JKM02
Multifunction Measurement Device RS485
OP033 V04

6LE005434Aa

OVERVIEW

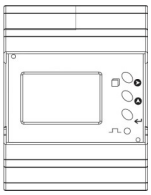
DIN RAIL MOUNT

2 x 3 Phase or 6 x 1 Phase

Modbus RTU over RS485

Pulse Output

CE RoHS


X 1


X 1


X 1

SPECIFICATIONS

Wiring input	3 Phase 4 wire / 1 Phase 2 wire
Rated input voltage	60 - 300V AC (L-N); 104 - 520V AC (L-L)
Frequency range	45 - 65Hz
CT primary	5A - 10,000A
CT secondary	330mV
VT primary	100V - 10kV
VT secondary	100 - 500V AC (L-L)
Auxiliary	Self supplied (L1)
Voltage rated burden	<8VA (L1 - supply), <0.2VA (L2 & L3)
Operating temperature	-10…+55°C
Storage temperature	-20…+70 °C
Humidity	0...85% non-condensing
Weight	200g
Pulse output	5-27V DC / Imax = 100mA 2 x Pulse Output For 3 Phase 4 Wire (2 x 3 Phase): ⎍⎍1 = CT1 / ⎍⎍2 = CT2 For 1 Phase 2 Wire (6 x 1 Phase): ⎍⎍1 = CH1+CH2+CH3 (CT1) ⎍⎍2 = CH4+CH5+CH6 (CT2)
Installation category	III

ACCURACY

Voltage V_{L-N}	± 0.5% of full scale
Voltage V_{L-L}	
Current	
Frequency	± 0.1% (L-N >20V / L-L >35V)
Active power	± 1% of full scale
Reactive power	
Apparent power	
Active energy	Class 1 (IEC/EN62053-21)
Reactive energy	Class 2 (IEC/EN62053-23)
MAX / MIN (Active power / Reactive power / Apparent power)	± 1% of full scale
Power factor	± 0.01 of unity
THD	3%

SAFETY PRECAUTIONS

Safety related notification, symbols and instructions that appear in this operating manual or on the equipment must be strictly followed to ensure the safety of personnel as well as the instrument.

- Hager JKM02 shall only be used with CTs and RJ45 cables references from Hager
- If the equipment is not used in a manner specified by the manufacturer it may impair the protection provided by the equipment
- Do not use the equipment if there are mechanical damage
- Do not exceed the stated maximum ratings of the device
- No repairs, maintenance or adjustments are possible
- Read the complete instruction manual prior to installation or operating the unit
- The equipment in its installed state must not come into close proximity to any heating sources, oils, steam, caustic vapours or other unwanted process by-products

WIRING GUIDELINES

Risk of electric shock!
Installation process must be performed by qualified and trained personnel only.

- To prevent the risk of electrocution, always isolate and lock-off the power supply to the equipment prior to undertaking any work
- Always confirm absence of electricity prior to starting work using appropriate voltage detection equipment
- Wiring shall be done strictly according to the terminal layout
- Confirm that all connections are correct before energizing the equipment
- Routing of cables shall be way from any internal EMI source
- Copper cable should be used
- All wiring to be in accordance with applicable local standards

RESOLUTION | LÖSUNG | RÉSOLUTION | RESOLUCIÓN

VT Ratio x CT Ratio	kWh	⎍
< 15	0.01k	0.001k
< 150	0.1k	0.01k
< 1500	1k	0.1k
< 15000	0.01M	0.001M
≥ 150000	0.1M	0.01M

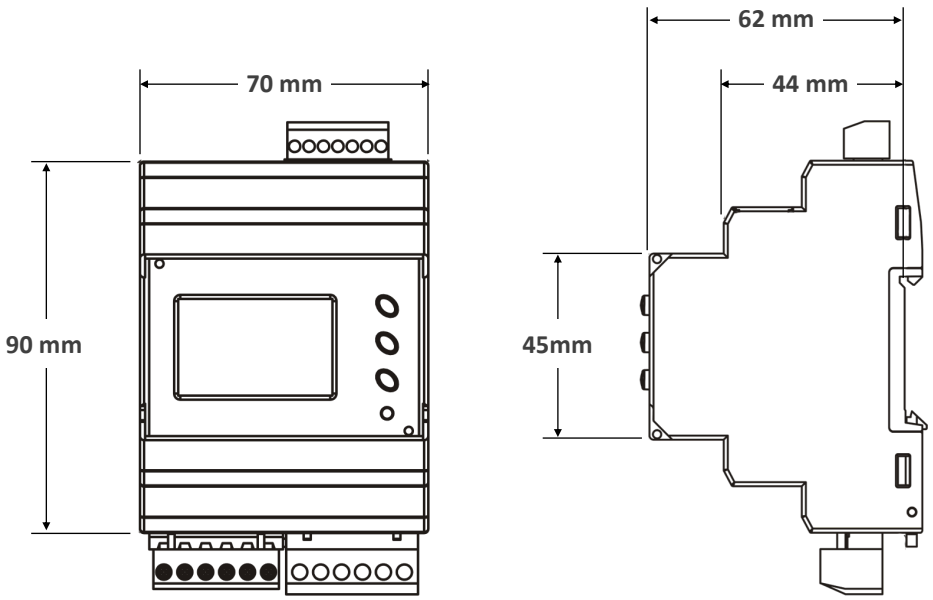
1. V / A / W / VA / VAr = auto adjust
2. PF = 0.01

