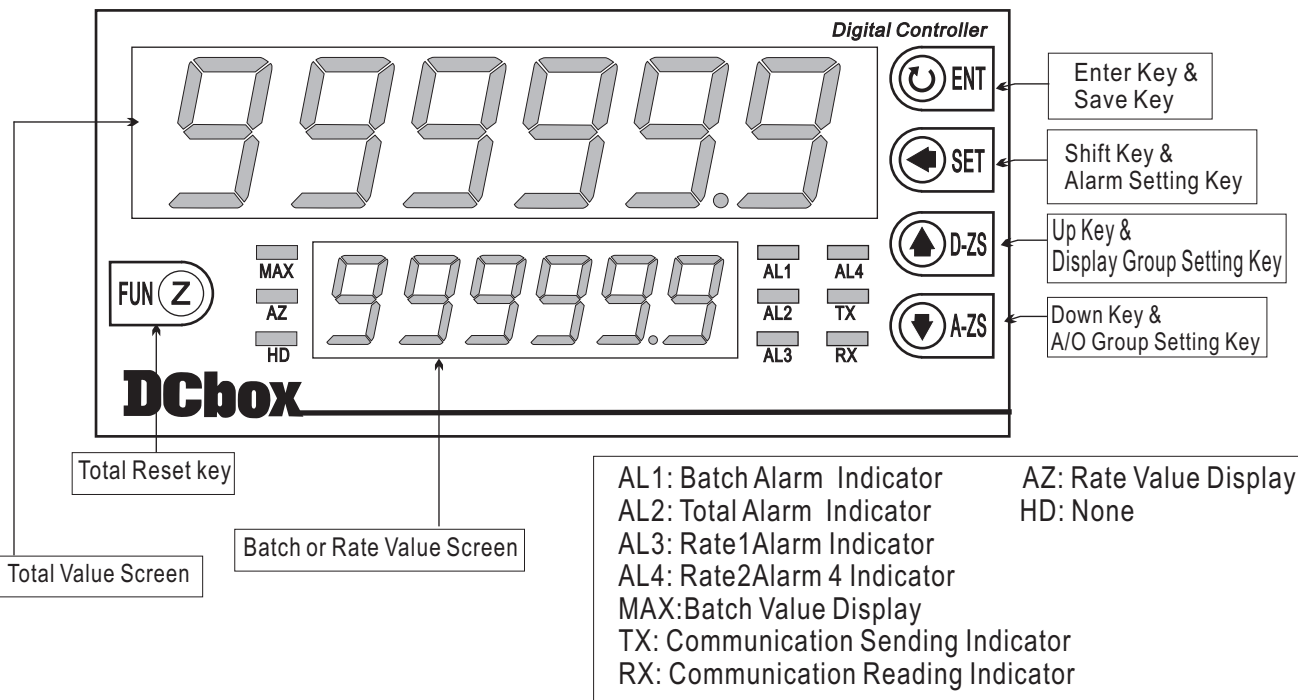


* Please understand key indicators & functions at the first operation.

