Content

AEM-DD Multi-Circuit DC Power Meter (DIN rail) MANUAL

1. Product Overview

Description

Provide high accuracy DC power measurement, display and remote communication of five loops. Multi-circuit design and relay output modular expansion design decrease the overall cost and make the functionality more flexible. All monitored data is available via RS485, for the needs in energy management, alarming, and remote control.

Embedded flash memory for Data-Logging can avoid any data missing once the communication is interrupted. Moreover, its ultra compact size DIN-rail mounting makes itself mountable in virtually any panel, enclosure or indoor Cabinet.

2. Specifications

Panel Description

Key definition

ENT Enter(Confirm) / FUN

Left / ESC

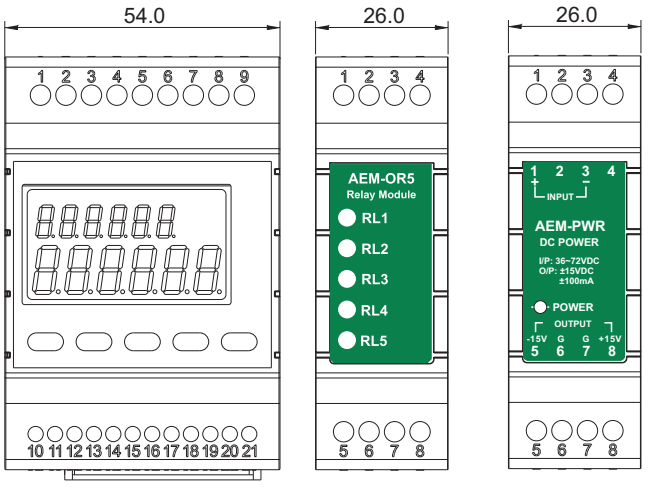
Right / Energy

Up / Increase / Power

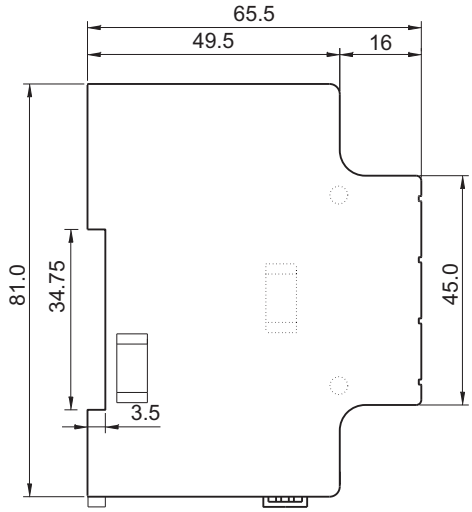
Down / Decrease / Volt / Amp

Dimensions

AEM-OR5 AEM-PWR



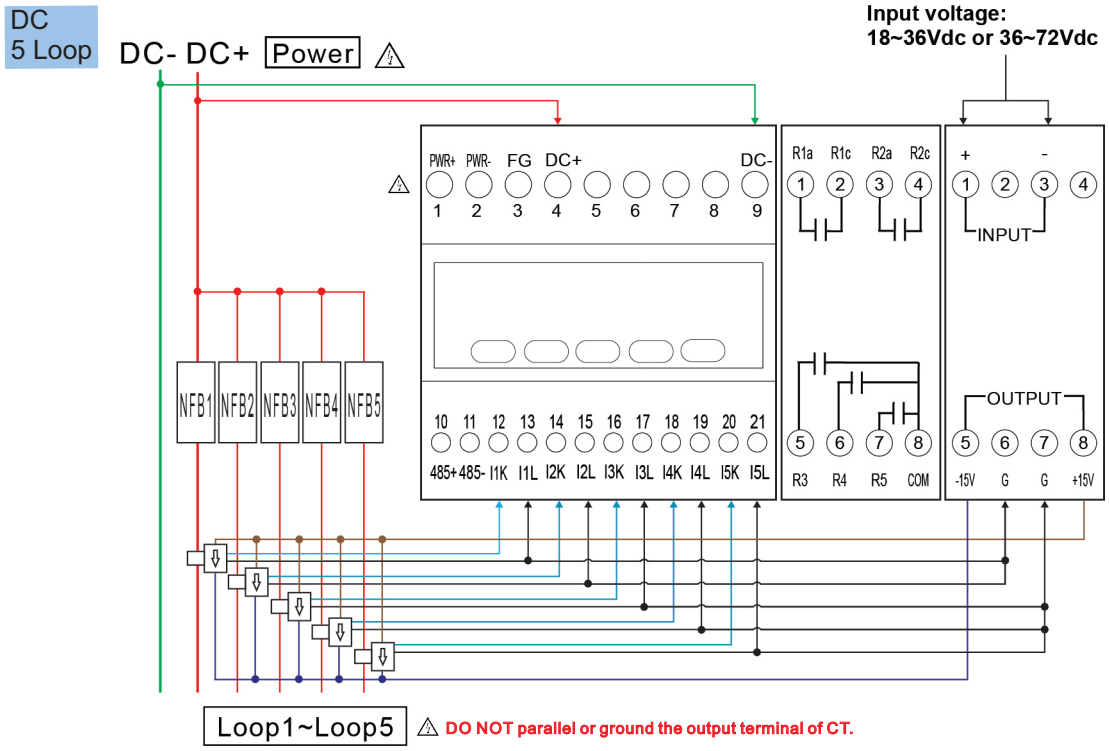
Meter Relay Module Power Module



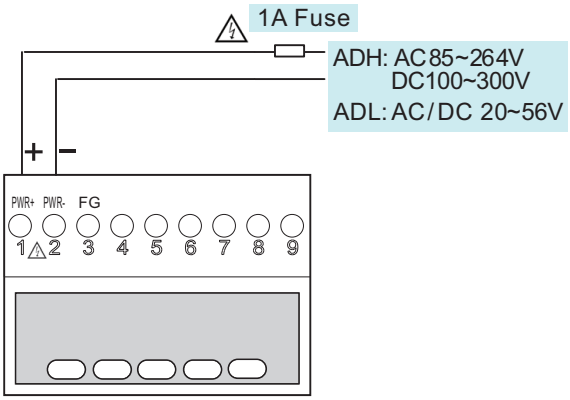
Unit:mm

3. Wiring Instruction

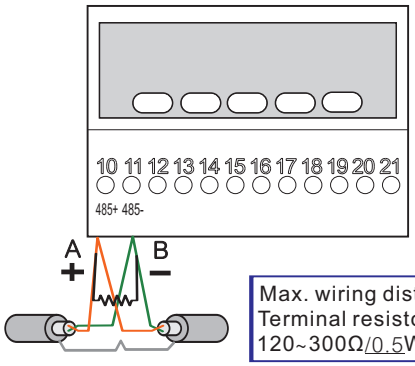
Wiring Diagram



Power Supply



RS485 Communication Port



Max. wiring distance:1200M
Terminal resistor(the farthest device):
120~300Ω/0.5W (typical: 120Ω)