SERIAL COMMUNICATION

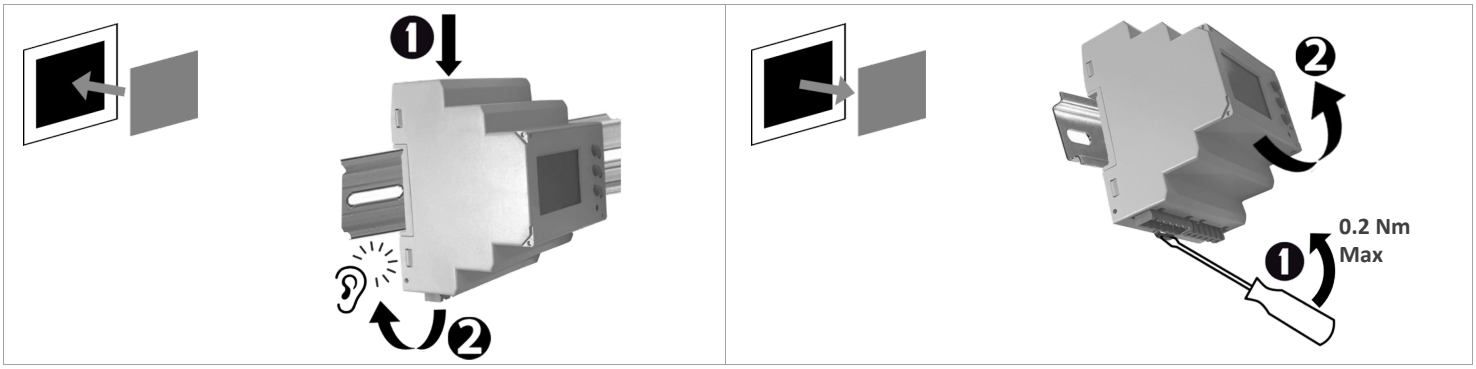
Standard & Protocol	RS485 & Modbus RTU
Communication address	1 to 255
Transmission mode	Half duplex
Data types	Float & Integer
Transmission distance	500m (max)
Transmission speed	300,600, 1200, 2400, 4800, 9600, 19200 bps
Parity	None, Odd, Even
Stop bits	1 or 2
Response time	100mS (Max and independent of baud rate)

Modbus Register Addresses List available for download at www.hager.co.uk, alternatively contact Customer Service.

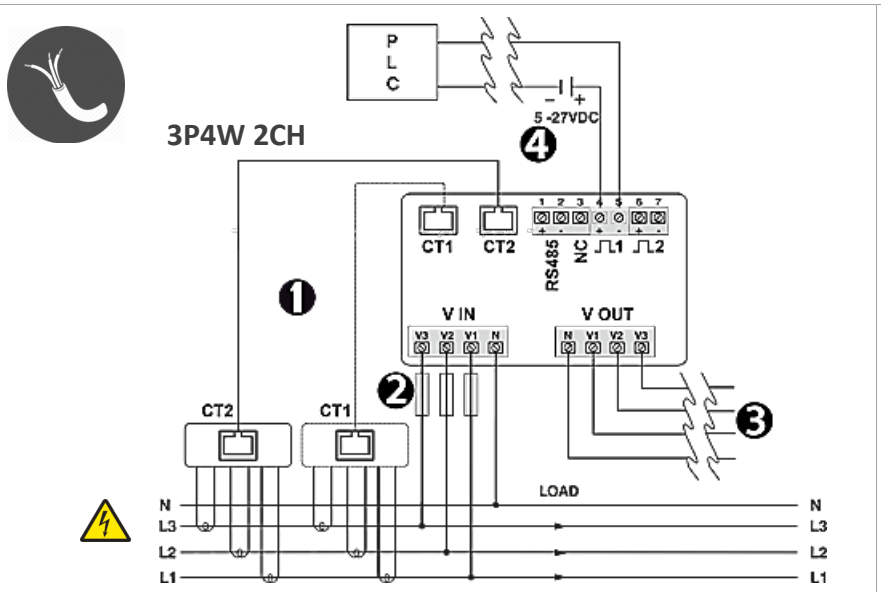
MECHANICAL DIMENSIONS



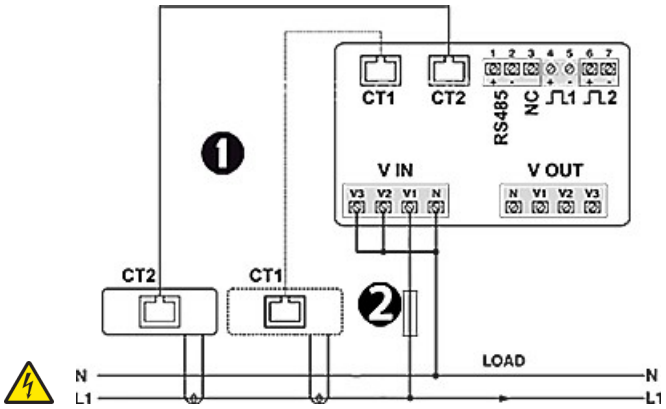
MECHANICAL INSTALLATION

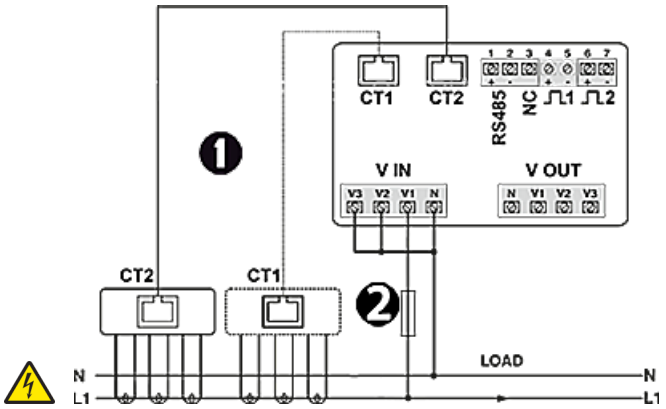


WIRING DIAGRAM

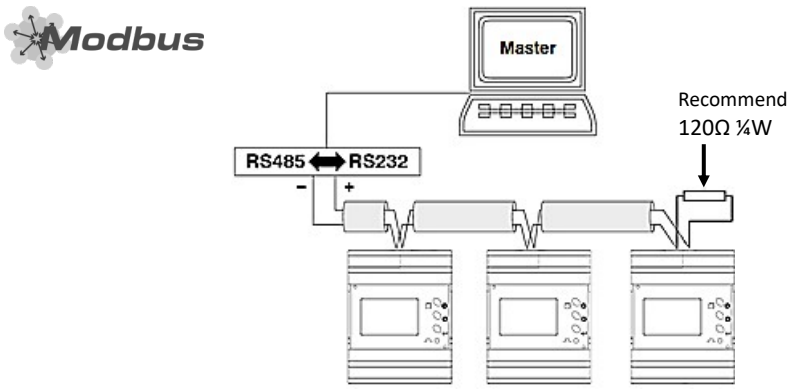


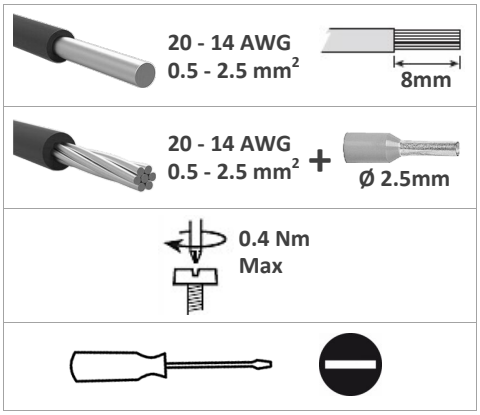
1. Hager RJ45 cable
2. Fuse class CC UL / fast acting 600V
3. Supply 31 additional meters (32 total)
4. Voltage must be provided except for PLC's that has self-excited digital input





The wiring is identical for P2 and P3 configuration but the voltage reference needs to be moved to V2 or V3 (V1 shown).