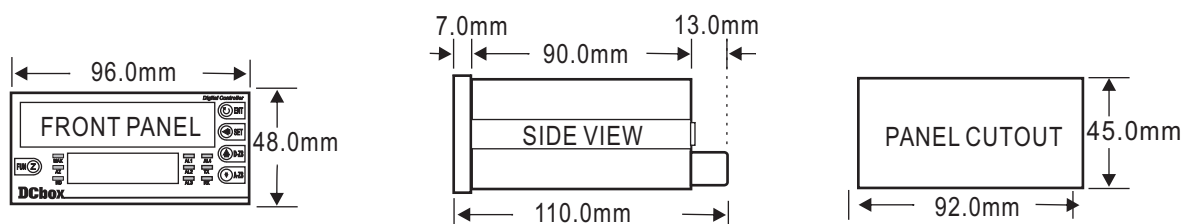
1.1 FRONT PANEL



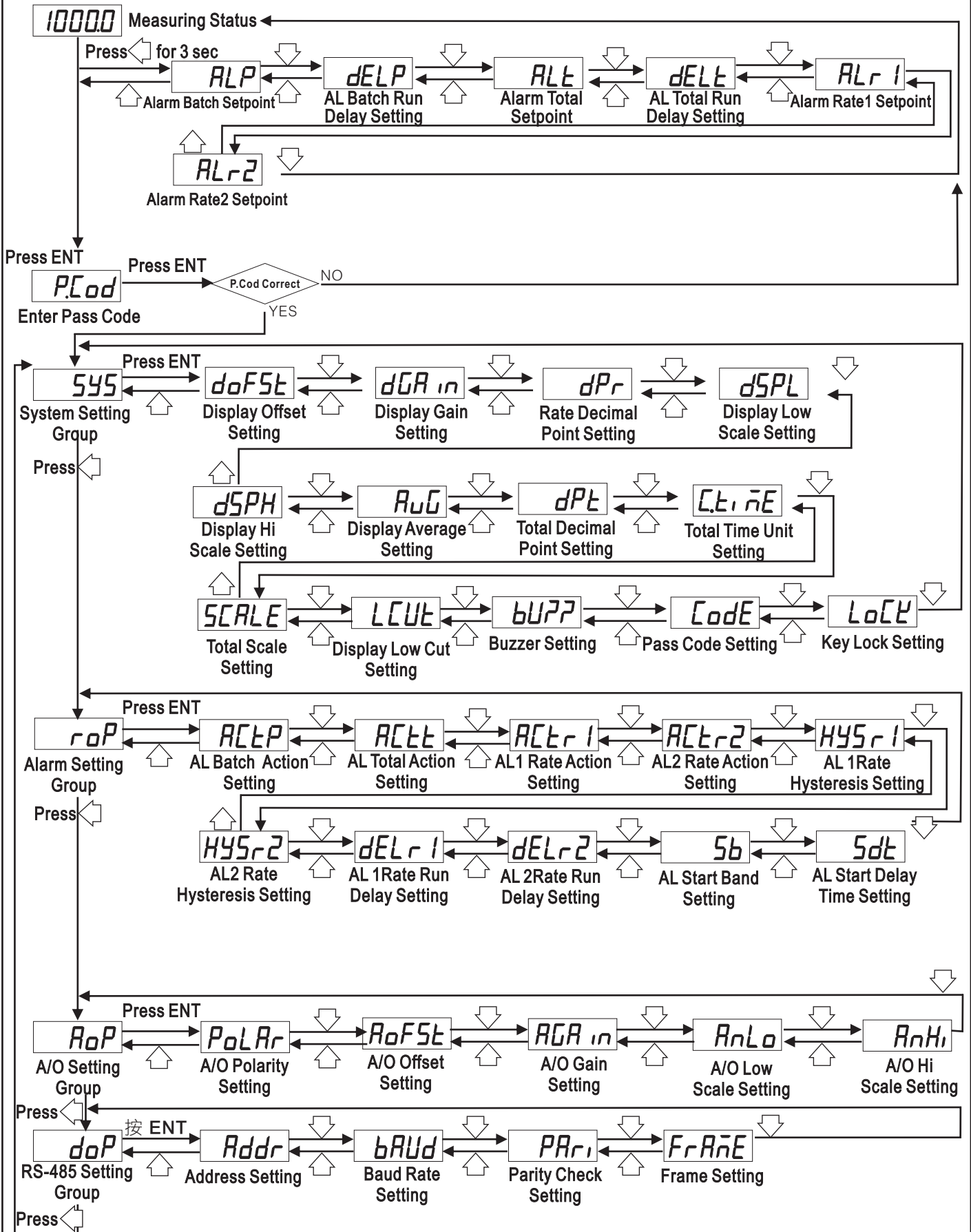
1.2 KEY FUNCTIONS

Symbol	Key Name	Descriptions
Ⓩ	Function Key	1. In the measuring status, press this key can reset the total value.
ENT	Enter Key & Save Key	1. In the measuring status, press this key can enter to parameter groups. 2. In the parameter setting, press this key can save the value & go to the next parameter.
←	Shift Key & Alarm Setting Key	1. In the measuring status, press this key for 3 sec can enter to Alarm Setpoint Modification. 2. In the parameter page, press this key can enter to parameter setting. 3. In the parameter setting, press this key can move the cursor left.
↑	Up Key & Display Group Setting Key	1. In the measuring status, press this key for 3 sec can enter to Display Group Setting. 2. In the parameter page, press this key can back to the last parameter page. 3. In the parameter setting, press this key can increase the digit.