4. Operation functions

Function Keys Explanation

Press ▼ can quickly to check circuit voltage and each loop current value

See page 4.

Press ▲ can quickly to check each loop power value

See page 4.

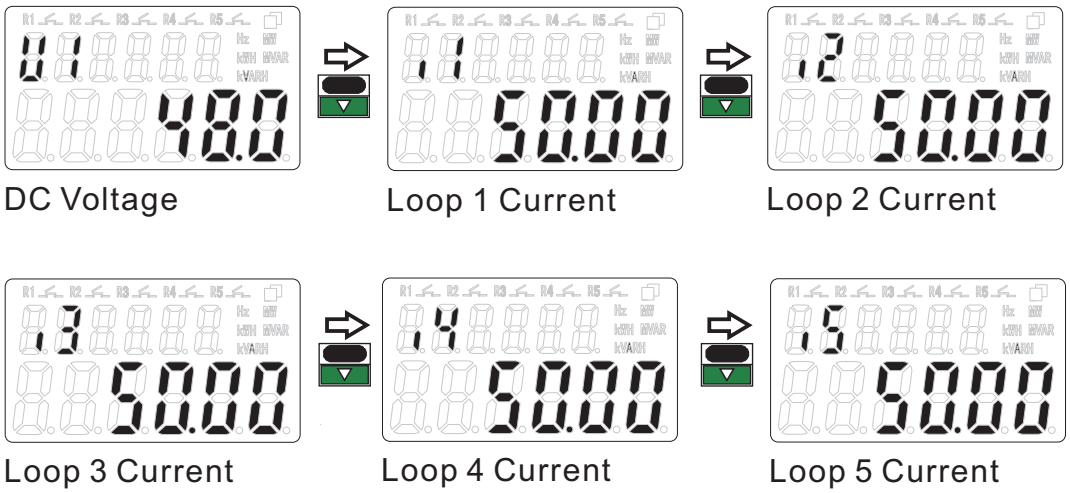
Press ▶ can quickly to check each loop energy value, and Date and Time

See page 4.

Press ◀ more than a second can into General operating level to setting parameters of Relays, check Number of Loop, meter software version and Data logging remaining time

See page 5.

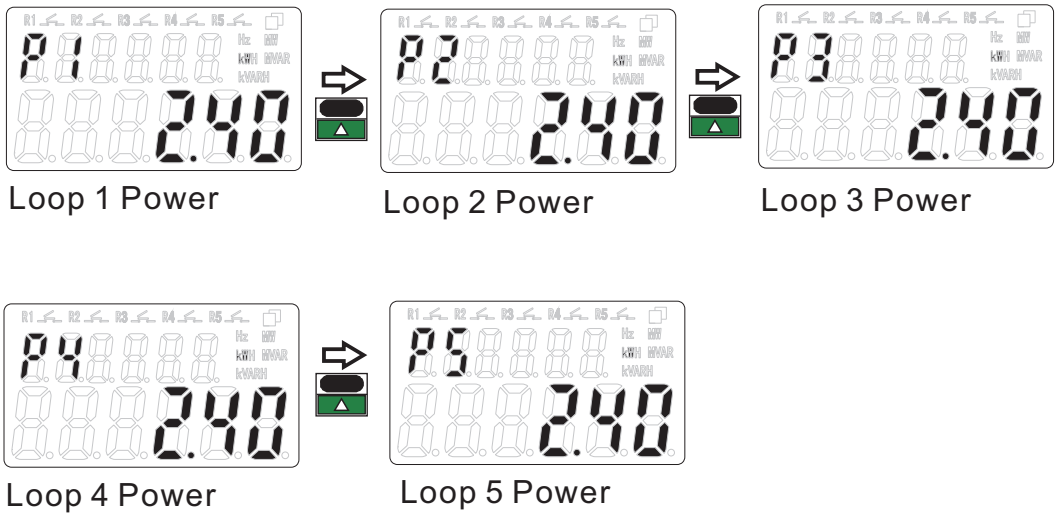
Volt/Amp (Voltage , Current) Measurement screen