CONFIGURATION

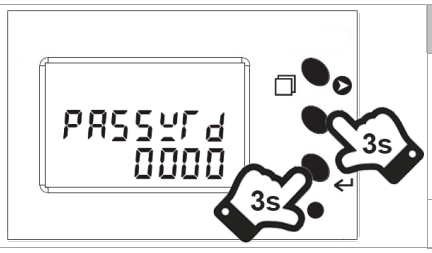
Buttons

- Right
- Increase
- Enter and next

Symbols

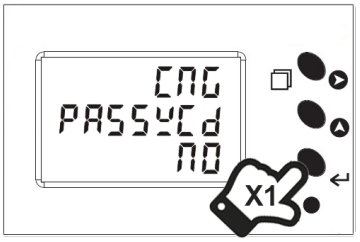
- Press x times
- Sub-menu
- Hold x sec
- Factory default
- Adjustment options

Password or Exit Config



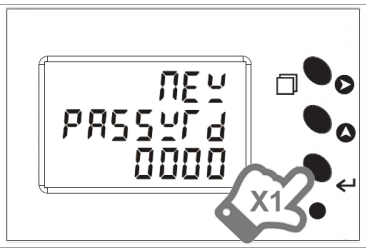
1	2	3
Select digit	Change digit	→ 1
1000	0000 - 9999	

1 Change password



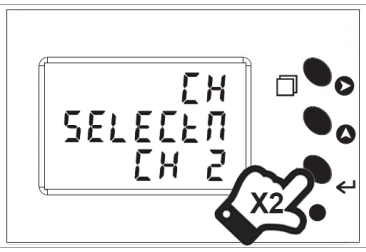
1	2	3
Select digit	Change digit	NO → 2 YES → 1.1
NO	NO / YES	

1.1 New password



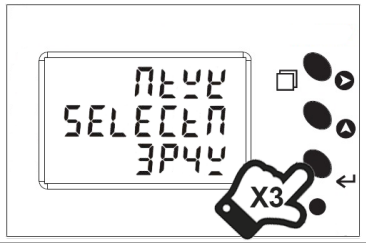
1	2	3
Select digit	Change digit	→ 2
1000	0000 - 9999	

2 Channel selection



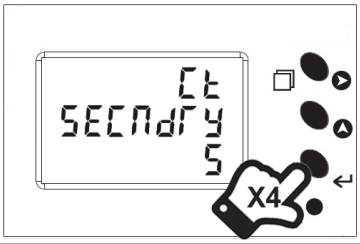
1	2	3
Select option	Change option	→ 3
2 CH	2 CH / 6 CH	

3 Network selection



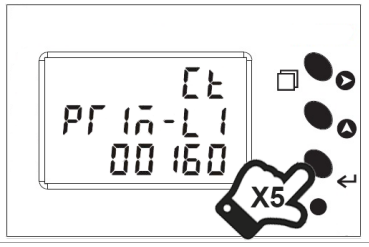
1	2	3
Select option	Change option	→ 4
3P4W	3P4W / 1P2W-P1 / 1P2W-P2 / 1P2W-P3	

4 CT secondary



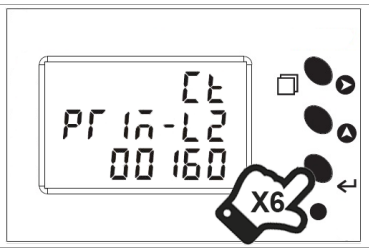
1	2	3
X	X	→ 5
5	Preset	

5 (CT 1)
CT primary



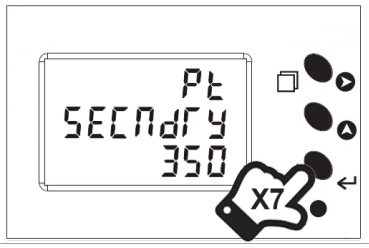
1	2	3
Select digit	Change digit	→ 6
160	5A - 10000A	

6 (CT 2)
CT primary



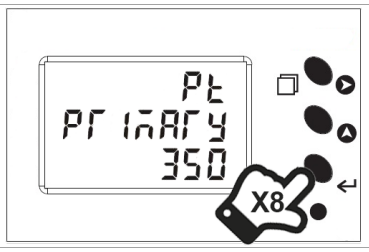
1	2	3
Select digit	Change digit	→ 7
160	5A - 10000A	

7
VT secondary



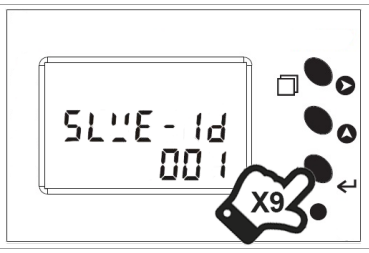
1	2	3
Select digit	Change digit	→ 8
350	173 - 415V	

8
VT primary



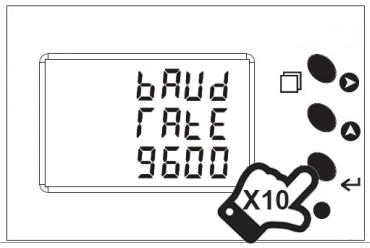
1	2	3
Select digit	Change digit	→ 9
350	100V - 500kV	

9
Slave ID



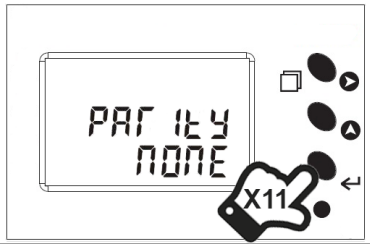
1	2	3
Select digit	Change digit	→ 10
1	1 - 255	