↓	Down Key & A/O Group Setting Key	1. In the measuring status, press this key for 3 sec can enter to A/O Group Setting. 2. In the parameter page, press this key can go to the next parameter page. 3. In the parameter setting, press this key can decrease the digit.
↑ + ↓	Compound Key	1. In any status, press this key can back to measuring status. 2. While the buzzer acts, press this key can mute the buzzer.

1.3 DIMENSIONS



2.1 OPERATING SEQUENCE



2.2 ALARM SETPOINT MODIFICATION

* In the measuring status, press \leftarrow for 3 sec can enter to Alarm Setpoint Modification.

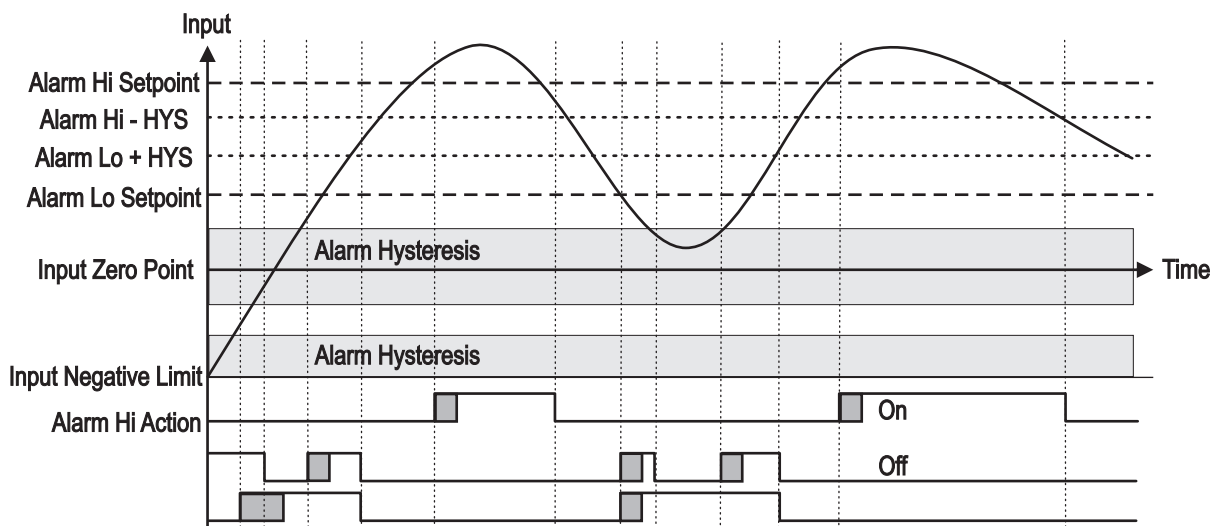
Display	Default	Name	Descriptions
\boxed{ALP} ↑ ↓	00000	Alarm Batch Setpoint	1. Press \leftarrow to enter the parameter setting, the digit will be flashed. 2. Press \uparrow or \downarrow can modify Alarm Setpoint. Range: -199999~999999 3. Press ENT to save the value and go to the next parameter.
\boxed{dELP} ↑ ↓	00000	AL Batch Run Delay Setting	
\boxed{ALt} ↑ ↓	00000	Alarm Total Setpoint	
\boxed{dELt} ↑ ↓	00000	AL Total Run Delay Setting	
$\boxed{ALr1}$ ↑ ↓	00000	Alarm Rate1 Setpoint	
$\boxed{ALr2}$ ↑ ↓	00000	Alarm Rate2 Setpoint	