DC Voltage | Loop 1 Current | Loop 2 Current

Loop 3 Current | Loop 4 Current | Loop 5 Current

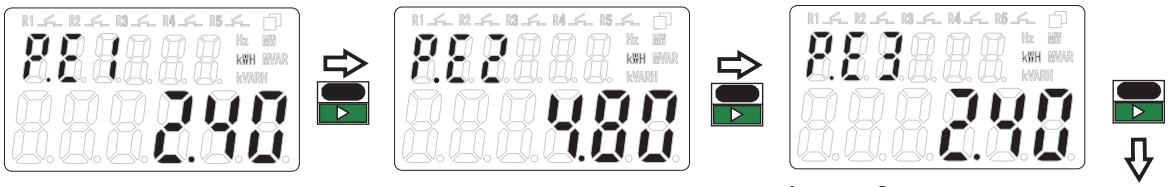
Power Measurement screen



Loop 1 Power | Loop 2 Power | Loop 3 Power

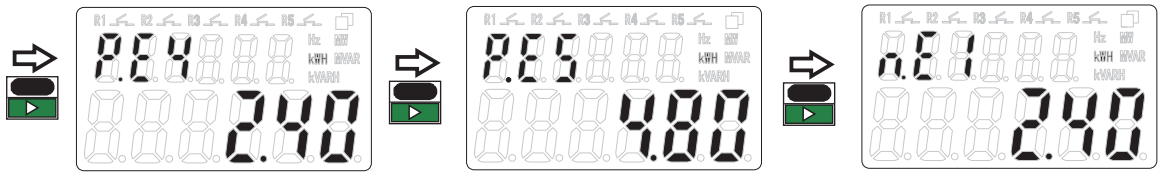
Loop 4 Power | Loop 5 Power

Energy Measurement screen



Loop 1 Positive Energy | Loop 2 Positive Energy | Loop 3 Positive Energy

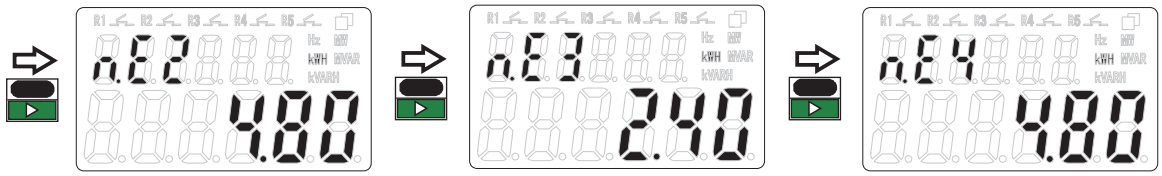
Measurement screen



Loop 4
Positive Energy

Loop 5
Positive Energy

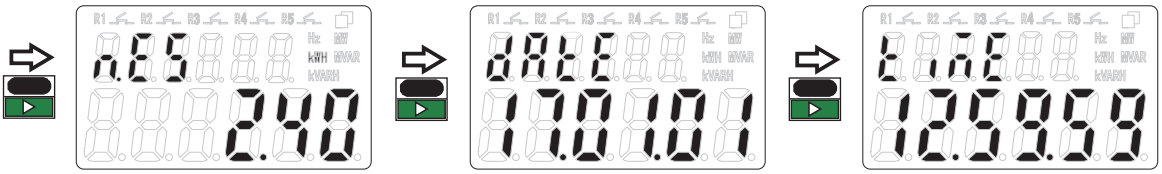
Loop 1
Negative Energy



Loop 2
Negative Energy

Loop 3
Negative Energy

Loop 4
Negative Energy



Loop 5
Negative Energy

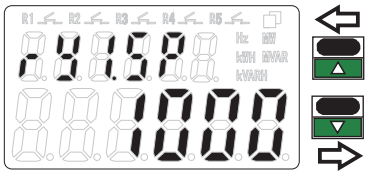
Date
2017.01.01

Time
12.59.59

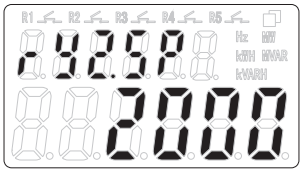
5. General Operation

ESC (Escape) General operating level

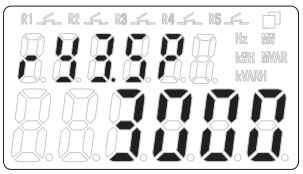
(Press and hold over one second to enter the setting)



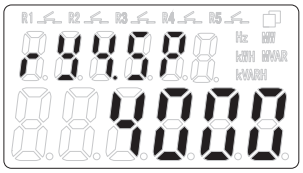
Relay 1 set point
RY1.SP : 1000
Range : -32768~32767



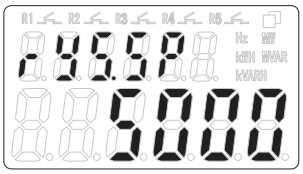
Relay 2 set point
RY2.SP : 2000
Range : -32768~32767



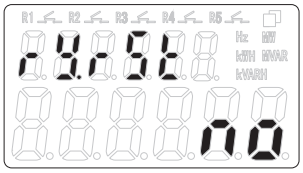
Relay 3 set point
RY3.SP : 3000
Range : -32768~32767



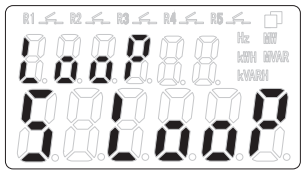
Relay 4 set point
RY4.SP : 4000
Range : -32768~32767



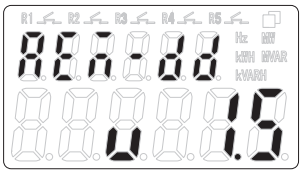
Relay 5 set point
RY5.SP : 5000
Range : -32768~32767



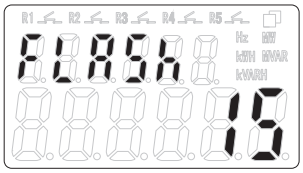
Forced reset all
Relays
Setting : NO/YES



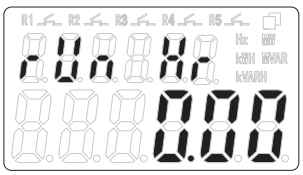
Number of loop : 5



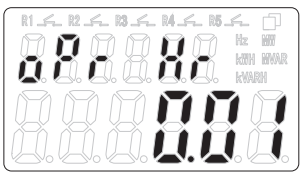
Software version
AEM-DD/V1.50



Data logging
remaining time
FLASH : 0~65535
Unit same as logging
interval time



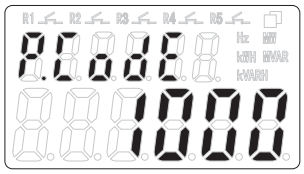
Run hour
Format:
9999(hour).59(min)



Operation hour
Format:
9999(hour).59(min)