10
Baud rate



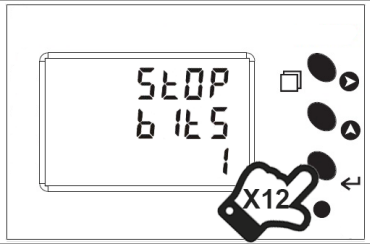
1	2	3
Select option	Change option	→ 11
9600	300 / 600 / 1200 / 2400 / 4800 / 9600 / 19200	

11
Parity



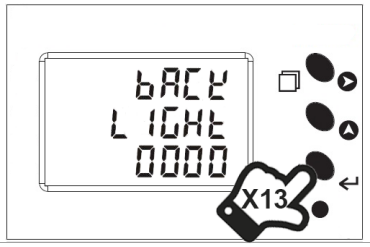
1	2	3
Select option	Change option	→ 12
None	None / Even / Odd	

12
Stop bits



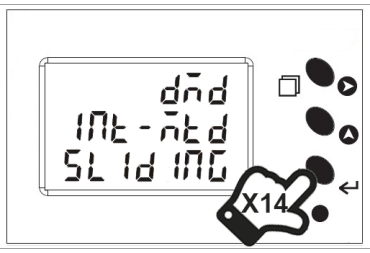
1	2	3
Select option	Change option	→ 13
1	1 / 2	

13
Backlight Duration



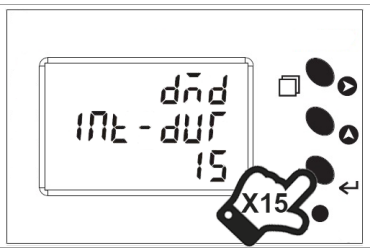
1	2	3
Select digit	Change digit	→ 14
0000	0 - 7200 Sec	

14
Demand interval method



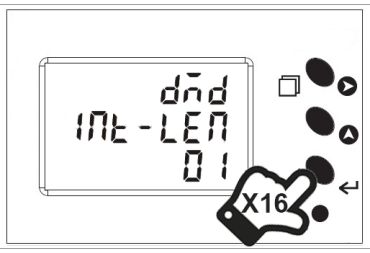
1	2	3
Select option	Change option	→ 15
Sliding	Sliding / Fixed	

15
Demand interval duration



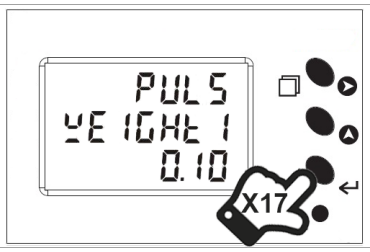
1	2	3
Select digit	Change digit	→ 16
15	1 - 30	

16
Demand interval length



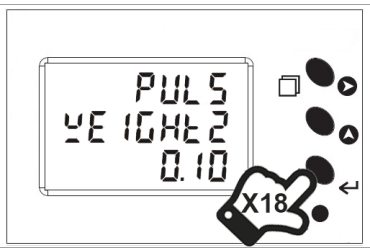
1	2	3
Select digit	Change digit	→ 17
1	1 - 30 min	

17 (6 CH ✱)
Pulse weight (CH 1)



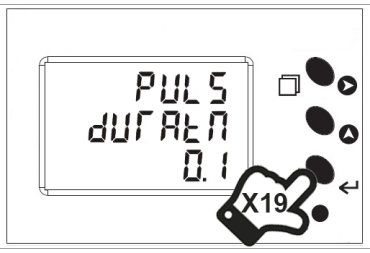
1	2	3
Select digit	Change digit	→ 18
0.10	00.01 - 99.99kW	

18 (6 CH ✱)
Pulse weight (CH 2)



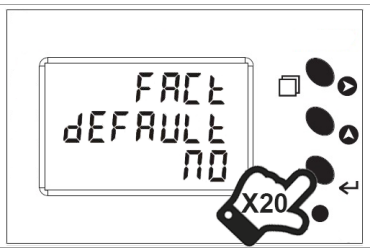
1	2	3
Select digit	Change digit	→ 19
0.10	00.01 - 99.99kW	

19
Pulse duration



1	2	3
Select digit	Change digit	→ 20
0.1	0.1 - 2.0 Sec	

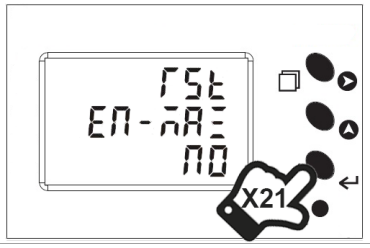
20
Factory default



1	2	3
Select option	Change option	→ 21
No	No / Yes	

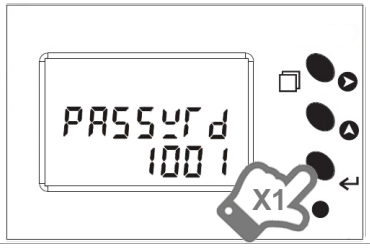
CONFIGURATION

21
Reset energy and max demand



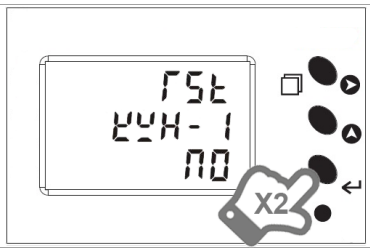
1	2	3
Select option	Change option	NO → 1 YES → 21.01
No	No / Yes	

21.01
Password (Reset only)



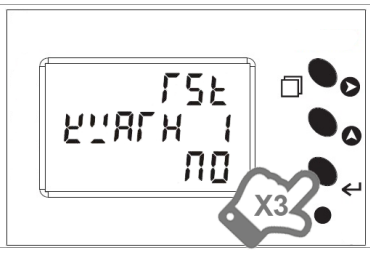
1	2	3
Select digit	Change digit	→ 21.02
Password +1 (1001)		

21.02 (CT 1)
Reset active energy



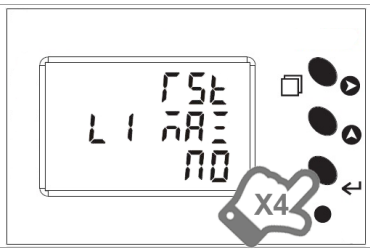
1	2	3
Select option	Change option	→ 21.03
No	No / Yes	

