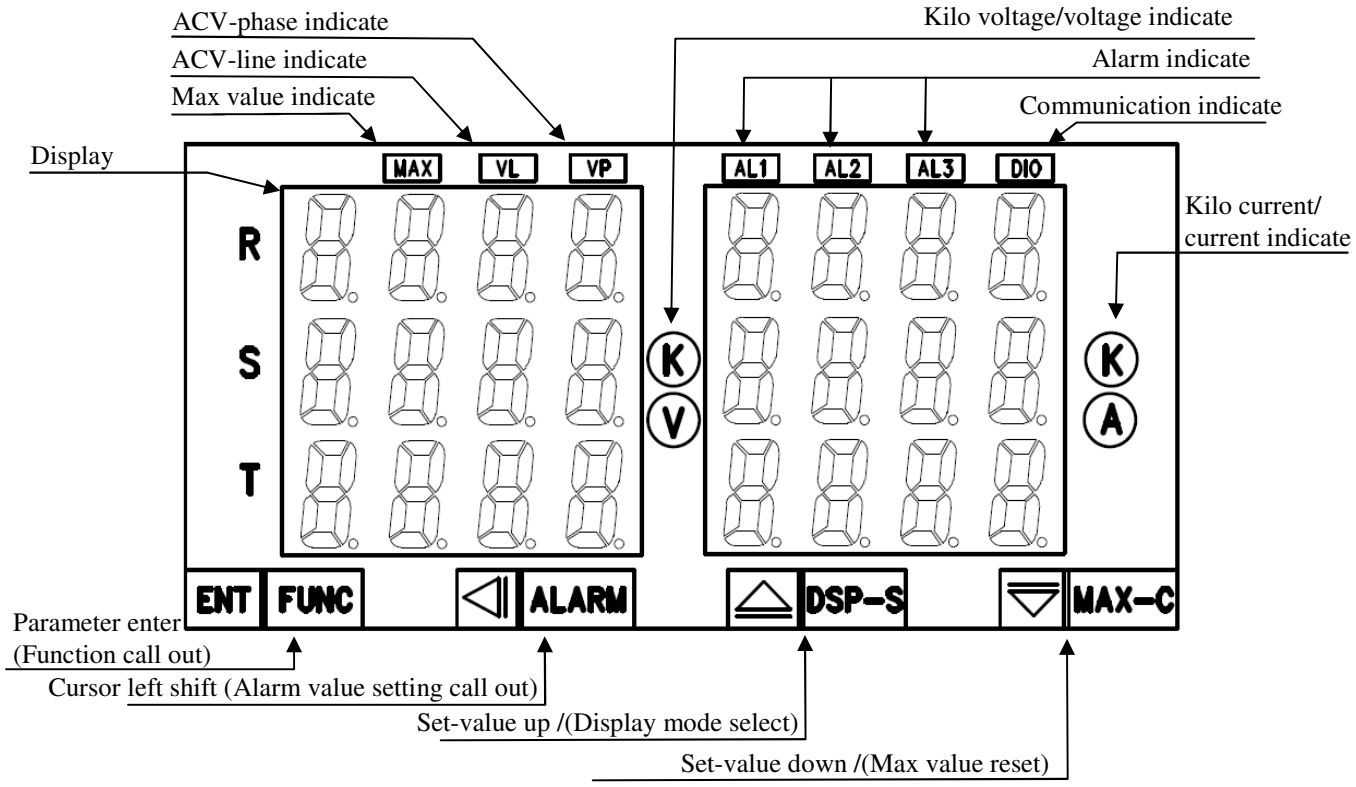
AXE THREE PHASE AV VOLTAGE/CURRENT METER MMP-3VI