6. Programming setting

ENT Enter(Confirm) / FUN



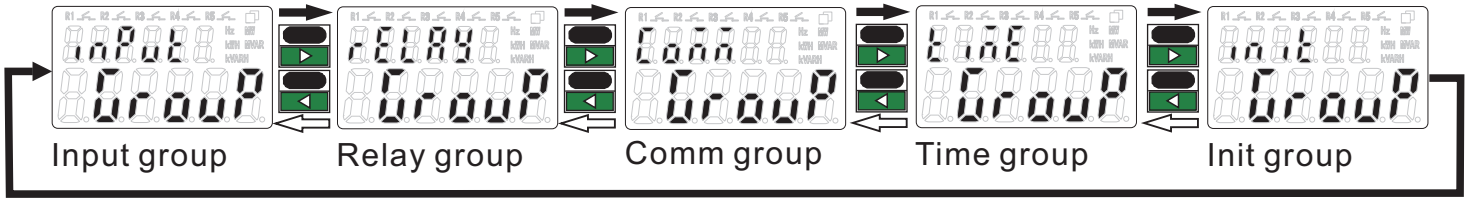
P.CODE /1000

ENT Press twice to start input pass code

Shift blink position for input

Incresae/Decrease input number

ENT Enter pass word after input



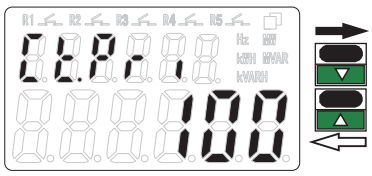
Input group | Relay group | Comm group | Time group | Init group

ENT ENT ENT ENT ENT

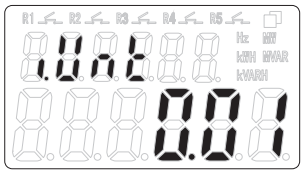
INTO Input Group | INTO Relay Group | INTO Communication Group | INTO Time Group | INTO Initial Group

Programming Level

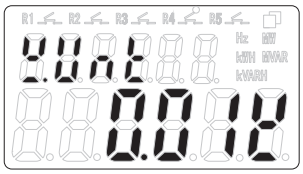
Input Group



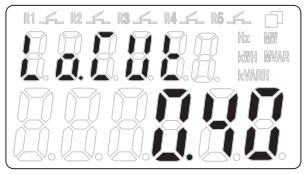
CT primary current setting
CT.PRI : 100
Range : 1~9999



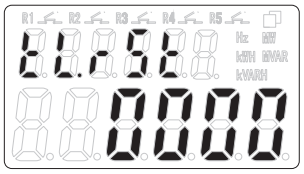
Current display resolution setting
I.UNT : 0.01
(0.001/0.01/0.1/1)



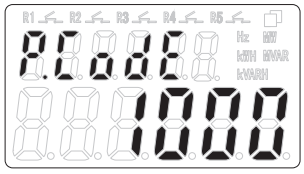
Power display resolution setting
W.UNT : 0.01k
(0.1/1/0.01K/0.1K/1K/
0.01M/0.1M/1M)



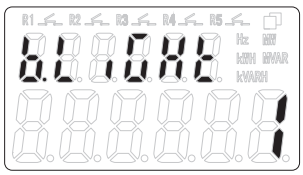
Current display low cut setting
Lo.CUT : 0.40
Range : 0.00~100.00%



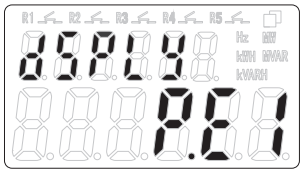
All energy reset
TL.RST : 2100



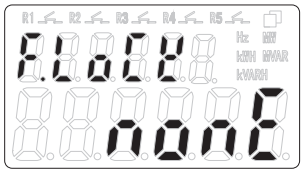
Modify pass code
P.CODE : 1000
Range : 0000~9999



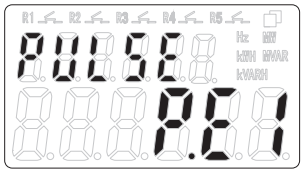
Back light timer setting
B.LIGHT : 1
Range : 0~15 min
(0 is always ON)



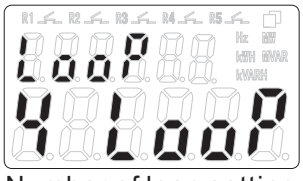
Select permanent screen
DSPLY : P.E1
(see Page 8)



Parameter lock setting
F.LOCK : NONE
(NONE/USER/ENG/ALL)



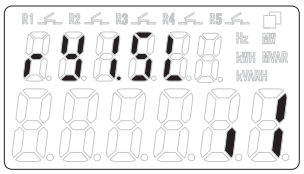
Energy of pulse output
PULSE : P.E1
(P.E1~P.E5)



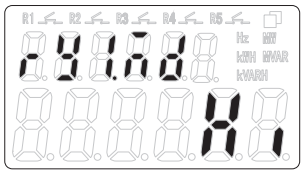
Number of loop setting
LOOP : 4 LOOP
Range : 1~5

Back to CT primary current setting

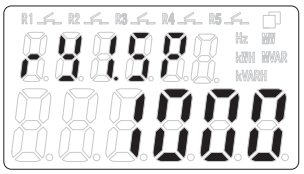
Relay Group



Relay 1 alarming parameter setting
RY1.SL : I1
(see page 8)

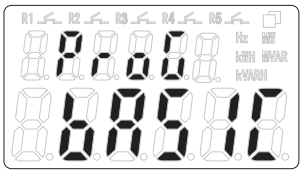


Relay 1 action mode
RY1.MD : HI
(OFF/LO/HI/LO.HLD
/HI.HLD/RO)



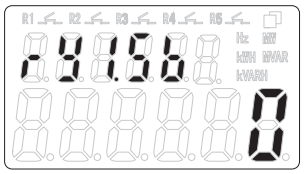
Relay 1 set point
RY1.SP : 1000
Range:-32768~32767

Relay 2~5 setting same as Relay 1

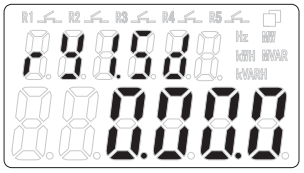


Advanced function of relays
PROG : BASIC
(BASIC/ADVNC)

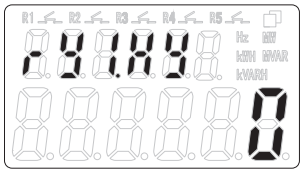
If basic mode then back to
Relay 1 alarming parameters setting
If advanced mode then goto below setting