21.03 (CT 1)
Reset reactive energy



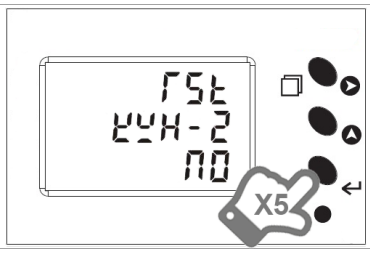
1	2	3
Select option	Change option	→ 21.04
No	No / Yes	

21.04 (CT 1)
Reset max power



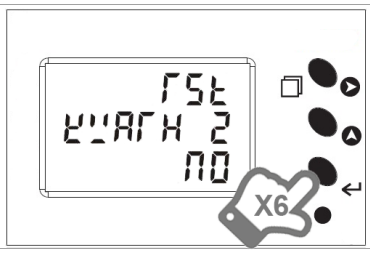
1	2	3
Select option	Change option	→ 21.05
No	No / Yes	

21.05 (CT 2)
Reset active energy



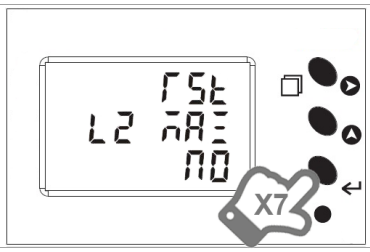
1	2	3
Select option	Change option	→ 21.06
No	No / Yes	

21.06 (CT 2)
Reset reactive energy



1	2	3
Select option	Change option	→ 21.07
No	No / Yes	

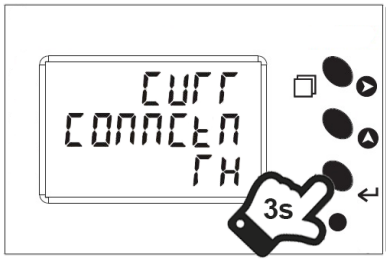
21.07 (CT 2)
Reset max power

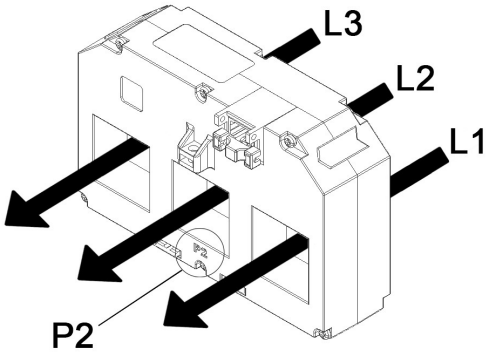


1	2	3
Select option	Change option	→ 1
No	No / Yes	

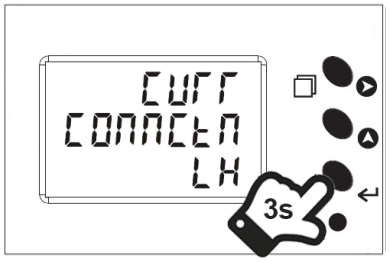
CT Rotation

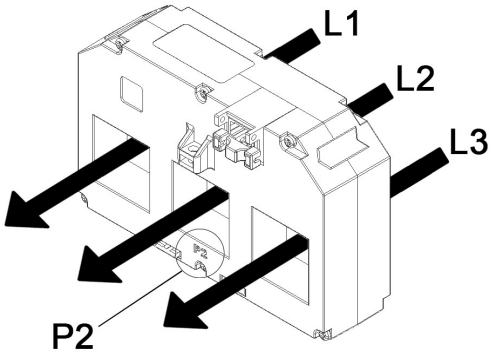
Right Hand



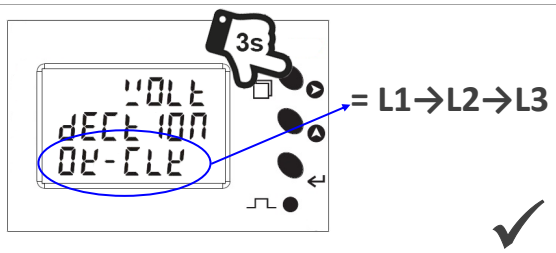


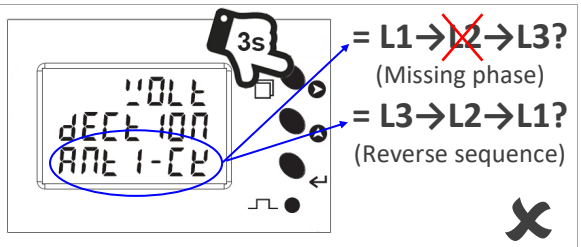
Left Hand



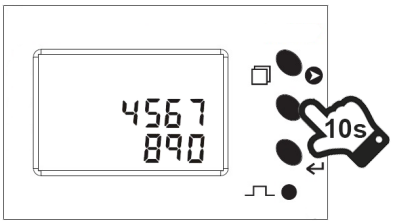


Voltage phase sequence





Serial Number



OPERATION (2 CHANNEL)

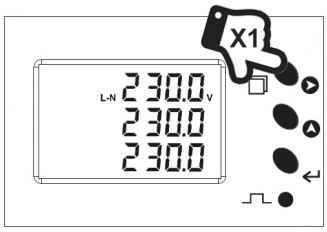
Change menu

Change parameter

Ø = Phase
Avg = Average
∑ = Total
PF = Power Factor

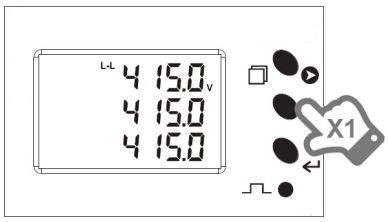
Menu 1.0
- L1 V (L-N)
- L2 V (L-N)
- L3 V (L-N)

1P2W > show 1 Phase



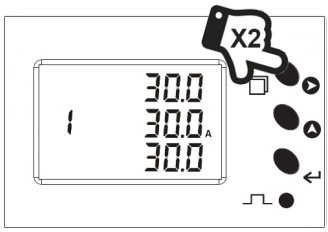
1.1
- L1 V (L-L)
- L2 V (L-L)
- L3 V (L-L)

1P2W ✖



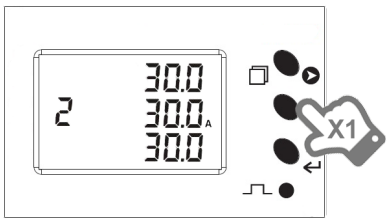
Menu 2.0
CT 1
- L1 Amp
- L2 Amp
- L3 Amp