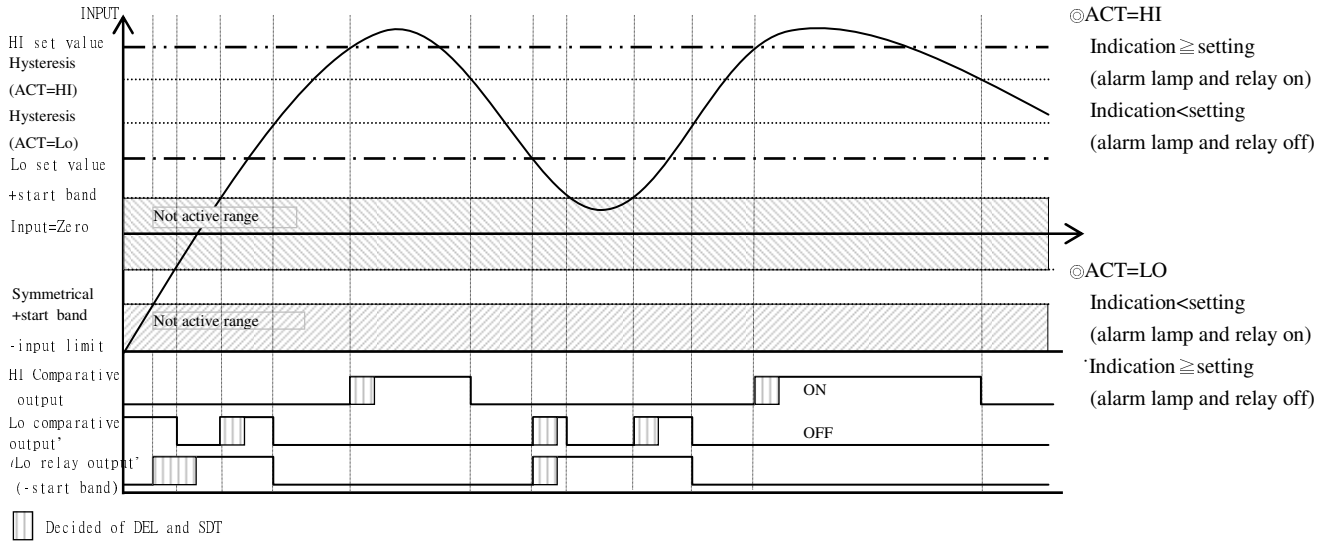
■ Features

◎Accuracy 0.15% F.S.
◎Measuring ACV-line/ACV-phase/A
◎CT rate/PT rate can be modified(1 to 9999)
◎Manual or auto scanning mode can be modified
◎Three alarm control function
◎Using touch pad key
◎RS485 communication interface, Protocol MODBUS RTU Mode
◎Baud rate:19200/9600/4800/2400
◎Man-machine interface ,easy to operate
◎EEPROM Saving ,data safekeeping over 10 years
◎Modified inside parameter must have pass code

■ Name Of Parts



■Alarm Function Diagram



Features of touch pad	**1. While power on, touch pad detector IC need waiting 5 second stable time** **2.After Power off, at least waiting 1 second for power on again**
Key Introduce	Operation Manual
㊥Key Function	1. In normal display, The key function is call out setting group 2. In parameter setting page, The key function is data enter , and goto next page