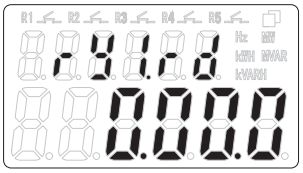
Relay 1 start band
RY1.SB : 0 count
Range:0~ 9999



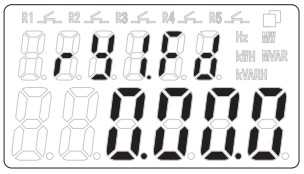
Relay 1 start delay time
RY1.SD : 0.00.0
Range:0.00.0~9.59.9



Relay 1 hysteresis band
RY1.HY : 0 count
Range:0~ 9999



Relay 1 active delay time
RY1.RD : 0.00.0
Range:0.00.0~9.59.9

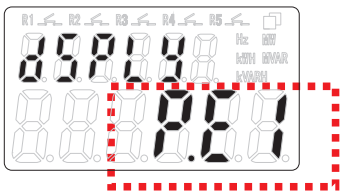


Relay 1 delay off time
RY1.FD : 0.00.0
Range:0.00.0~9.59.9

Relay 2~5 setting same as Relay 1
then back to
Relay 1 alarming parameters setting

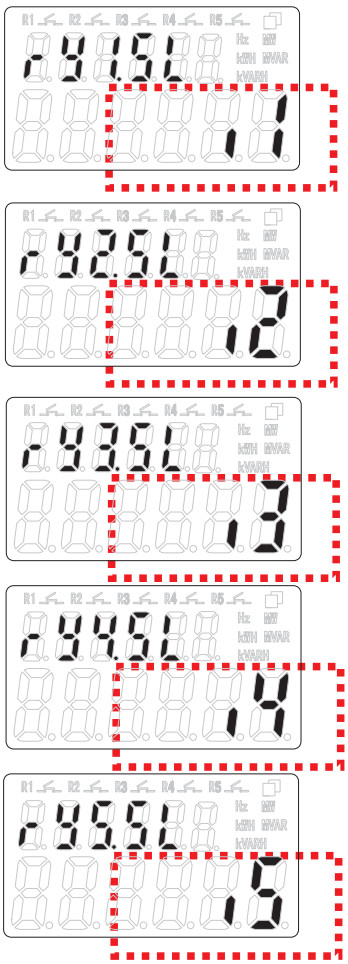
Setting relationship table

Permanent screen parameters table



U1, I1, I2, I3, I4, I5,
P1, P2, P3, P4, P5,
P.E1, P.E2, P.E3, P.E4, P.E5,
N.E1, N.E2, N.E3, N.E4, N.E5

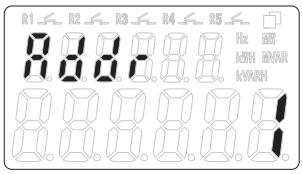
Relay alarming parameters table



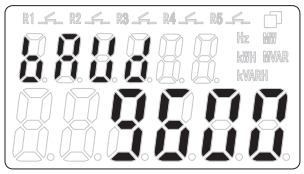
U1, I1, I2, I3, I4, I5,
P1, P2, P3, P4, P5

Programming Level

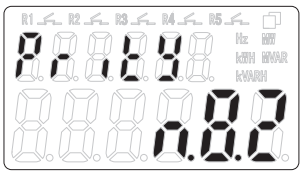
Communication Group



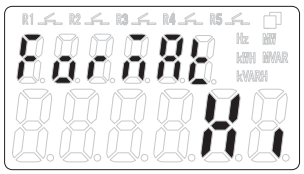
Station address setting
ADDR : 001
Range : 1 ~ 247



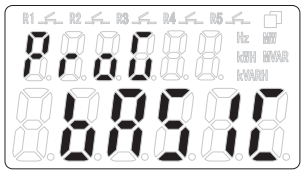
Baud rate setting
BAUD : 9600
(1200/2400/4800/
9600/19200/38400)



Parity check setting
PRITY : N.8.2
(N.8.1/N.8.2/E.8.1/
O.8.1)

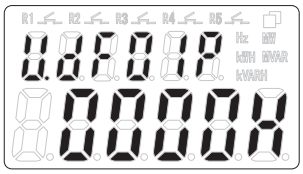


Data Format setting
FORMAT : HI
(HI/LO)
Note : setting data format
in double word is
(hi word-low word) or
(low word- hi word)

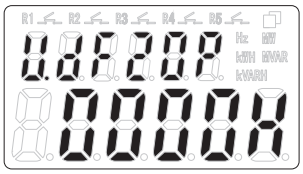


If basic mode then back to
Station address setting
If advanced mode then goto below setting

Advanced function of
User-Defined
PROG : BASIC
(BASIC/ADVNC)



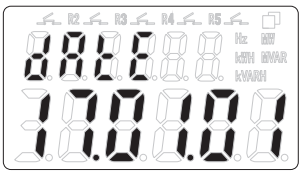
1st User-Defined
address setting
Range : 0000 ~ FFFF



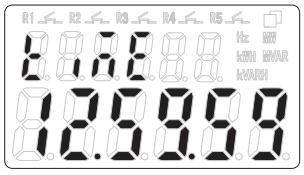
20th User-Defined
address setting
Range : 0000 ~ FFFF

back to
Station address setting

Time Group

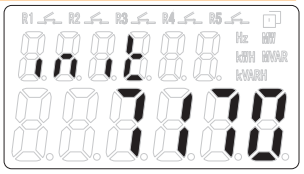


Date setting



Time setting

Initial Group



Meter Initialization
Input : 7170

7. RS485 communication table

RS485 Communication table

Measurement data(CODE : 03)

