F.1E 0.83 L
P.F.2E 0.75 L
P.F.3E 0.80 L
P.F.Σ 0.80 L
    
```

```

kWh+ 00005918
kWh- 00000145
kvarh+ 00001932
kvarh- 00001675
    
```

```

Iavg1 999 A
Iavg2 995 A
Iavg3 1008 A
PavgΣ 545.0 kW
    
```

```

Imax1 1000 A
Imax2 998 A
Imax3 1011 A
PmaxΣ 552.4 kW
    
```

```

Σ 1004A 396.0V
PΣ 549kW 0.80L
H 18.3 49.9Hz
kWh+ 00005944
    
```

Features	Q96U4L	Q96U4H
voltage phase-phase	✓	✓
voltage phase-N	✓	✓
current	✓	✓
max. average current	✓	✓
average current	✓	✓
("bimetallic-function" – delay adjustable: 1..60min)		
active power L1, L2 and L3	✓	✓
active power total	✓	✓
max. average active power total	✓	✓
reactive power L1, L2 and L3	✓	✓
reactive power total (ind.)	✓	✓
apparent power L1, L2 and L3	✓	✓
apparent power total	✓	✓
power factor L1, L2 and L3	✓	✓
power factor total (ind.)	✓	✓
frequency	✓	✓
active energy counter (kWh+ / kWh-)	✓	✓
reactive energy counter (kvarh+ / kvarh-)	✓	✓
hour-meter	✓	✓
ModBus RTU	✓	✓
ModBus TCP	optional	optional
Profibus DP V0	optional	optional
neutral wire current		✓
difference voltage (ULLmax.-ULLmin.)		✓
cosφ (actual difference of phase)		✓
THDV (% of U nominal)		✓
THDI (% of I nominal)		✓
THDV (% of U rms)		✓
THDI (% of I rms)		✓

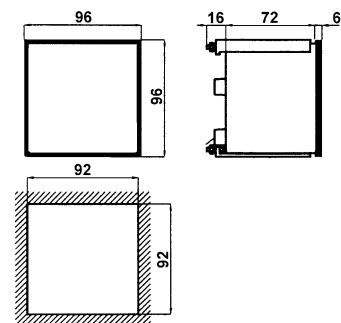
Order code:

Features

Q96U4L	standard configuration
Q96U4H	additional with harmonic analysis

Ordering Information

- Order Code
- Auxiliary Voltage (on demand)
- ModBus TCP or Profibus (on demand)



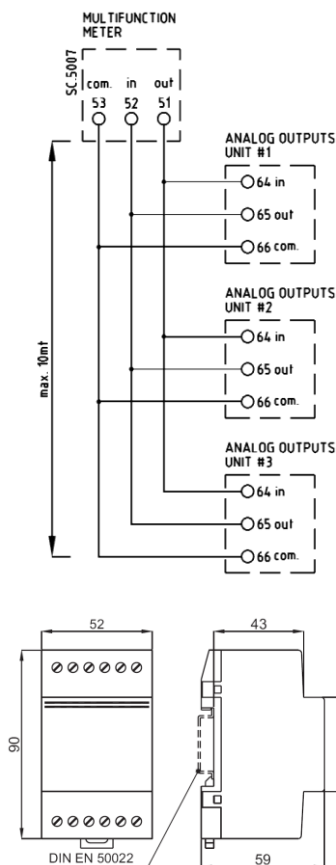
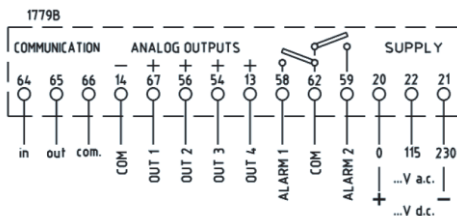
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Add-on Modules for Multifunction Meter Q96U4



TECHNICAL DATA:

accuracy (class)	0,5
number of analog outputs	2 or 4
outputs	programmable
response time	100ms
number of alarm outputs	2
alarm output	Photo-MOS, max. 100V, 100mA
operating temperature	-10...50°C
storage temperature	-30...70°C
weight	0,4 kg
standard auxiliary voltage	115 and 230V ±10% 50/60Hz (10VA)
galvanic separation of auxiliary voltage	

The add-on modules type **M52U** are used for the expansion of multifunction meters **Q96U4**.

The functional range of the main unit is extended by analog outputs and additional alarm outputs.

Up to 3 modules at the same time may be connected to one multifunction meter, which provides up to 6 alarm and 12 analog outputs in total.

Adjustment of analog outputs is made with DIP-switches. Each single output may be configured individually:

Output:	±1mA	±5mA	±10mA	±20mA	±10V	
Burden:	15kΩ	3kΩ	1,5kΩ	750Ω	>2kΩ	
Output:	0-1mA	0-5mA	0-10mA	0-20mA	4-20mA	0-10V
Burden:	15kΩ	3kΩ	1,5kΩ	750Ω	750Ω	>2kΩ

All other settings get adjusted directly on the front panel of the multifunction meter. Each single output can be individually assigned to a measuring value of the multifunction display unit.

e.g.	0..250V	=	0..20mA	or
	-25..0..100kW	=	4..20mA	or
	45..50..55Hz	=	-10..0..+10V	etc.

The alarm outputs can be programmed as min. or max. contact.

Number of Outputs	Order Code
2 analog and 2 alarm	M52U02
4 analog and 2 alarm	M52U04

Ordering Information

- Order Code
- DC-Auxiliary Voltage (on demand)

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