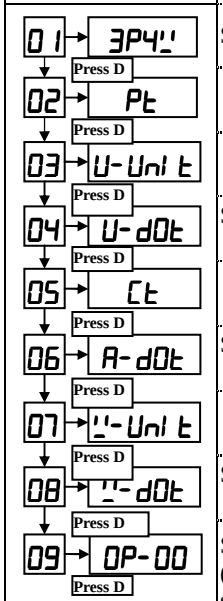
1. Operation Panel

1-1 Keys

Name	Function	Instruction
S	Setting	Enter setting mode
D	Confirmation	Confirm setting
↑	Change Number / Page Up	Change number / Page Up
→	Change Position / Page Down	Change position / Page Down

1-2 Basic Setting

Press 〝S〞 to enter 01-02-03-04-05-06-07-08-09 Press 〝D〞 to set.

Display	Function	Instruction
	Select system	Press 〝→〞 to select 3P3W-1P2W-1P3W-3P4W Press 〝D〞 to enter 02
	PT ratio setting	Press 〝→〞 and 〝↑〞 to set PT ratio Press 〝D〞 to enter 03.
	Set V unit	Press 〝→〞 to set 1 or 2. 1=V 2=KV Press 〝D〞 to enter 04
	Set V decimal point	Press 〝→〞 to set decimal point position Press 〝D〞 to enter 05
	CT ratio setting	Press 〝→〞 and 〝↑〞 to set CT ratio Press 〝D〞 to enter 06
	Set A decimal point	Press 〝→〞 to set decimal point position Press 〝D〞 to enter 07
	Set W unit	Press 〝→〞 to select KW/MW/Kvar/Mvar Press 〝D〞 to enter 08
	Set W decimal point	Press 〝→〞 to set 1 or 2. 1=KW 2=MW Press 〝D〞 to enter 08
	Save setting (Advanced setting)	Press 〝→〞 and 〝↑〞 key in OP-99 Press 〝D〞 to finish setting

In OP-00 mode. Press 〝→〞 and 〝↑〞 to enter each advanced setting.

	Function	Instruction
OP-00		
OP-11	Reset accumulated value	Press 〝D〞 to reset and leave.
OP-06	Baud rate (bAd) Address (Add) Parity Check(Mod)	Press 〝→〞 to select 9600-19200-38400-2400-4800 Press 〝D〞 to set address.Press 〝→〞 and 〝↑〞 to set. Press 〝D〞 to set .Press 〝→〞 to select
OP-43	Auto-page turning (PAG)	Press 〝→〞 to select AUTO / STOP Presss 〝D〞 to confirm and leave.
OP-46	Pulse output setting (do1)	Press 〝→〞 to select +WH / -WH / +VARH / -VARH Presss 〝D〞 to confirm and leave
OP-47	Pulse output setting (do2)	Press 〝→〞 to select +WH / -WH / +VARH / -VARH Presss 〝D〞 to confirm and leave
OP-99	Save setting	**Press 〝→〞 and 〝↑〞 to key in 99. Press 〝D〞 to finish setting**

2. Setting Example

EX1. 3P3W system PT：22KV / 110V CT：1000A / 5A W=38.10MW
PT ratio =200 CT ratio =200 Display: 22.00KV 1000A 38.10MW

Parameter setting

01	3P3W system	05	Set CT ratio =200
02	PT ratio =200	06	No decimal point for Current
03	Set V unit as KV	07	Set W unit as MW
04	Set 2 digits after decimal point for Voltage	08	Set 2 digits after decimal point for Watt

EX2. 3P4W system 380/220V CT：600A/5A W=380 x 600 x 1.732 = 396.0KW
PT ratio =200 CT ratio =200 Display: 380.0V 600.0A 396.0KW

Parameter setting

01	3P4W system	05	Set CT ratio =120
02	PT ratio =1	06	Set 1 digit after decimal point for Current
03	Set V unit as V	07	Set W unit as KW
04	Set 1 digit after decimal point for Voltage	08	Set 1 digit after decimal point for Watt

Note：If displays 〝9999〞 and blinks, it means wrong decimal point setting.