2.3 ERROR CODE OF SELF-DIAGNOSIS

Display	Descriptions
$\boxed{10FL}$	Input signal is over 120% of input range.
$\boxed{-10FL}$	Input signal is under -10% of input range.
\boxed{AdEr}	Input signal is over 180% of input range or meter error.
\boxed{doFL}	Input signal is over display range (999999).
$\boxed{-doFL}$	Input signal is under display range (- 999999).
$\boxed{E-00}$	EEPROM reading / writing suffers the interference (about 1 million times).


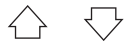




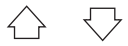




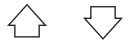




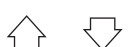














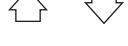



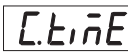










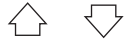




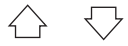




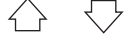




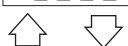



** Please check the wiring connection is correct first, if the problem still exist, please return the meter to the factory.

2.4 ALARM OUTPUT ACTION SEQUENCE

















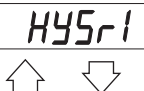






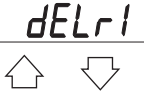
















3.1 SYSTEM (SYS) SETTING GROUP PROCEDURE

* While Pass Code is correct, Press  can select System Setting Group.

Display	Default	Name	Descriptions
 	00000	Display Offset Setting (doFSt)	1. Press  to enter the parameter setting, the digit will be flashed. 2. Press  or  can modify Display Offset. Range: 199999~999999 3. Press ENT to save the value and go to the next parameter.
 	00000	Display Gain Setting (dGAin)	1. Press  to enter the parameter setting, the digit will be flashed. 2. Press  or  can modify Display Gain. Range: 0.00001~9.99999 Display = dSPH * dGain 3. Press ENT to save the value and go to the next parameter.
 	00000	Rate Decimal Point Setting (dPr)	1. Press  to enter the parameter setting, the digit will be flashed. 2. Press  or  can select Rate Decimal Point. Range: 0, 1, 2, 3, 4, 5 (DPR) 3. Press ENT to save the value and go to the next parameter.
 	00000	Display Low Scale Setting (dSPL)	1. Press  to enter the parameter setting, the digit will be flashed. 2. Press  or  can modify Display Low Scale. Range: -199999~999999 3. Press ENT to save the value and go to the next parameter.
 	99999	Display Hi Scale Setting (dSPH)	1. Press  to enter the parameter setting, the digit will be flashed. 2. Press  or  can modify Display Hi Scale. Range: -199999~999999 3. Press ENT to save the value and back to Display Setting.
 	00005	Display Average Setting (AvG)	1. Press  to enter the parameter setting, the digit will be flashed. 2. Press  or  can modify Display Average. Range: 1~99 If this value is large, display will be stable & smooth. 3. Press ENT to save the value and go to the next parameter.
 	00000	Total Decimal Point Setting (dPt)	1. Press  to enter the parameter setting, the digit will be flashed. 2. Press  or  can select Total Decimal Point. Range: 0, 1, 2, 3, 4, 5, (DPT) 3. Press ENT to save the value and go to the next parameter.
 	0000 1	Total Time Unit Setting (C.tiME)	1. Press  to enter the parameter setting, the digit will be flashed. 2. Press  or  can select Total Time Unit. Range: SEC (Second), Min (Minute), hour (Hour) 3. Press ENT to save the value and go to the next parameter.
 	1.00000	Total Scale Setting (SCALE)	1. Press  to enter the parameter setting, the digit will be flashed. 2. Press  or  can modify Input Scale. Range: 0.0001~9.9999 3. Press ENT to save the value and go to the next parameter.
 	00000	Display Low Cut Setting (LCUt)	1. Press  to enter the parameter setting, the digit will be flashed. 2. Press  or  can modify Display Low Cut. Range: 0~9999 If this value is 10, while display is under 10, display value will show 0. 3. Press ENT to save the value and go to the next parameter.
 	no	Buzzer Setting (bUZZ)	1. Press  to enter the parameter setting, the digit will be flashed. 2. Press  or  can close Buzzer. Range: no (Do Not Close), YES (Close) 3. Press ENT to save the value and go to the next parameter.
 	00000	Pass Code Setting (P.Cod)	1. Press  to enter the parameter setting, the digit will be flashed. 2. Press  or  can modify Pass Code. Range: 0~19999 (Please do remember new Pass Code) 3. Press ENT to save the value and go to the next parameter.
 	no	Key Lock Setting (LoCK)	1. Press  to enter the parameter setting, the digit will be flashed. 2. Press  or  can close Key Lock. Range: no (Do Not Close), YES (Close) 3. Press ENT to save the value and back to System Setting Group.