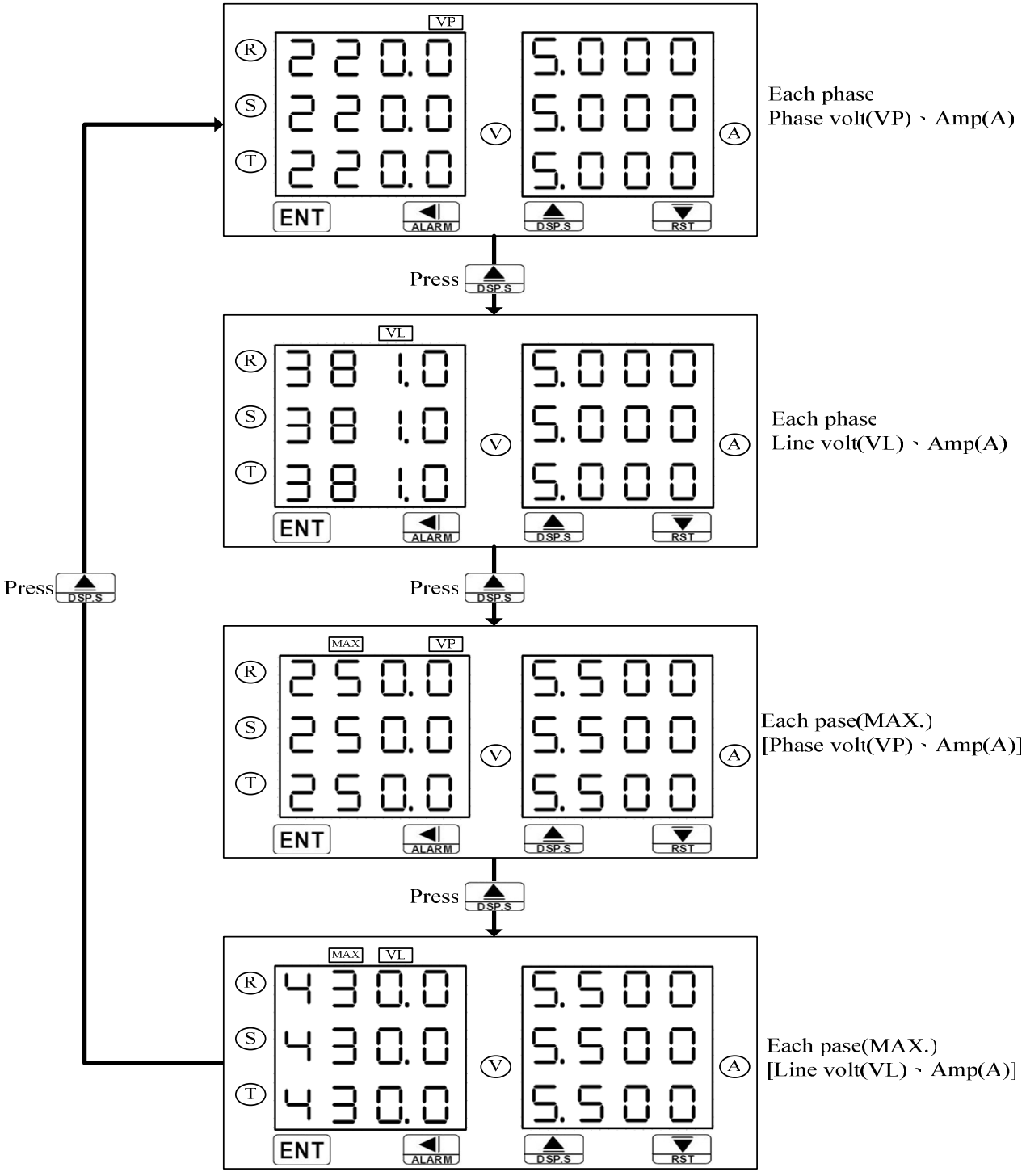
◀ Key Function	1. In normal display, The ◀ key function is call out alarm value setting page 2.Into parameter setting page, the parameter mark& data is alternate display, If need modify data can press shift key into setting procedure, The display is lock parameter data, this time must let off key about 0.2 sec, press again, the cursor(twinkle express)is cycle moving left/right. (Key Response about 0.2 sec)
▲ Key Function	1. In normal display, The key function is select display mode 2.Into parameter setting page, the parameter mark& data is alternate display, If need modify data can press up key into setting procedure, The display is lock parameter data, this time must let off key about 0.2 sec, press again, the parameter data will increment. (Key Response about 0.2 sec)
▼ Key Function	1.In normal display, The key function is Max value reset 2.Into parameter setting page, the parameter mark& data is alternate display, If need modify data can press down key into setting procedure, The display is lock parameter data, this time must let off key about 0.2 sec, press again the parameter data will decrement. (Key Response about 0.2 sec)
▲&▼ Key Function	In setting group or setting page press ▲&▼ key return normal display, but if in setting page the modify data will be lost
No Key in anything	In setting group or setting page no key in anything about 2 minutes, return normal display