Name	Address	Range	Explain	Initial	R/W
U1	0000h	-999.9~999.9	DC voltage		R
I1	0001h	-9999~9999	Loop 1 current		R
I2	0002h	-9999~9999	Loop 2 current		R
I3	0003h	-9999~9999	Loop 3 current		R
I4	0004h	-9999~9999	Loop 4 current		R
I5	0005h	-9999~9999	Loop 5 current		R
P1	0006h	-32768~32767	Loop 1 power		R
P2	0007h	-32768~32767	Loop 2 power		R
P3	0008h	-32768~32767	Loop 3 power		R
P4	0009h	-32768~32767	Loop 4 power		R
P5	000Ah	-32768~32767	Loop 5 power		R
P.E1	000Bh	0~99999.9kWh	Loop 1 Positive energy(High Word)		R
	000Ch		Loop 1 Positive energy(Low Word)		R
P.E2	000Dh	0~99999.9kWh	Loop 2Positive energy(High Word)		R
	000Eh		Loop 2Positive energy(Low Word)		R
P.E3	000Fh	0~99999.9kWh	Loop 3 Positive energy(High Word)		R
	0010h		Loop 3 Positive energy(Low Word)		R
P.E4	0011h	0~99999.9kWh	Loop 4 Positive energy(High Word)		R
	0012h		Loop 4 Positive energy(Low Word)		R
P.E5	0013h	0~99999.9kWh	Loop 5 Positive energy(High Word)		R
	0014h		Loop 5 Positive energy(Low Word)		R
N.E1	0015h	0~99999.9kWh	Loop 1 Negative energy(High Word)		R
	0016h		Loop 1 Negative energy(Low Word)		R
N.E2	0017h	0~99999.9kWh	Loop 2 Negative energy(High Word)		R
	0018h		Loop 2 Negative energy(Low Word)		R
N.E3	0019h	0~99999.9kWh	Loop 3 Negative energy(High Word)		R
	001Ah		Loop 3 Negative energy(Low Word)		R
N.E4	001Bh	0~99999.9kWh	Loop 4 Negative energy(High Word)		R
	001Ch		Loop 4 Negative energy(Low Word)		R
N.E5	001Dh	0~99999.9kWh	Loop 5 Negative energy(High Word)		R
	001Eh		Loop 5 Negative energy(Low Word)		R

Relay Status and Control(CODE : 01h , 05h):

Name	Address	Range	Explain	Initial	R/W
RELAY 1	0000h		Relay status : 0 : Relay OFF 1 : Relay ON Relay control : 0000h : Relay OFF FF00h : Relay ON		R/W
RELAY 2	0001h				R/W
RELAY 3	0002h				R/W
RELAY 4	0003h				R/W
RELAY 5	0004h				R/W

RS485 Communication table

General operating Level(CODE : 03h , 06h):

Name	Address	Range	Explain	Initial	R/W
LOOP	0040h	0~4	Number of loop 0 : 1 Loop ~ 4 : 5 Loop	3	R/W
FLASH	0041h	0~65535	FLASH remaining time		R

Input Group(CODE : 03h , 06h , 10h)

Name	Address	Range	Explain	Initial	R/W
CT.PRI	0047h	1~9999	CT primary current	50	R/W
I.UNT	0048h	0~3	Current display resolution setting 0:0.001(A) 1:0.01(A) 2:0.1(A) 3:1(A)	1	R/W
W.UNT	0049h	0~7	Power display unit and resolution settings 0:0.1(W) 1:1(W) 2:0.01k(W) 3:0.1k(W) 4:1k(W) 5:0.01M(W) 6:0.1M(W) 7:1M(W)	2	R/W
LO.CUT	004Ah	0~10000	Current display low cut setting	40	R/W
P.CODE	004Bh	0000~9999	Modify PASS CODE	1000	R/W
B.LIGHT	004Ch	0~15	0~15 min Backlight timer 0 is always ON	1	R/W
DSPLY	004Dh	0~20	Select Permanent screen 0:U1 1:I1 2:I2 3:I3 4:I4 5:I5 6:P1 7:P2 8:P3 9:P4 10:P5 11:P.E1 12:P.E2 13:P.E3 14:P.E4 15:P.E5 16:N.E1 17:N.E2 18:N.E3 19:N.E4 20:N.E5	0	R/W
F.LOCK	004Eh	0~3	0 : NONE 1 : USER 2 : ENGINEERING 3 : ALL	0	R/W
EEP STATUS	004Fh	0~3	0 : OK 1 : FRAM NG 2 : FLASH NG 3 : FRAM & FLASH NG	0	R
TL.RST	0050h	2100	Energy reset	0	R/W

RS485 Communication table

Relay Group(CODE : 03h , 06h , 10h)

Name	Address	Range	Explain	Initial	R/W
RY1.SL	0051h	0~10	Parameters select 0:U1 1:I1 2:I2 3:I3 4:I4 5:I5 6:P1 7:P2 8:P3 9:P4 10:P5	1	R/W
RY1.MD	0052h	0~5	Relay 1 action mode 0:OFF 1:Lo 2:Hi 3:Lo.HOLD 4:Hi.HOLD 5:RO	2	R/W
RY1.SP	0053h	-32768~32767	Relay 1 set point	1000	R/W
RY1.SB	0054h	0~9999	Relay 1 start band	0	R/W
RY1.SD	0055h	0000~5999 (x0.1S)	Relay 1 start delay time	0	R/W
RY1.HY	0056h	0~9999	Relay 1 hysteresis band	0	R/W
RY1.RD	0057h	0000~5999 (x0.1S)	Relay 1 active delay time	0	R/W
RY1.FD	0058h	0000~5999 (x0.1S)	Relay 1 delay off time	0	R/W
RY2.SL	0059h	0~10	Parameters select 0:U1 1:I1 2:I2 3:I3 4:I4 5:I5 6:P1 7:P2 8:P3 9:P4 10:P5	1	R/W
RY2.MD	005Ah	0~5	Relay 2 action mode 0:OFF 1:Lo 2:Hi 3:Lo.HOLD 4:Hi.HOLD 5:RO	2	R/W
RY2.SP	005Bh	-32768~32767	Relay 2 set point	1000	R/W
RY2.SB	005Ch	0~9999	Relay 2 start band	0	R/W
RY2.SD	005Dh	0000~5999 (x0.1S)	Relay 2 start delay time	0	R/W
RY2.HY	005Eh	0~9999	Relay 2 hysteresis band	0	R/W
RY2.RD	005Fh	0000~5999 (x0.1S)	Relay 2 active delay time	0	R/W
RY2.FD	0060h	0000~5999 (x0.1S)	Relay 2 delay off time	0	R/W