3.2 ALARM (roP) SETTING GROUP PROCEDURE

* While Pass Code is correct, Press  can select Alarm Output Setting Group.

Display	Default	Name	Descriptions
		AL Batch Action Setting (ACtP)	<ol style="list-style-type: none"> Press  to enter the parameter setting, the digit will be flashed. Press  or  can select Alarm Action. Range: n (Manual) / r (Return) / C (Continue) Press ENT to save the value and back to A/O Group Setting.
		AL Total Action Setting (ACtt)	
		AL Rate 1 Action Setting (Actr1)	<ol style="list-style-type: none"> Press  to enter the parameter setting, the digit will be flashed. Press  or  can select Alarm 3 Action. Range: Hi (\geq Alarm Setpoint On), Lo ($<$ Alarm Setpoint On) Press ENT to save the value and back to A/O Group Setting.
		AL Rate 2 Action Setting (Actr2)	
		AL Rate1 Hysteresis Setting (HYSr1)	<ol style="list-style-type: none"> Press  to enter the parameter setting, the digit will be flashed. Press  or  can modify Alarm Hysteresis. Range: 0~9999 Alarm will be turned off while display value is higher or lower (depends on Alarm Action) Alarm Setpoint +/- Hysteresis. Press ENT to save the value and go to the next parameter.
		AL Rate2 Hysteresis Setting (HYSr2)	
		AL Rate1 Run Delay Setting (dELr1)	<ol style="list-style-type: none"> Press  to enter the parameter setting, the digit will be flashed. Press  or  can modify Alarm Run Delay. Range: 0~99 (sec) Alarm will be turned on after this setting (sec). Press ENT to save the value and go to the next parameter.
		AL Rate2 Run Delay Setting (dELr2)	
		AL Start Band Setting (Sb)	<ol style="list-style-type: none"> Press  to enter the parameter setting, the digit will be flashed. Press  or  can modify Alarm Start Band. Range: -99~99 If display value do not over this setting, alarm will not be turned on. Press ENT to save the value and go to the next parameter.
		AL Start Delay Time Setting (Sdt)	<ol style="list-style-type: none"> Press  to enter the parameter setting, the digit will be flashed. Press  or  can modify Alarm Start Delay Time. Range: 0~99 (sec) If display value reach Alarm Start Band, alarm will be turned on after this setting (sec). P.S.: This function must use with "Sb" together. Press ENT to save the value and back to Alarm Setting Group.

**Relay Output Mode Descriptions:

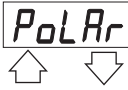



















N: (Manual); the relay is on when the present value reaches the alarm setpoint, the present value is still counted and the relay don't deactivate until manual reset by "reset key" or "external control terminal". Then the present value is reset to zero.

R: (Return); the relay is on when the present value reaches the alarm setpoint, the present value is counted until the relay output time is terminated. Then the present value is reset to zero.