1P2W > show 1 Phase



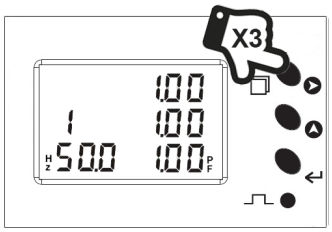
2.1
CT 2
- L1 Amp
- L2 Amp
- L3 Amp

1P2W > show 1 Phase



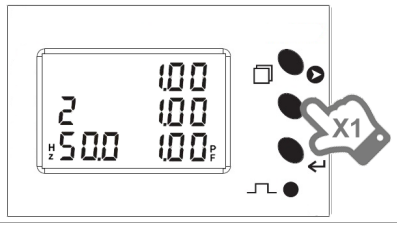
Menu 3.0
CT 1
- L1 PF
- L2 PF
- L3 PF
- Hz

1P2W > show 1 Phase



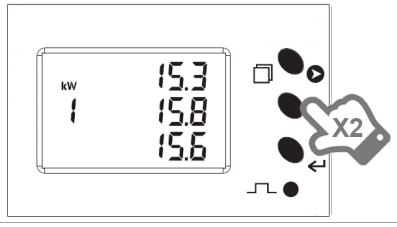
3.1
CT 2
- L1 PF
- L2 PF
- L3 PF
- Hz

1P2W > show 1 Phase



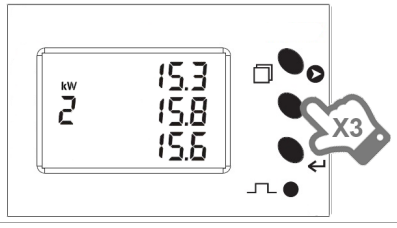
3.2
CT 1
- L1 kW
- L2 kW
- L3 kW

1P2W > show 1 Phase



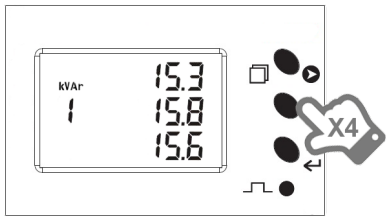
3.3
CT 2
- L1 kW
- L2 kW
- L3 kW

1P2W > show 1 Phase



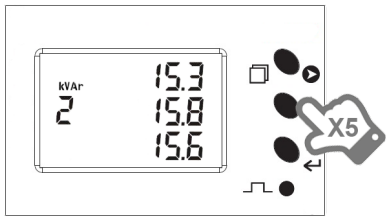
3.4
CT 1
- L1 kVAr
- L2 kVAr
- L3 kVAr

1P2W > show 1 Phase



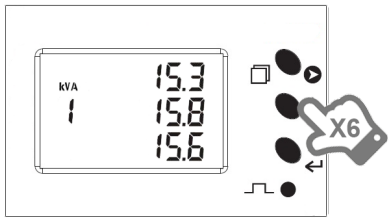
3.5
CT 2
- L1 kVAr
- L2 kVAr
- L3 kVAr

1P2W > show 1 Phase



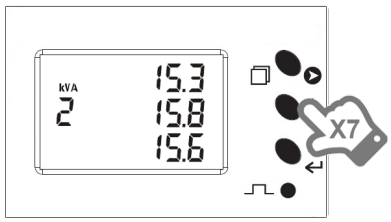
3.6
CT 1
- L1 kVA
- L2 kVA
- L3 kVA

1P2W > show 1 Phase



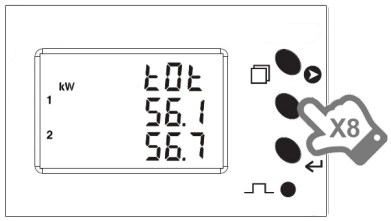
3.7
CT 2
- L1 kVA
- L2 kVA
- L3 kVA

1P2W > show 1 Phase



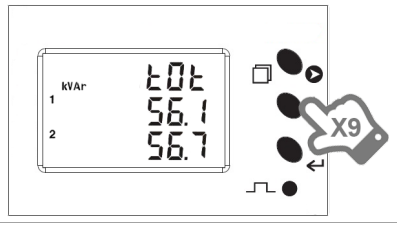
3.8
- ∑ 3P kW (CH 1)
- ∑ 3P kW (CH 2)

1P2W > show 1 Phase



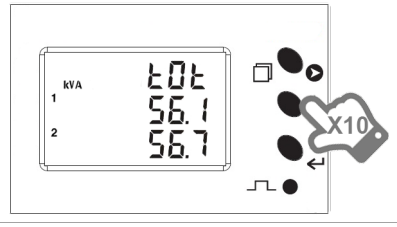
3.9
- ∑ 3P kVAr (CH 1)
- ∑ 3P kVAr (CH 2)

1P2W > show 1 Phase



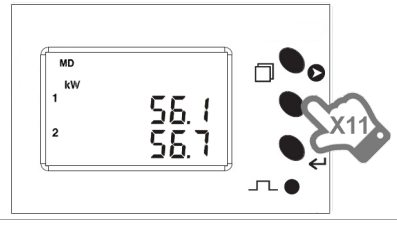
3.10
- ∑ 3P kVA (CH 1)
- ∑ 3P kVA (CH 2)

1P2W > show 1 Phase



3.11
- Max ∑ 3P kW (CH 1)
- Max ∑ 3P kW (CH 2)

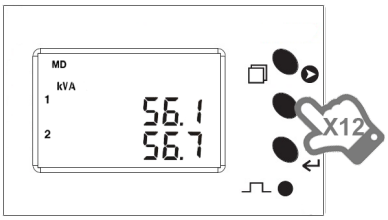
1P2W > show 1 Phase



3.12

- Max ∑ 3P kVA (CH 1)
- Max ∑ 3P kVA (CH 2)

1P2W > 1 Phase

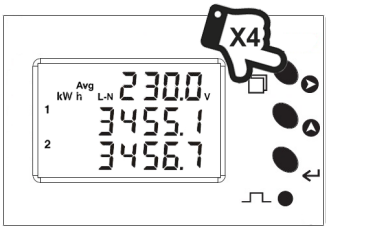


Menu 4.0

Default Screen

- Avg 3P V(L-N)
- kWh (CH 1)
- kWh (CH 2)

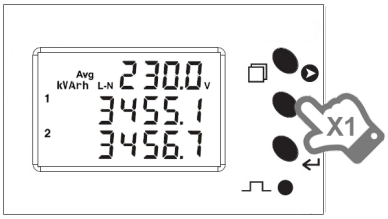
1P2W > 1 Phase



4.1

- Avg 3P V(L-N)
- kVArh (CH 1)
- kVArh (CH 2)

