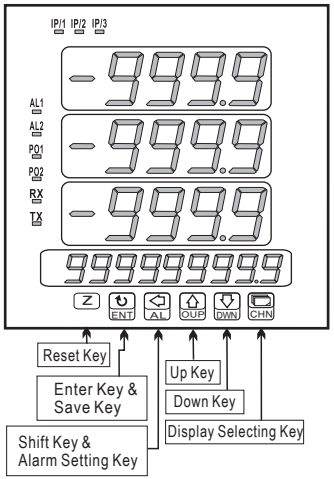
GPVA 3 PHASE DC MULITIFUNCTION POWER METER MANUAL

✻ Please understand key indicators & functions at the first operation.

FRONT PANEL & KEY FUNCTIONS

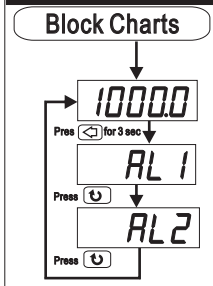
IP/1: Input 1 Indicator
IP/2: Input 2 Indicator
IP/3: Input 3 Indicator
AL1: Alarm 1 Indicator
AL2: Alarm 2 Indicator
PO1: Pulse 1 Output Indicator
PO2: Pulse 2 Output Indicator
RX: RX Indicator
TX: TX Indicator



Key Name	Symbol	Descriptions
Reset Key	Z	1. Press this key to enable the reset function for KWH value.
Enter Key & Save Key	↻	1. In the measuring status, press this key can enter to parameter pages. 2. In the parameter setting, press this key can save the value & go to next parameter.
Shift Key & Alarm Setting Key	◁	1. In the measuring page, press this key for 3 sec can enter to alarm setting page (The selecting digit will be flashed) 2. In the parameter setting , press this key can move the cursor left.
Up Key	△	1. In the parameter setting, press this key can increase the digits.
Down Key	▽	1. In the parameter setting , press this key can decrease the digits.
Display Switching Key	▭	1. In the measuring page, press this key can switch the display pages.

**1. The following block charts are parameters codes, parameter codes & parameters will alternate flashing if the parameters can be modified.
2. To modify the parameters, please press ↻ ◁ △ , and press ↻ to save the parameter after the modification.
3. Please don't forget the new pass code after modification.
4. In any pages, press △ & ▽, or don't press any keys for 2 minutes that will back to measuring status.

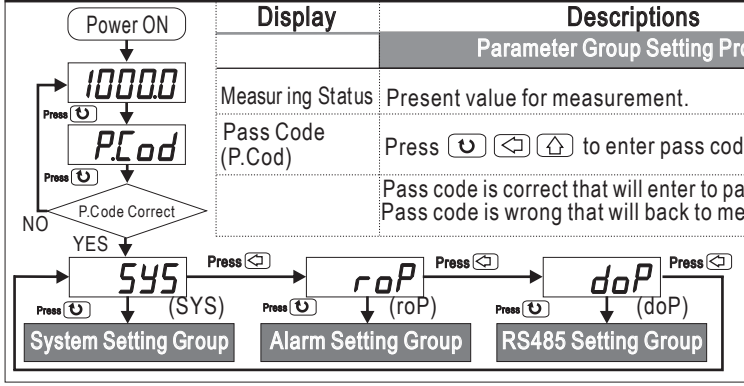
GENERAL MODE OPERATING PROCEDURES



Display	Descriptions	Default
	Alarm Setpoint	
Measuring Status	Present value for measurement	
Alarm 1 Setpoint (AL1)	Press ↻ ◁ △ to modify alarm 1 setpoint.	00000
Alarm 2 Setpoint (AL2)	Press ↻ ◁ △ to modify alarm 2 setpoint.	00000

Remark: 1. There are 3 parameter groups of "System Setting Group(SYS)", "Alarm Setting Group(roP)", "RS485 Setting Group(doP)" for modification.
2. Press ◁ to select each group page, and press ↻ to enter each group or parameter page for modification or saving the parameters.
3. Some of optional functions of parameter pages still exist, but the functions are disable.
4. The data catch by RS-485 must use K factor for Bit Conversion table to convert the Secondary value of each power parameters.