Step	Parameter Mark Description	Parameter Mark	Operation Manual
1	Normal display	1234	Press EN/FUNC key into P.COD setting page
2	P.COD(Pass code input page) Default=0	P.Cod 0000	1. Key in 4 digit pass code with ◀&▲&▼key 2.Press EN key, the pass code is right into setting group , otherwise return normal display
3	SYS(System setting group)	SYS	1. Select setting group with ◀key 2. Press EN key into setting page of selection setting group
	ROP(Alarm setting group)	roP	
	DOP(Communication setting group)	doP	
	DSP(Display value adjust)	dSP	
4	SYS(System setting group)	SYS	Press ◀key select setting group and Press EN into setting group
4-1	NET(NET) Default=3ψ4L	nEt 3P4L	1. Decide net with ▲&▼key(3ψ3L or 3ψ4L) 2. Press EN key enter data and into AVG setting page
4-2	AVG (Average) Default=1	Avg 1	1. Decide display Average times with ◀&▲&▼key (1~25) 2. Press EN key enter data and into CT rate setting page
4-3	CT.R(CT Rate) Default=1	Ct.r 1	1. Decide CT rate with ◀&▲&▼key (1~9999) 2. Press EN key enter data and into PT rate setting page
4-4	PT.R(PT Rate) Default=1	Pt.r 1	1. Decide PT rate with ◀&▲&▼key (1~9999) 2. Press EN key enter data and into AUTO setting page
4-5	AUTO(Auto scan) Default=NO	Auto no	1. Decide display mode auto scan with ▲&▼key (NO or YES) 2. Press EN key enter data and into CODE setting page
4-6	CODE(Code) Default=0	CodE 0000	1. Decide Pass code with ◀&▲&▼key (0~9999) 2. Press EN key enter data and into LOCK setting page
4-7	LOCK(Panel Lock) Default=NO	LoCK no	1. Decide panel lock with▲&▼ key (NO or YES) 2. Press EN key enter data and return SYS setting group
4-8	SYS(System setting group)	SYS	Press ◀key select setting group and Press EN into setting group
5	ROP(Alarm setting group)	roP	Press ◀key decide ROP setting group, press EN key into AL1.S setting page
5-1	AL1.S (Alarm 1 Select) Default=R-VP	AL 1.S r-uP	1. Decide AL1.S with ▲&▼key (R-VL or R-VP or R-A or Σ-VL or Σ-VP or Σ-A) 2. Press EN key into AL2.S setting page
5-2	AL2.S (Alarm 2 Select) Default=S-VP	AL2.S S-uP	1. Decide AL2.S with ▲&▼key (S-VL or S-VP or S-A or Σ-VL or Σ-VP or Σ-A) 2. Press EN key into AL3.S setting page
5-3	AL3.S (Alarm 2 Select) Default=S-VP	AL3.S t-uP	1. Decide AL3.S with ▲&▼key (T-VL or T-VP or T-A or Σ-VL or Σ-VP or Σ-A) 2. Press EN key into ACT1 setting page
5-4	ACT1(Alarm Active 1 setting page)Default=HI	ACt 1 Hi	1.Decide active 1 with ▲&▼key(HI or LO) 2.Press EN key enter data and into ACT2 setting page
5-5	ACT2(Alarm Active 2 setting page)Default=HI	ACt2 Hi	1. Decide active 2 with ▲&▼key(HI or LO) 2. Press EN key enter data and into ACT3 setting page