3. Display

Press 〝↑〞 and 〝→〞 to turn page.

U12 -RSV	U1 -RV	A1 -RA	W1 -RW	F -HZ	The first 4 digits of WH
U23 -STV	U2 -SV	A2 -SA	W2 -SW	PF-cos θ	The last 6 digits of WH
U31-TRV	U3 -TV	A3 -TA	W3 -TW	TW-Total Watt	The first 4 digits of QH
Page 1-3	Page 4-6	Page 7-9	Page 10-12	TQ-Total Var	The last 6 digits of QH
3P3W system without page 4-6.				Page 13-16	Page 17-20

WH/QH :Max 10 digits..= 1999 999999 shown in 2 pages

4. Communication Protocol

MODBUS－RTU MODE

Data Form

(ID Number) 1Byte	(Function Code) 1Byte	(Data) N Byte	CRC 2 Byte

Function Code

03 (03H)	Read parameters of TRMT
06 (06H)	Set parameter.

EX1. Read voltage of R phase

Master sends message TX：01 03 00 01 00 01 D5 CA				
ID Number 1Byte (01H)	Function 1Byte (03H)	Address 2Byte (00 01H)	DATA number 2Byte (00 01H)	CRC 2Byte (D5 CA H)

If TRMT displays 380.0V

TRMT responses to Master RX：01 03 02 0E D8 BC 7E				
ID Number (01H)	Function (03H)	Byte (02H)	Data (0E D8H)	CRC (BC 7EH)

EX2. Read parameters of TRMT

Master sends message to TRMT				
ID Number 1Byte (01H)	Function 1Byte (03H)	Address 2Byte (00 01H)	DATA number 2Byte (xxH,xxH = N)	CRC 2Byte (xxH,xxH)
TRMT responses to Master				
ID Number (01H)	Function (03H)	Byte (XXH = N)	Data (N*2Byte) XxH,xxH.xxH.....	CRC (xxH,xxH)

Values/Address Cross-reference

	Modbus Address	Name	Explanation	R(Read) W(Write)
01	40002	V1	A phase voltage Integral 0-65535	R
02	40003	V2	B phase voltage Integral 0-65535	
03	40004	V3	C phase voltage Integral 0-65535	
04	40005	A1	A phase current Integral 0-65535	
05	40006	A2	B phase current Integral 0-65535	
06	40007	A3	C phase current Integral 0-65535	
07	40008	W1	A phase watt Polarity -32768~32767	
08	40009	W2	B phase watt Polarity -32768~32767	
09	40010	W3	C phase watt Polarity -32768~32767	
10	40011	W	Total watt of A.B.C. Polarity -32768~32767	
11	40012	Q	Total var of A.B.C Polarity -32768~32767	
12	40013	PF	Power Factor Polarity -32768~32767 / -0.500-1-+0.500	
13	40014	HZ	Frequency Integral 0-65535	
14 15	40015 (L) 40016 (H)	+WH	Total Watthour (Positive) Long type.	
16 17	40017 (L) 40018 (H)	-WH	Total Watthour (Negative) Long type.	
18 19	40019 (L) 40020 (H)	+QH	Total Varhour (Positive) Long type	
20 21	40021 (L) 40022 (H)	-QH	Total Varhour (Negative) Long type	
22	40023	W,V,A Point	W=bit8-bit11 0011 =3 位 V=bit4-bit7 0001 =1 位 A=bit0-bit3 0011 =3 位	R/W
23	40024	Realy W/V Unit	Bit7(RY4) Bit6(RY3) Bit5(RY2) Bit4(RY1) Bit2(1=kv 0=V)Bit1(1=MW 0=KW) Bit0(Demand 0=W 1=V/A)	R/W
24	40025	BaudRate	0=9600,1=19200,2=38400,3=1200,4=2400,5=4800	
25	40026	Address	1-255	
26	40027	CT	CT ratio 0-9999	
27	40028	PT	PT ratio 0-9999	
28	40029	MODE	0=3P4W 1=1P2W 2=1P3W 3=3P3W	

5. Connection Diagram