PROGRAMMING MODE OPERATING PROCEDURES

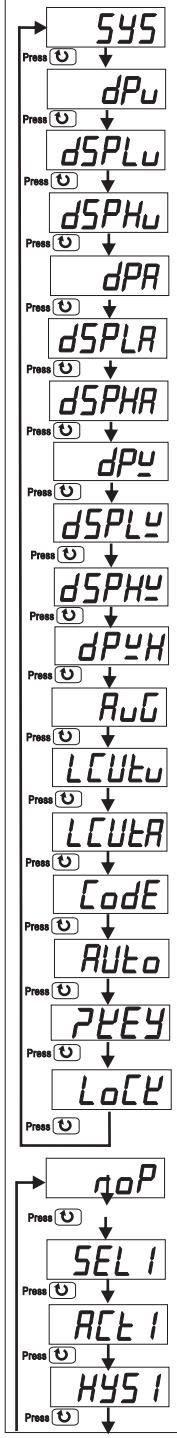


Display	Descriptions	Default
	Parameter Group Setting Procedures	
Measuring Status	Present value for measurement.	
Pass Code (P.Cod)	Press ↻ ◁ △ to enter pass code.	00000
	Pass code is correct that will enter to parameter groups. Pass code is wrong that will back to measuring status.	

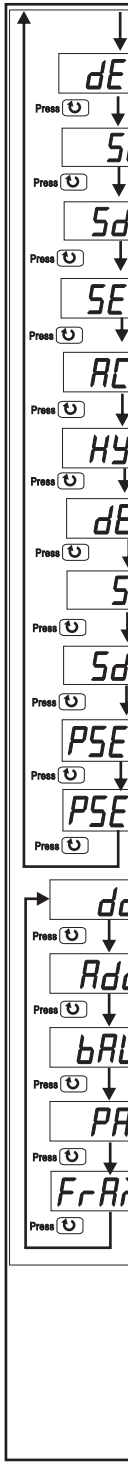
Error Code of Self-Diagnosis

Display	Descriptions
1oFL	Input signal is over 120% of input range.
-1oFL	Input signal is under -20% of input range.
AdEr	Input signal is over 180% of input range or meter error.
doFL	Input signal is over display range (99999)
-doFL	Input signal is under display range (-19999)
E-00	EEPROM reading/writing suffers the interference (about 1 million times).

**Please check the wiring connection is correct first, if the problem still exist, please return the meter to the factory.



Display	Descriptions	Default
System Setting Page (SYS)	**System Setting Group Procedures**	
Volt Decimal Point Setting (dPv)	Press ⇧ ⇩ to select volt decimal point (0, 1, 2, 3, 4). EX: if the value shows "0.00" that means the decimal point is 2 digits.	Customers specify
Volt Low Scale Setting (dSPLV)	Press ↻ ⇦ ⇧ to modify volt low scale for the input signal zero value.	Customers specify
Volt Hi Scale Setting (dSPHV)	Press ↻ ⇦ ⇧ to modify volt hi scale for the input signal zero value.	Customers specify
Amp Decimal Point Setting (dPA)	Press ⇧ ⇩ to select amp decimal point (0, 1, 2, 3, 4). EX: if the value shows "0.00" that means the decimal point is 2 digits.	Customers specify
Amp Low Scale Setting (dSPLA)	Press ↻ ⇦ ⇧ to modify amp low scale for the input signal zero value.	Customers specify
Amp Hi Scale Setting (dSPHA)	Press ↻ ⇦ ⇧ to modify amp hi scale for the input signal zero value.	Customers specify
Watt Decimal Point Setting (dPW)	Press ⇧ ⇩ to select watt decimal point (0, 1, 2, 3, 4). EX: if the value shows "0.00" that means the decimal point is 2 digits.	Customers specify
Watt Low Scale Setting (dSPLW)	Press ↻ ⇦ ⇧ to modify watt low scale for the input signal zero value.	Customers specify
Watt Hi Scale Setting (dSPHW)	Press ↻ ⇦ ⇧ to modify watt hi scale for the input signal zero value.	Customers specify
WH Decimal Point Setting (dPWH)	Press ⇧ ⇩ to select watt-hour decimal point (0~9). EX: if the value shows "0.00" that means the decimal point is 2 digits.	Customers specify
Display Average Setting (AvG)	Press ↻ ⇦ ⇧ to modify display average (1~99). PS: Please use this function for stable display value when input signal is unstable.	00005
Volt Low Cut Setting (LCUtv)	Press ↻ ⇦ ⇧ to modify volt low cut to 0 (0~99).	00000
Amp Low Cut Setting (LCUtA)	Press ↻ ⇦ ⇧ to modify amp low cut to 0 (0~99).	00000
Pass Code Setting (CodE)	Press ↻ ⇦ ⇧ to modify pass code (0~19999). PS: Please don't forget the new pass code after modification.	00000
Auto Display Switching Setting (Auto)	Press ⇧ ⇩ to select auto display switching off (YES) or on (NO). (Display period: 10sec per page)	no
Z Key Function Setting (LoCK)	Press ⇧ ⇩ to select Z key function (All: clear all KWH, C.P.O.: clear current page only)	ALL
Key Lock Setting (LoCK)	Press ⇧ ⇩ to lock the keys, using key lock function only can view the parameters, but cannot modify any values. PS: no (unlock) ,YES ("ENT" unlock , others lock).	no
	Alarm Setting Group Procedures	
Alarm Setting Page (roP)	**The following steps are only available for alarm output.**	
Alarm 1 Selection Setting (SEL1)	Press ⇧ ⇩ to select alarm 1 selection . (V1, V2, V3, A1, A2, A3, W1, W2, W3)	u1
Alarm 1 Action Setting (ACt1)	Press ⇧ ⇩ to modify alarm value that is ≧(Hi) or <(Lo) for alarm action.	Hi
Alarm Hysteresis Setting (HYS1)	Press ↻ ⇦ ⇧ to modify the value, when alarm runs lower or higher display value (depends on alarm action). Alarm setpoint ± this value (0~99) will turn off the alarm.	00000