5-6	ACT3(Alarm Active 3 setting page)Default=HI	ACt3 HI	1.Decide active 3 with ▲&▼key(HI or LO) 2. Press Ⓜkey enter data and into HYS1 setting page
5-7	HYS1(Alarm Hysteresis 1 setting page1)Default=0	HYS1 0000	1. Decide HYS1 with ◀&▲&▼key (0~999) 2. Press Ⓜkey enter data and into HYS2 setting page
5-8	HYS2(Alarm Hysteresis 2 setting page2)Default=0	HYS2 0000	1. Decide HYS2 with ◀&▲&▼key (0~999) 2. Press Ⓜkey enter data and into HYS3 setting page
5-9	HYS3(Alarm Hysteresis 3 setting page2)Default=0	HYS3 0000	1. Decide HYS3 with ◀&▲&▼key (0~999) 2. Press Ⓜkey enter data and into DEL1 setting page
5-10	DEL1(Delay 1) Default=0	dEL1 0000	1. Decide DEL1 with ◀&▲&▼key (0~±999 秒) 2. Press Ⓜkey enter data and into DEL2 setting page Note:-1~-999 is active time setting,0~999 is delay time setting
5-11	DEL2(Delay 2) Default=0	dEL2 0000	1. Decide DEL2 with ◀&▲&▼key (0~±999 秒) 2. Press Ⓜkey enter data and into DEL3 setting page Note:-1~-999 is active time setting,0~999 is delay time setting
5-12	DEL3(Delay 3) Default=0	dEL3 0000	1. Decide DEL3 with ◀&▲&▼key (0~±999 秒) 2. Press Ⓜkey enter data and into DEL3 setting page Note:-1~-999 is active time setting,0~999 is delay time setting
5-13	SDT(Start Delay Time) Default=0	Sdt 0000	1. Decide SDT with ◀&▲&▼key (0~99 sec) 2.Press Ⓜkey return Alarm Active setting group
5-14	ROP(Alarm setting group)	roP	Press ◀key select setting group and Press Ⓜ into setting group
6	DOP(Communication setting group)	doP	Press ◀key decide DOP setting group, press Ⓜ key into ADDR setting page
6-1	ADDR(Communication –Address) Default=0	Addr 00000	1. Decide address with ◀&▲&▼key (0~255) 2. Press Ⓜkey enter data and into BAUD setting page
6-2	BAUD(Communication Baud Rate) Default=19200	bAUd 19200	1. Decide baud rate with ▲&▼key (19200,9600,4800,2400) 2. Press Ⓜkey enter data and into PARI setting page
6-3	PARI(Communication Parity Check) Default=n.8.2.	PAri n.8.2.	1. Decide parity check with ▲&▼key(n.8.2,n.8.1,even,odd) 2. Press Ⓜkey enter data and return DOP setting group
6-4	DOP(Communication setting group)	doP	Press ◀key select setting group and Press Ⓜ into setting group
7	DSP(Display value adjust)	dSP	Press ◀key decide DSP setting group, Press Ⓜkey into R.V.P setting page
7-1	R.V.P(R Phase Voltage Adjust) Default=0	rUP 0000	1. Input Max. voltage to phase R ,Adjustment display span with ▲&▼key 2. Press Ⓜkey enter data and into S.V.P setting page
7-2	S.V.P(S Phase Voltage Adjust)Default=0	SUP 0000	1. Input Max. voltage to phase S ,Adjustment display span with ▲&▼key 2. Press Ⓜkey enter data and into T.V.P setting page
7-3	T.V.P(T Phase Voltage Adjust)Default=0	tUP 0000	1. Input Max. voltage to phase T ,Adjustment display span with ▲&▼key 2. Press Ⓜkey enter data and into R.A setting page
7-4	R.A(R Phase Current Adjust)Default=0	rA 0000	1. Input Max. current to phase A ,Adjustment display span with ▲&▼key 2. Press Ⓜkey enter data and into S.A setting page
7-5	S.A(S Phase Current Adjust)Default=0	SA 0000	1. Input Max. current to phase S ,Adjustment display span with ▲&▼key 2. Press Ⓜkey enter data and into T.A setting pag
7-6	T.A(T Phase Current Adjust)Default=0	tA 0000	1. Input Max. current to phase T ,Adjustment display span with ▲&▼key 2. Press Ⓜkey enter data and return DSP setting group
Step	Parameter mark description	Parameter mark	Operation manual
8	Normal display	1234	Press◀/ALARM about 3 sec, into AL1setting page
8-1	AL1 (Alarm value 1 setting page) Default=300.0	AL1 300.0	1. Decide alarm value 1 with ◀&▲&▼key (0~9999) 2. Press Ⓜkey enter data and into AL2 setting page