RS485 Communication table

Relay Group(CODE : 03h , 06h , 10h)

Name	Address	Range	Explain	Initial	R/W
RY3.SL	0061h	0~10	Parameters select 0:U1 1:I1 2:I2 3:I3 4:I4 5:I5 6:P1 7:P2 8:P3 9:P4 10:P5	1	R/W
RY3.MD	0062h	0~5	Relay 3 action mode 0:OFF 1:Lo 2:Hi 3:Lo.HOLD 4:Hi.HOLD 5:RO	2	R/W
RY3.SP	0063h	-32768~32767	Relay 3 set point	1000	R/W
RY3.SB	0064h	0~9999	Relay 3 start band	0	R/W
RY3.SD	0065h	0000~5999 (x0.1S)	Relay 3 start delay time	0	R/W
RY3.HY	0066h	0~9999	Relay 3 hysteresis band	0	R/W
RY3.RD	0067h	0000~5999 (x0.1S)	Relay 3 active delay time	0	R/W
RY3.FD	0068h	0000~5999 (x0.1S)	Relay 3 delay off time	0	R/W
RY4.SL	0069h	0~10	Parameters select 0:U1 1:I1 2:I2 3:I3 4:I4 5:I5 6:P1 7:P2 8:P3 9:P4 10:P5	1	R/W
RY4.MD	006Ah	0~5	Relay 4 action mode 0:OFF 1:Lo 2:Hi 3:Lo.HOLD 4:Hi.HOLD 5:RO	2	R/W
RY4.SP	006Bh	-32768~32767	Relay 4 set point	1000	R/W
RY4.SB	006Ch	0~9999	Relay 4 start band	0	R/W
RY4.SD	006Dh	0000~5999 (x0.1S)	Relay 4 start delay time	0	R/W
RY4.HY	006Eh	0~9999	Relay 4 hysteresis band	0	R/W
RY4.RD	006Fh	0000~5999 (x0.1S)	Relay 4 active delay time	0	R/W
RY4.FD	0070h	0000~5999 (x0.1S)	Relay 4 delay off time	0	R/W

RS485 Communication table

Relay Group(CODE : 03h , 06h , 10h)

Name	Address	Range	Explain	Initial	R/W
RY5.SL	0071h	0~10	Parameters select 0:U1 1:I1 2:I2 3:I3 4:I4 5:I5 6:P1 7:P2 8:P3 9:P4 10:P5	1	R/W
RY5.MD	0072h	0~5	Relay 3 action mode 0:OFF 1:Lo 2:Hi 3:Lo.HOLD 4:Hi.HOLD 5:RO	2	R/W
RY5.SP	0073h	-32768~32767	Relay 5 set point	1000	R/W
RY5.SB	0074h	0~9999	Relay 5 start band	0	R/W
RY5.SD	0075h	0000~5999 (x0.1S)	Relay 5 start delay time	0	R/W
RY5.HY	0076h	0~9999	Relay 5 hysteresis band	0	R/W
RY5.RD	0077h	0000~5999 (x0.1S)	Relay 5 active delay time	0	R/W
RY5.FD	0078h	0000~5999 (x0.1S)	Relay 5 delay off time	0	R/W

Communication Group(CODE : 03h , 06h , 10h)

Name	Address	Range	Explain	Initial	R/W
ADDR	007Bh	1~247	Station address	1	R/W
BAUD	007Ch	0~5	Baud rate 0:1200 1:2400 2:4800 3:9600 4:19200 5:38400	3	R/W
PRITY	007Dh	0~3	Parity Check 0:N.8.1 1:N.8.2 2:E.8.1 3:O.8.1	1	R/W
DATA FORMAT	007Eh	0~1	0: big-endian 1: little-endian	0	R/W

Date & Time Group(CODE : 03h , 06h , 10h)

Name	Address	Range	Explain	Initial	R/W
YEAR	007Fh	2010~2099	Year	2017	R/W
MONTH	0080h	1~12	Month	1	R/W
Day	0081h	1~31	Date	1	R/W
HOUR	0082h	0~23	Time	0	R/W
MINUTE	0083h	0~59	Minute	0	R/W
SECOND	0084h	0~59	Second	0	R/W

RS485 Communication table

Date & Time Group(CODE : 03h , 06h , 10h)

Name	Address	Range	Explain	Initial	R/W
RUN HOUR RESET	008Ah	0 or 55h	Reset run hour 0: NO 55h: YES	0	R/W
OPER HOUR RESET	008Bh	0 or 55h	Reset operation hour 0: NO 55h: YES	0	R/W

Name	Address	Range	Explain	Initial	R/W
RUN HOUR	0090h	0~59999999Min	Running hour (High Word)		R
	0091h		Running hour (Low Word)		R
OPER HOUR	0092h	0~59999999Min	Operation hour (High Word)		R
	0093h		Operation hour (Low Word)		R

RS485 Communication table

FLASH logging data reading(CODE : 03h , 06h)

Name	Address	Range	Explain	Initial	R/W
Log.Word.Num	0200h		Data length of record value		R
Log.Unread.Num	0201h		Number of unread datas		R
Log.Read	0202h		Read next , reply code 0020H when data empty		R
Log.Read.Status	0203h	0~2	Reading Status feedback code: 0:Clear all record datas (Reset reading index) 1:Abort current read 2:Read success		W

Logging data format

Address	Fuction	Byte Count	Reserved		Current Unit		Power Unit		Year		Month	
			Hi	Lo	Hi	Lo	Hi	Lo	Hi	Lo	Hi	Lo
01H	03H	30H	00H	00H	00H	01H	00H	02H	07H	E1H	00H	0CH

Day		Hour		Minute		Second		Data	CRC	
Hi	Lo	Hi	Lo	Hi	Lo	Hi	Lo		Lo	Hi
00H	01H	00H	0DH	00H	19H	00H	2AH	.....	xxH	xxH

Byte Count => Number of data lenth (Read from 0200h)
Date : 2017/12/01 => 07E1H/000CH/0001H
Time : 13:25:42 => 000DH:0019H:002AH

FLASH logging setting(CODE : 03h , 06h , 10h)