Display	Descriptions	Default
Alarm Run Delay Setting (dEL1)	Press ↻ ⇦ ⇧ to modify the value, when the display value reach the alarm value that need to wait for this time (0~99 sec) for alarm action.	00000
Alarm Start Band Setting (Sb1)	Press ⇧ ⇩ to modify the value (-99~+99), if the display value don't over this range; the alarm will not be act.	00000
Alarm Start Band Time Setting (Sdt1)	Press ↻ ⇦ ⇧ to modify the value (0~99 sec), if the display value reach alarm start band value; the alarm will be act after this value (sec). (The function is used with "Sb" function.)	00000
Alarm 2 Selection Setting (SEL2)	Press ⇧ ⇩ to select alarm 2 selection . (V1, V2, V3, A1, A2, A3, W1, W2, W3)	u2
Alarm 1 Action Setting (ACt2)	Press ⇧ ⇩ to modify alarm value that is ≧(Hi) or <(Lo) for alarm action.	Hi
Alarm Hysteresis Setting (HYS2)	Press ↻ ⇦ ⇧ to modify the value, when alarm runs lower or higher display value (depends on alarm action). Alarm setpoint ± this value (0~99) will turn off the alarm.	00000
Alarm Run Delay Setting (dEL2)	Press ↻ ⇦ ⇧ to modify the value, when the display value reach the alarm value that need to wait for this time (0~99 sec) for alarm action.	00000
Alarm Start Band Setting (Sb2)	Press ⇧ ⇩ to modify the value (-99~+99), if the display value don't over this range; the alarm will not be act.	00000
Alarm Start Band Time Setting (Sdt2)	Press ↻ ⇦ ⇧ to modify the value (0~99 sec), if the display value reach alarm start band value; the alarm will be act after this value (sec). (The function is used with "Sb" function.)	00000
Pulse 1 Selection Setting (PSEL1)	Press ⇧ ⇩ to select pulse1 selection . (WH1, WH2, WH3)	PH1
Pulse 2 Selection Setting (PSEL1)	Press ⇧ ⇩ to select pulse2 selection . (WH1, WH2, WH3)	PH2
	RS485 Setting Group Procedures	
RS485 Setting Page (doP)	**The following steps are only available for RS-485.**	
Address Setting (Addr)	Press ↻ ⇦ ⇧ to modify address (0~255).	00000
Baud Rate Setting (bAUd)	Press ⇧ ⇩ to select baud rate (19K2/9600/4800/2400).	19k2
Parity Setting (PAri)	Press ⇧ ⇩ to select parity (n.8.2/n.8.1/even/odd).	n.8.2.
Frame Setting (FrAmE)	Press ⇧ ⇩ to select frame type. (NO:Hi→Lo , YES:Lo→Hi)	no

Modbus RTU Mode Protocol Address Table

Data: 16Bit / 32Bit, +/- is 8000~7FFF (-32768~32767), 80000000~7FFFFFFF(-2147483648~2147483647)