8-2	AL2 (Alarm value 2 setting page) Default=300.0	AL 2 300.0	1. Decide alarm value 2 with ◀&▲&▼key (0~9999) 2. Press ENT key enter data and into AL3 setting page
8-2	AL3 (Alarm value 3 setting page) Default=300.0	AL 2 300.0	1.Decide alarm value 3 with ◀&▲&▼key (0~9999) 2.Press ENT key enter data and return Normal display
Appendix	Error Mark Description	Error Mark	Analyze & Description
1	Display over error detect	doFL	Display over range (9999)
2	EEPROM error detect	E-00 no YES	1.External interference when EEPROM read/write 2.EEPROM write over 100 million times(guarantee 10 years) Please power reset, if still display E-00,doing following step: 1.E-00 & No alternate display for inquire reset EEPROM 2.Decide Yes with▲ or▼ key, press ENT key return normal display EEPROM was reset, Please follow step 1~8 set again

■Display switch indication(press ▲/DSP.S or AUTO = YES)



NOTE: It will changed display indication each 10S while AUTO = YES

Note:1.While nonalarm mode:

AL1&AL2&AL3 must greater then SB for into alarm mode

While alarm mode:

AL1&AL2&AL3 must smaller then SB for into nonalarm mode

2.DEL:

Active time setting:

Alarm signal active time while alarm generate

Delay time setting

Alarm signal delay time while alarm generate

3.Relation with CT & max. display value & LCUT value & SB value

CT.r	Max. disp	LCUT Value	SB Value
x 1	0.000~5.000A	0.025A	0.05A
x 2~10	0.00~50.00A	CT.r*0.025A	0.5A
x 11~100	0.0~500.0A	CT.r*0.025A	5.0A
x 101~1000	0.000~5.000KA	CT.r*0.025A	0.05KA
x 1001~9999	0.00KA~50.00KA	CT.r*0.025A	0.5KA

4. Relation with PT & max. display value & Lcut value & SB value

PT.r	Max. disp	LCUT Value	SB Value
x 1	0.0~600.0V	10.0V	10.0V
x 2~10	0.000~6.000KV	PT.r*0.01KV	0.100KV
x 11~100	0.00~60.00KV	PT.r*0.01KV	1.00KV
x 101~1000	0.0KV~600.0KV	PT.r*0.01KV	10.0KV
x 1001~9999	0~6000KV	PT.r*0.01KV	100KV

5.LCUT(low value cut out):while display value ≦ LCUT value, display value = 0

SB(start band): while AL1&AL2&AL3 ≦ SB ,clear alarm signal and never deal with alarm mode

while AL1&AL2&AL3 ＞SB, into alarm mode

MMP-3VI Modbus RTU Mode Protocol Address Map

Data format 16Bit 0000~2710(0~10000)