C: (Continue); the relay is on when the present value reaches the alarm setpoint, the present value is reset to zero. And the relay is still on until the relay output time is terminated.

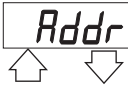







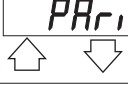



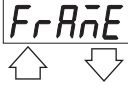



3.3 A/O (AoP) SETTING GROUP PROCEDURE

* While Pass Code is correct, Press  can select A/O Setting Group.

Display	Default	Name	Descriptions
	no	A/O Polarity Setting (PoLAr)	<ol style="list-style-type: none"> Press  to enter the parameter setting, the digit will be flashed. Press  or  can select A/O Polarity. Range: no (Positive Pole O/P; 0~10 Vdc), YES (Positive & Negative Pole O/P; -10~+10 Vdc) Press ENT to save the value and back to A/O Setting Group.
	00000	A/O Offset Setting (AoFSt)	<ol style="list-style-type: none"> Press  to enter the parameter setting, the digit will be flashed. Press  or  can modify A/O Offset. Range: -9999~9999 Press ENT to save the value and go to the next parameter.
	00000	A/O Gain Setting (AGAr)	<ol style="list-style-type: none"> Press  to enter the parameter setting, the digit will be flashed. Press  or  can modify A/O Gain. Range: -9999~9999 Press ENT to save the value and go to the next parameter.
	00000	A/O Low Scale Setting (AnLo)	<ol style="list-style-type: none"> Press  to enter the parameter setting, the digit will be flashed. Press  or  can modify A/O Low Scale. Range: -199999~999999 If this value is 0, while display is 0, output signal will be 4 mAdc. Press ENT to save the value and go to the next parameter.
	99999	A/O Hi Scale Setting (AnHi)	<ol style="list-style-type: none"> Press  to enter the parameter setting, the digit will be flashed. Press  or  can modify A/O Hi Scale. Range: -199999~999999 If this value is 100, while display is 100, output signal will be 20 mAdc. Press ENT to save the value and go to the next parameter.

3.4 RS-485 (doP) SETTING GROUP PROCEDURE

* While Pass Code is correct, Press  can select RS-485 Setting Group.

Display	Default	Name	Descriptions
	00000	Address Setting (Addr)	<ol style="list-style-type: none"> Press  to enter the parameter setting, the digit will be flashed. Press  or  can modify Address. Range: 0~255 Press ENT to save the value and go to the next parameter.
	38400	Baud Rate Setting (bAUd)	<ol style="list-style-type: none"> Press  to enter the parameter setting, the digit will be flashed. Press  or  can select Baud Rate. Range: 38400, 19200, 9600, 4800 (bps) Press ENT to save the value and go to the next parameter.
	n8.2.	Parity Check Setting (PARi)	<ol style="list-style-type: none"> Press  to enter the parameter setting, the digit will be flashed. Press  or  can select Parity Check. Range: n.8.2., n.8.1., EvEn, odd Press ENT to save the value and go to the next parameter.
	no	Frame Setting (FrAME)	<ol style="list-style-type: none"> Press  to enter the parameter setting, the digit will be flashed. Press  or  can select Frame. Range: no (Hi to Lo), YES (Lo to Hi) Press ENT to save the value and back to RS-485 Setting Group.

4.1 MODBUS RTU MODE PROTOCOL ADDRESS TABLE

* Data form: 16 / 32 bit, +/-8000~7FFF(-32768~32767), 800000007FFFFFFF(-2147483648~2147483647)