Name	Address	Range	Explain	Initial	R/W
Log.Para.SLCT	0210h	0~1	0:All parameters 1:Assign parameter	0	R/W
Log.Time.Set	0211h	1~32767	Logging interval time	15	R/W
Log.Time.Unit	0212h	0~3	Unit of interval time 0:sec 1:min 2:hour 3:day	1	R/W
Start.Year	0213h	2010~2099	Date and time for start	2017	R/W
Start.Month	0214h	1~12		1	R/W
Start.Day	0215h	1~31		1	R/W
Start.Hour	0216h	0~23		0	R/W
Start.Minute	0217h	0~59		0	R/W
Start.Second	0218h	0~59		0	R/W
Stop.Year	0219h	2010~2099	Date and time for stop	2017	R/W
Stop.Month	021Ah	1~12		1	R/W
Stop.Day	021Bh	1~31		1	R/W
Stop.Hour	021Ch	0~23		0	R/W
Stop.Minute	021Dh	0~59		0	R/W
Stop.Second	021Eh	0~59		0	R/W
Log.Start.Set	021Fh	0~1	Logging enable 0:Disable 1:Enable	0	R/W

FLASH logging setting(CODE : 03h , 06h , 10h)

Name	Address	Range	Explain	Initial	R/W
Log 01	0220h	0~21	Parameters Index: 0: none 1: U1 2: I1 3: I2 4: I3 5: I4 6: I5 7: P1 8: P2 9: P3 10: P4 11: P5 12: P.E1 13: P.E2 14: P.E3 15: P.E4 16: P.E5 17: N.E1 18: N.E2 19: N.E3 20: N.E4 21: N.E5 If Logging data is assign parameters the initial parameters index of Log01~Log21 are '0'		R/W
Log 02	0221h				R/W
Log 03	0222h				R/W
Log 04	0223h				R/W
Log 05	0224h				R/W
Log 06	0225h				R/W
Log 07	0226h				R/W
Log 08	0227h				R/W
Log 09	0228h				R/W
Log 10	0229h				R/W
Log 11	022Ah				R/W
Log 12	022Bh				R/W
Log 13	022Ch				R/W
Log 14	022Dh				R/W
Log 15	022Eh				R/W
Log 16	022Fh				R/W
Log 17	0230h				R/W
Log 18	0231h				R/W
Log 19	0232h				R/W
Log 20	0233h				R/W
Log 21	0234h				R/W

RS485 Communication table

Floating Data Reading(CODE : 03h)

Name	Address	Range	Explain	Initial	R/W
U1	7000h 7001h	-9999~9999	DC voltage		R
I1	7002h 7003h	-9999~9999	Loop 1 current		R
I2	7004h 7005h	-9999~9999	Loop 2 current		R
I3	7006h 7007h	-9999~9999	Loop 3 current		R
I4	7008h 7009h	-9999~9999	Loop 4 current		R
I5	700Ah 700Bh	-9999~9999	Loop 5 current		R
P1	700Ch 700Dh	-32768~32767	Loop 1 power		R
P2	700Eh 700Fh	-32768~32767	Loop 2 power		R
P3	7010h 7011h	-32768~32767	Loop 3 power		R
P4	7012h 7013h	-32768~32767	Loop 4 power		R
P5	7014h 7015h	-32768~32767	Loop 5 power		R
P.E1	7016h 7017h	0~99999.9 kWh	Loop 1 Positive energy		R
P.E2	7018h 7019h	0~99999.9 kWh	Loop 2 Positive energy		R
P.E3	701Ah 701Bh	0~99999.9 kWh	Loop 3 Positive energy		R
P.E4	701Ch 701Dh	0~99999.9 kWh	Loop 4 Positive energy		R
P.E5	701Eh 701Fh	0~99999.9 kWh	Loop 5 Positive energy		R
N.E1	7020h 7021h	0~99999.9 kWh	Loop 1 Negative energy		R
N.E2	7022h 7023h	0~99999.9 kWh	Loop 2 Negative energy		R
N.E3	7024h 7025h	0~99999.9 kWh	Loop 3 Negative energy		R
N.E4	7026h 7027h	0~99999.9 kWh	Loop 4 Negative energy		R
N.E5	7028h 7029h	0~99999.9 kWh	Loop 5 Negative energy		R

User-Defined table

User-Defined area(CODE :03h ,06h,10h):

User-Defined reading addresses		R/W	User-Defined setting address		R/W
U.DF01V	0100h	R	U.DF01P	1100h	R/W
U.DF02V	0101h	R	U.DF02P	1101h	R/W
U.DF03V	0102h	R	U.DF03P	1102h	R/W
U.DF04V	0103h	R	U.DF04P	1103h	R/W
U.DF05V	0104h	R	U.DF05P	1104h	R/W
U.DF06V	0105h	R	U.DF06P	1105h	R/W
U.DF07V	0106h	R	U.DF07P	1106h	R/W
U.DF08V	0107h	R	U.DF08P	1107h	R/W
U.DF09V	0108h	R	U.DF09P	1108h	R/W
U.DF10V	0109h	R	U.DF10P	1109h	R/W
U.DF11V	010Ah	R	U.DF11P	110Ah	R/W
U.DF12V	010Bh	R	U.DF12P	110Bh	R/W
U.DF13V	010Ch	R	U.DF13P	110Ch	R/W
U.DF14V	010Dh	R	U.DF14P	110Dh	R/W
U.DF15V	010Eh	R	U.DF15P	110Eh	R/W
U.DF16V	010Fh	R	U.DF16P	110Fh	R/W
U.DF17V	0110h	R	U.DF17P	1110h	R/W
U.DF18V	0111h	R	U.DF18P	1111h	R/W
U.DF19V	0112h	R	U.DF19P	1112h	R/W
U.DF20V	0113h	R	U.DF20P	1113h	R/W

Function Explain :

If write '0000h' to U.DF01P(1100h), could be readout DC Voltage value from U.DF01V(0100h).
So setting 20 parameters address what to want readout at U.DF01P~U.DF20P, then can readout these parameters continuity from U.DF01V~U.DF20V at a time.