Modbus	HEX	Name	Descriptions	Act
40001	0000	ID	Model number identification; GPVA is "14"	R
40002	0001	STATUS	Current status display; range: 0000~00FF(0~254) (0:OFF, 1:ON) (Bit7 :AL2, Bit6 : AL1, Bit5 :OC2, Bit4 :OC1, Bit3 :DI2, Bit2 :DI1)	R
40003	0002	INDEX	Index page; range: 0000~0071 (0~71)	R/W
40004	0003	DPV	Volt decimal point setting; range: 0000~0004 (0~4) 0:10^{0}, 1:10^{-1}, 2:10^{-2}, 3:10^{-3}, 4:10^{-4}	R/W
40005	0004	DPA	Amp decimal point setting; range: 0000~0004 (0~4) 0:10^{0}, 1:10^{-1}, 2:10^{-2}, 3:10^{-3}, 4:10^{-4}	R/W
40006	0005	DPW	Watt decimal point setting; range: 0000~0004 (0~4) 0:10^{0}, 1:10^{-1}, 2:10^{-2}, 3:10^{-3}, 4:10^{-4}	R/W
40007	0006	DPWH	Watt-Hour decimal point setting; range: 0000~0009 (0~9) 0:10^{0}, 1:10^{-1} ~ $9:10^{-9}$	R/W
40008	0007	AUTO	Auto display switching setting; range: 0000~0001 (0~1) 0:NO, 1:YES	R/W
40009	0008	Z.KEY	Z key function setting; range: 0000~0001 (0~1) 0:ALL, 1:C.P.O.	R/W
40010	0009	LOCK	Key lock setting; range: 0000~0001 (0~1) 0:NO, 1:YES	R/W
40011	000A	SEL1	Alarm 1 selection setting; range: 0000~0008 (0~8) 0:V1, 1:V2, 2:V3, 3:A1, 4:A2, 5:A3, 6:W1, 7:W2, 8:W3	R/W
40012	000B	SEL2	Alarm 2 selection setting; range: 0000~0008 (0~8) 0:V1, 1:V2, 2:V3, 3:A1, 4:A2, 5:A3, 6:W1, 7:W2, 8:W3	R/W
40013	000C	ACT1	Alarm 1 act setting; range 0000~0001(0~1) 0:Hi, 1:Lo	R/W
40014	000D	ACT2	Alarm 2 act setting; range 0000~0001(0~1) 0:Hi, 1:Lo	R/W
40015	000E	PSEL1	Pulse 1 selection setting; range 0000~0002(0~2) 0:WH1, 1:WH2, 2:WH3	R/W
40016	000F	PSEL2	Pulse 2 selection setting; range 0000~0002(0~2) 0:WH1, 1:WH2, 2:WH3	R/W
40017	0010	FRAME	Frame setting; range 0000~0001(0~1) 0:NO, 1:YES	R/W
40018	0011	BAUD	Baud rate setting; range: 0000~0003 (0~3) 0:19200, 1:9600, 2:4800, 3:2400	R/W
40019	0012	PARI	Parity setting; range: 0000~0003 (0~3), 0:N.8.2., 1:N.8.1., 2:EVEN, 3:ODD	R/W
40020	0013	AVG	Display average setting; range: 0001~0063 (1~99)	R/W
40021	0014	LCUTV	Volt low cut setting; range: 0000~0063 (0~99)	R/W
40022	0015	LCUTA	Amp low cut setting; range: 0000~0063 (0~99)	R/W
40023	0016	ADDR	Address setting; range: 0000~00FF (0~255)	R/W
40024	0017	DEL1	Alarm 1 act delay time setting; range: 0000~0063 (0~99)	R/W
40025	0018	DEL2	Alarm 2 act delay time setting; range: 0000~0063 (0~99)	R/W
40026	0019	SDT1	Alarm 1 start delay time setting; range: 0000~0063 (0~99)	R/W
40027	001A	SDT2	Alarm 2 start delay time setting; range: 0000~0063 (0~99)	R/W
40028	001B	SB1	Alarm 1 start band setting; range: FF9D~0063 (-99~99)	R/W
40029	001C	SB2	Alarm 2 start band setting; range: FF9D~0063 (-99~99)	R/W
40030	001D	HYS1	Alarm 1 hysteresis setting; range: 0000~0063 (0~99)	R/W
40031	001E	HYS2	Alarm 2 hysteresis setting; range: 0000~0063 (0~99)	R/W
40032	001F	CODE	Pass code setting; range: 0000~4E1F (0~19999)	R/W
40033	0020	DSPLV	Volt display low scale setting; range: FFFFB1E1~0001869F(-19999~99999) Hi Bit	R/W
40034	0021		Volt display low scale setting; range: FFFFB1E1~0001869F(-19999~99999) Low Bit	R/W