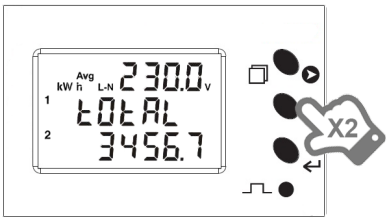
1P2W > 1 Phase



4.2

- Avg 3P V(L-N)
- kWh (CH 1 + CH 2)

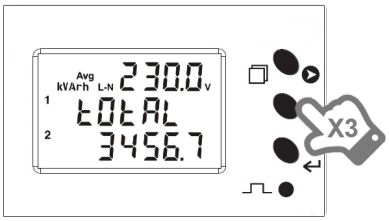
1P2W > 1 Phase



4.3

- Avg 3P V(L-N)
- kVArh (CH 1 + CH 2)

1P2W > 1 Phase



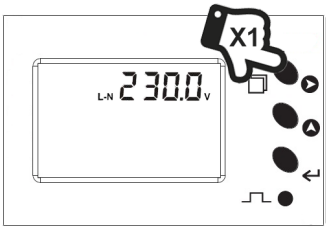
OPERATION (6 CHANNEL)

Change menu

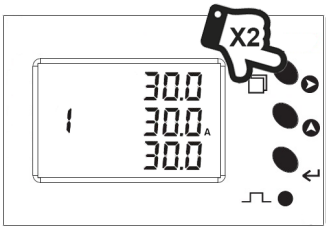
Change parameter

Ø = Phase
Avg = Average
∑ = Total
PF = Power Factor

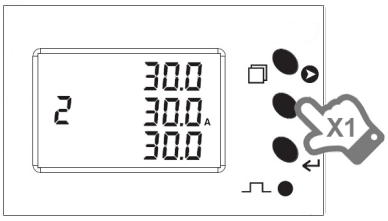
Menu 1.0
- V(L-N)



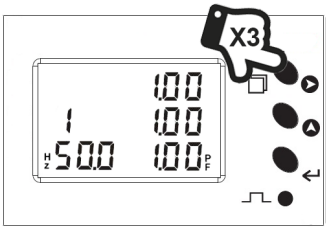
Menu 2.0
- CH 1 Amp
- CH 2 Amp
- CH 3 Amp



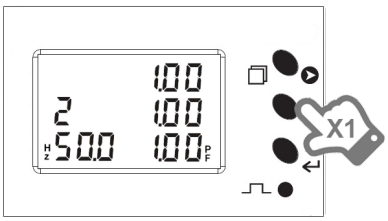
2.1
- CH 4 Amp
- CH 5 Amp
- CH 6 Amp



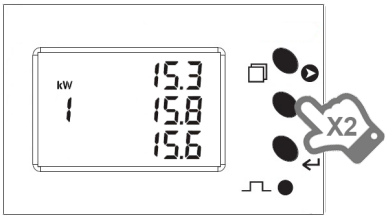
Menu 3.0
- CH 1 PF
- CH 2 PF
- CH 3 PF
- Hz



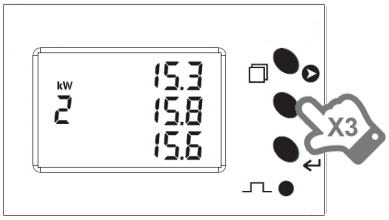
3.1
- CH 4 PF
- CH 5 PF
- CH 6 PF
- Hz



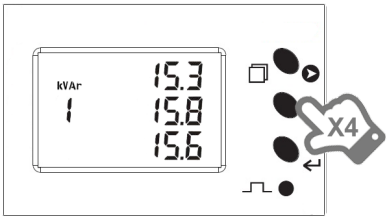
3.2
- CH 1 kW
- CH 2 kW
- CH 3 kW



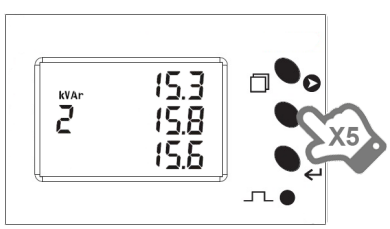
3.3
- CH 4 kW
- CH 5 kW
- CH 6 kW



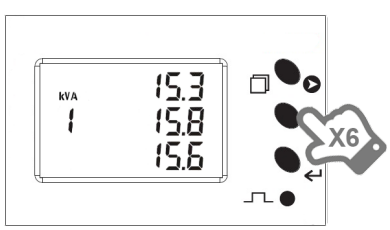
3.4
- CH 1 kVAr
- CH 2 kVAr
- CH 3 kVAr



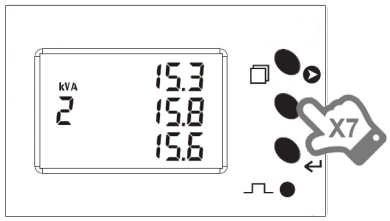
3.5
- CH 4 kVAr
- CH 5 kVAr
- CH 6 kVAr



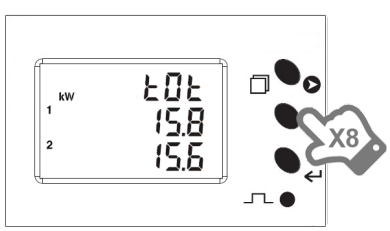
3.6
- CH 1 kVA
- CH 2 kVA
- CH 3 kVA



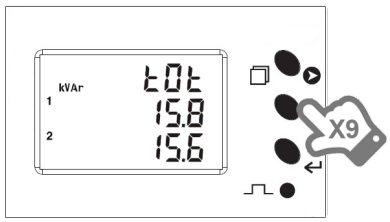
3.7
- CH 4 kVA
- CH 5 kVA
- CH 6 kVA



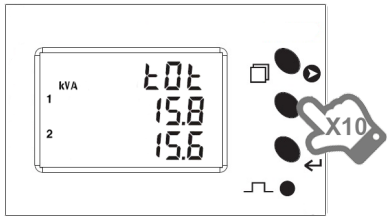
3.8
- kW (CH 1 + 2 + 3)
- kW (CH 4 + 5 + 6)