Address	Name	Description	Accept
0000	ID	Judge type code MMP-3VI is 00	R
0001	STATUS	STATUS, range 0000~0007(0~7)(0:OFF,1:ON) (Bit0:AL1,Bit1:AL2,Bit2:AL3)	R
0002	DISP-MODE	Display mode,range000~0003(0~3) (0:VP&A,1:VL&A,2:MAX(VP&A),3:MAX(VL&A))	R/W
0003	ACT	ACT, range 0000~0007(0~7)(0:HI,1:LO,) (Bit0:ACT1,Bit1:ACT2, Bit2:ACT3)	R/W
0004	AL1.S	AL1 select, range 0000~0005(0~5) (0:R-VL,1:R-VP,2:R-A,3:ΣVL,4:ΣVP,5:ΣA)	R/W
0005	AL2.S	AL2 select, rang 0000~0005(0~5) (0:S-VL,1:S-VP,2:S-A,3:ΣVL,4:ΣVP,5:ΣA)	R/W
0006	AL3.S	AL3 select, rang 0000~0005(0~5) (0:T-VL,1:T-VP,2:T-A,3:ΣVL,4:ΣVP,5:ΣA)	R/W
0007	NET	NET , range 0000~0001(0~1),(0:3ψ3L,1:3ψ4L)	R/W
0008	AUTO	AUTO, range 0000~0001(0~1),(0:NO,1:YES)	R/W
0009	LOCK	LOCK, range 0000~0001(0~1),(0:NO,1:YES)	R/W
000A	BAUD	BAUD, range 0000~0003(0~3),0:19K2,1:9600,2:4800,3:2400	R/W
000B	PARI	PARI, range 0000~0003(0~3) ,0:N.8.2.,1:N.8.1.,2:EVEN,3:ODD	R/W
000C	ADDR	ADDR, range 0000~00FF(0~255)	R/W
000D	AVG	AVG , range 0000~0019(0~25)	R/W
000E	HYS1	HYS1, range 0000~0063(0~99)	R/W
000F	HYS2	HYS2, range 0000~0063(0~99)	R/W
0010	HYS3	HYS3, range 0000~0063(0~99)	R/W
0011	DEL1	DEL1, range FC19~03E7(-999~999)	R/W
0012	DEL2	DEL2, range FC19~03E7(-999~999)	R/W
0013	DEL3	DEL3, range FC19~03E7(-999~999)	R/W
0014	SDT	SDT, range 0000~0063(0~99)	R/W
0015	CT.R	CT rate, range 0001~270F(1~9999)	R/W
0016	PT.R	PT rate, range 0001~270F(1~9999)	R/W
0017	CODE	CODE, range 0000~270F(0~9999)	R/W
0018	AL1	AL1, range 0010~270F(0~9999)	R/W
0019	AL2	AL2, range 0010~270F(0~9999)	R/W
001A	AL3	AL3, range 0010~270F(0~9999)	R/W
001B	DISP-RVP	Display value of phase R voltage , range 0~2710(0~10000)(1)	R
001C	DISP-SVP	Display value of phase S voltage , range 0~2710(0~10000)(1)	R
001D	DISP-TVP	Display value of phase T voltage , range 0~2710(0~10000)(1)	R
001E	DISP-RA	Display value of phase R current , range 0~2710(0~10000)(1)	R
001F	DISP-SA	Display value of phase S current , range 0~2710(0~10000)(1)	R
0020	DISP-TA	Display value of phase T current , range 0~2710(0~10000)(1)	R
0021	DISP-RVL	Display value of line R voltage , range 0~2710(0~10000)(1)	R
0022	DISP-SVL	Display value of line S voltage , range 0~2710(0~10000)(1)	R
0023	DISP-TVL	Display value of line T voltage , range 0~2710(0~10000)(1)	R
0024	MAX(DISP-RVP)	Display max. value of phase R voltage , range 0~2710(0~10000)(1)	R
0025	MAX(DISP-SVP)	Display max. value of phase S voltage , range 0~2710(0~10000)(1)	R
0026	MAX(DISP-TVP)	Display max. value of phase T voltage , range 0~2710(0~10000)(1)	R
0027	MAX(DISP-RA)	Display max. value of phase R current , range 0~2710(0~10000)(1)	R

0028	MAX(DISP-SA)	Display max. value of phase S current , range 0~2710(0~10000)(1)	R
0029	MAX(DISP-TA)	Display max. value of phase T current , range 0~2710(0~10000)(1)	R
002A	MAX(DISP-RVL)	Display max. value of line R voltage , range 0~2710(0~10000)(1)	R
002B	MAX(DISP-SVL)	Display max. value of line S voltage , range 0~2710(0~10000)(1)	R
002C	MAX(DISP-TVL)	Display max. value of line T voltage , range 0~2710(0~10000)(1)	R

Note(1):Display mode show DOFL while MOBUS receive 0x2710(10000)