Modbus	HEX	Name	Descriptions	Act
40035	0022	DSPLA	Amp display low scale setting; range: FFFFB1E1~0001869F(-19999~99999) Hi Bit	R/W
40036	0023		Amp display low scale setting; range: FFFFB1E1~0001869F(-19999~99999) Low Bit	R/W
40037	0024	DSPLW	Watt display low scale setting; range: FFFFB1E1~0001869F(-19999~99999) Hi Bit	R/W
40038	0025		Watt display low scale setting; range: FFFFB1E1~0001869F(-19999~99999) Low Bit	R/W
40039	0026	DSPHV	Volt display hi scale setting; range: FFFFB1E1~0001869F(-19999~99999) Hi Bit	R/W
40040	0027		Volt display hi scale setting; range: FFFFB1E1~0001869F(-19999~99999) Low Bit	R/W
40041	0028	DSPHA	Amp display hi scale setting; range: FFFFB1E1~0001869F(-19999~99999) Hi Bit	R/W
40042	0029		Amp display hi scale setting; range: FFFFB1E1~0001869F(-19999~99999) Low Bit	R/W
40043	002A	DSPHW	Watt display hi scale setting; range: FFFFB1E1~0001869F(-19999~99999) Hi Bit	R/W
40044	002B		Watt display hi scale setting; range: FFFFB1E1~0001869F(-19999~99999) Low Bit	R/W
40045	002C	AL1	Alarm 1 setpoint setting; range: FFFFB1E1~0001869F(-19999~99999) Hi Bit	R/W
40046	002D		Alarm 1 setpoint setting; range: FFFFB1E1~0001869F(-19999~99999) Low Bit	R/W
40047	002E	AL2	Alarm 2 setpoint setting; range: FFFFB1E1~0001869F(-19999~99999) Hi Bit	R/W
40048	002F		Alarm 2 setpoint setting; range: FFFFB1E1~0001869F(-19999~99999) Low Bit	R/W
40049	0030	RATEV1	Volt 1 display; range: FFFFB1E1~0001869F (-19999~99999) Hi Bit	R
40050	0031		Volt 1 display; range: FFFFB1E1~0001869F (-19999~99999) Low Bit	R
40051	0032	RATEV2	Volt 2 display; range: FFFFB1E1~0001869F (-19999~99999) Hi Bit	R
40052	0033		Volt 2 display; range: FFFFB1E1~0001869F (-19999~99999) Low Bit	R
40053	0034	RATEV3	Volt 3 display; range: FFFFB1E1~0001869F (-19999~99999) Hi Bit	R
40054	0035		Volt 3 display; range: FFFFB1E1~0001869F (-19999~99999) Low Bit	R
40055	0036	RATEA1	Amp 1 display; range: FFFFB1E1~0001869F (-19999~99999) Hi Bit	R
40056	0037		Amp 1 display; range: FFFFB1E1~0001869F (-19999~99999) Low Bit	R
40057	0038	RATEA2	Amp 2 display; range: FFFFB1E1~0001869F (-19999~99999) Hi Bit	R
40058	0039		Amp 2 display; range: FFFFB1E1~0001869F (-19999~99999) Low Bit	R
40059	003A	RATEA3	Amp 3 display; range: FFFFB1E1~0001869F (-19999~99999) Hi Bit	R
40060	003B		Amp 3 display; range: FFFFB1E1~0001869F (-19999~99999) Low Bit	R
40061	003C	RATEW1	Watt 1 display; range: FFFFB1E1~0001869F (-19999~99999) Hi Bit	R
40062	003D		Watt 1 display; range: FFFFB1E1~0001869F (-19999~99999) Low Bit	R
40063	003E	RATEW2	Watt 2 display; range: FFFFB1E1~0001869F (-19999~99999) Hi Bit	R
40064	003F		Watt 2 display; range: FFFFB1E1~0001869F (-19999~99999) Low Bit	R
40065	0040	RATEW3	Watt 3 display; range: FFFFB1E1~0001869F (-19999~99999) Hi Bit	R
40066	0041		Watt 3 display; range: FFFFB1E1~0001869F (-19999~99999) Low Bit	R
40067	0042	RATEWH1	Watt-Hour 1 display; range: FFFFB1E1~0001869F (-19999~99999) Hi Bit	R
40068	0043		Watt-Hour 1 display; range: FFFFB1E1~0001869F (-19999~99999) Low Bit	R
40069	0044	RATEWH2	Watt-Hour 2 display; range: FFFFB1E1~0001869F (-19999~99999) Hi Bit	R
40070	0045		Watt-Hour 2 display; range: FFFFB1E1~0001869F (-19999~99999) Low Bit	R
40071	0046	RATEWH3	Watt-Hour 3 display; range: FFFFB1E1~0001869F (-19999~99999) Hi Bit	R
40072	0047		Watt-Hour 3 display; range: FFFFB1E1~0001869F (-19999~99999) Low Bit	R