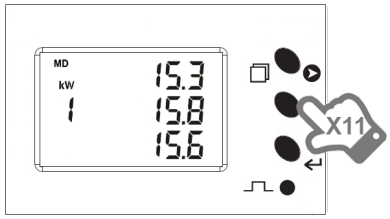
3.9
- kVAr (CH 1 + 2 + 3)
- kVAr (CH 4 + 5 + 6)



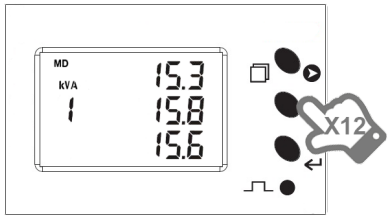
3.10
- kVA (CH 1 + 2 + 3)
- kVA (CH 4 + 5 + 6)



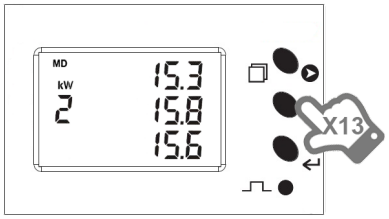
3.11
- Max CH 1 kW
- Max CH 2 kW
- Max CH 3 kW



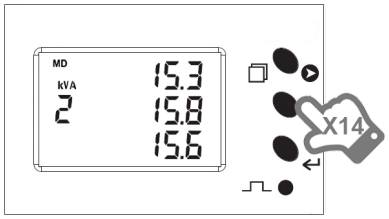
3.12
- Max CH 1 kVA
- Max CH 2 kVA
- Max CH 3 kVA



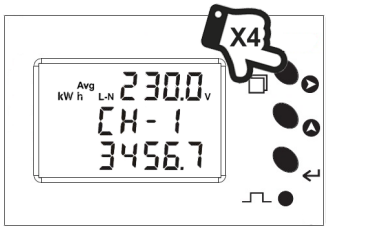
3.13
- Max CH 4 kW
- Max CH 5 kW
- Max CH 6 kW



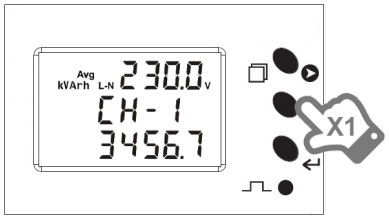
3.14
- Max CH 4 kVA
- Max CH 5 kVA
- Max CH 6 kVA



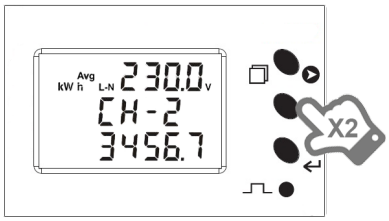
Menu 4.0
Default Screen
- Avg V(L-N)
- kWh (CH 1)



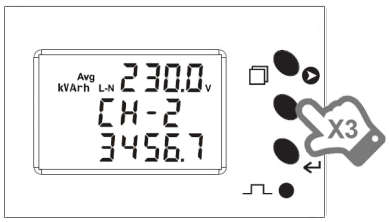
4.1
- Avg V(L-N)
- kVArh (CH 1)



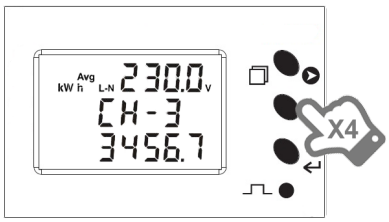
4.2
- Avg V(L-N)
- kWh (CH 2)



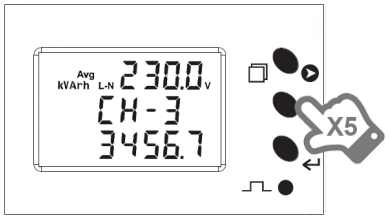
4.3
- Avg V(L-N)
- kVArh (CH 2)



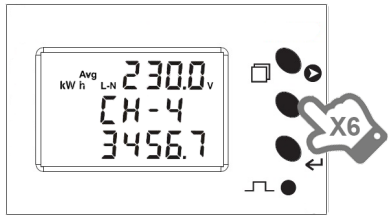
4.4
- Avg V(L-N)
- kWh (CH 3)



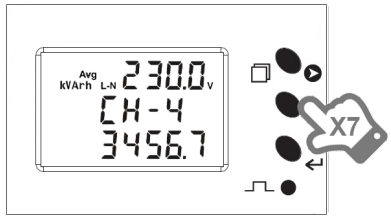
4.5
- Avg V(L-N)
- kVArh (CH 3)



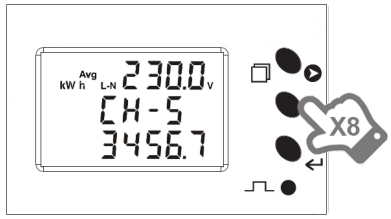
4.6
- Avg V(L-N)
- kWh (CH 4)



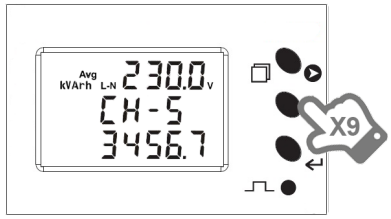
4.7
- Avg V(L-N)
- kVArh (CH 4)



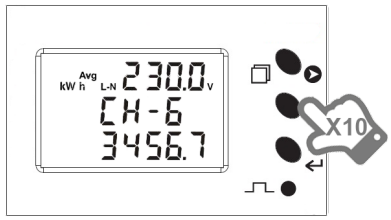
4.8
- Avg V(L-N)
- kWh (CH 5)



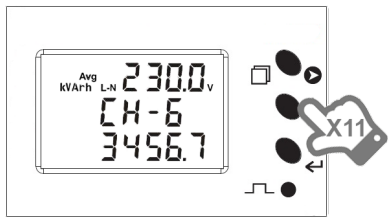
4.9
- Avg V(L-N)
- kVArh (CH 5)



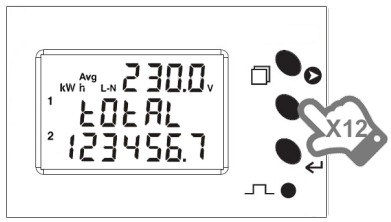
4.10
- Avg V(L-N)
- kWh (CH 6)



4.11
- Avg V(L-N)
- kVArh (CH 6)



4.12
- Avg V(L-N)
- kWh
  (CH 1+2+3+4+5+6)



4.13
- Avg V(L-N)
- kVArh
  (CH 1+2+3+4+5+6)