Modbus	Hex	Name	Act	Descriptions
40001	0000	ID	R	Model number identification; GTH is 39H
40002	0001	STATUS	R	Current alarm output & external control input status, range: 0000~00F0 (0~240) (Bit 7:AL4, Bit 6: AL3, Bit 5: AL2, Bit 4: AL1, Bit 3:Buzz, Bit 2:HD, Bit 1:AZ, Bit 0:AZ1) 0:Off, 1:On
40003	0002	INDEX	R/W	Index, range: 0000~002E (0~47) [Please refer section 4.2 for detail.]
40004	0003	POLAR	R/W	A/O polarity setting, range: 0000~0001 (0~1); 0:No, 1:YES
40005	0004	FRAME	R/W	Frame setting, range: 0000~0001 (0~1); 0:No, 1:YES
40006	0005	LOCK	R/W	Key lock setting, range: 0000~0001 (0~1); 0:No, 1:YES
40007	0006	ACTP	R/W	Alarm Batch action setting, range: 0000~0002 (0~2); 0:N, 1:R, 2:C
40008	0007	ACTT	R/W	Alarm total action setting, range: 0000~0002 (0~2); 0:N, 1:R, 2:C
40009	0008	ACTR1	R/W	Alarm rate1 action setting, range: 0000~0001 (0~1); 0:Hi, 1:Lo
40010	0009	ACTR2	R/W	Alarm rate2 action setting, range: 0000~0001 (0~1); 0:Hi, 1:Lo
40011	000A	BUZZ	R/W	Buzzer setting, range: 0000~0001 (0~1); 0:No, 1:YES
40012	000B	DPR	R/W	Rate decimal point setting, range: 0000~0005 ;
40013	000C	DPT	R/W	0:0, 1:1, 2:2, 3:3, 4:4, 5:5
40014	000D	C.TIME	R/W	Total time unit setting, range: 0000~0002 (0~2); 0:Sec, 1:Min, 2:Hour
40015	000E	BAUD	R/W	Baud rate setting, range: 0000~0003 (0~3); 0:38400, 1:19200, 2:9600, 3:4800
40016	000F	PARI	R/W	Parity check setting, range: 0000~0003 (0~3); 0:n.8.2., 1:n.8.1., 2:EvEn, 3:odd
40017	0010	AVG	R/W	Display average setting, range: 0001~0063 (1~99)
40018	0011	ADDR	R/W	Address setting, range: 0000~00FF (0~255)
40019	0012	DELR1	R/W	Alarm rate1 run delay setting, range: 0000~0063 (0~99)
40020	0013	DELR2	R/W	Alarm rate2 run delay setting, range: 0000~0063 (0~99)
40021	0014	SB	R/W	Alarm start band setting, range: FF9D~0063 (-99~99)
40022	0015	SDT	R/W	Alarm start delay time setting, range: 0000~0063 (0~99)
40023	0016	LCUT	R/W	Display low cut setting, range: 0000~270F (0~9999)
40024	0017	DELP	R/W	Alarm Batch 2run delay setting, range: 0000~0063 (0~99)
40025	0018	DELT	R/W	Alarm total 2run delay setting, range: 0000~0063 (0~99)
40026	0019	HYSR1	R/W	Alarm rate1 hysteresis setting, range: 0000~270F (0~99)
40027	001A	HYSR2	R/W	Alarm rate2 hysteresis setting, range: 0000~270F (0~99)
40028	001B	CODE	R/W	Pass code setting, range: 0000~4E1F (0~19999)
40029	001C	AOFST	R/W	A/O offset setting, range: D8F1~270F (-9999~9999)
40030	001D	AGAIN	R/W	A/O gain setting, range: D8F1~270F (-9999~9999)
40031	001E	AZERO	R/W	A/O zero adjustment, range: D8F1~270F (-9999~9999)
40032	001F	ASPAN	R/W	A/O span adjustment, range: D8F1~270F (-9999~9999)
40033	0020	ANLO	R/W	A/O low scale setting, range: FFFCF2C1~000F423F (-199999~999999) Hi Bit
40034	0021		R/W	A/O low scale setting, range: FFFCF2C1~000F423F (-199999~999999) Lo Bit
40035	0022	ANHI	R/W	A/O hi scale setting, range: FFFCF2C1~000F423F (-199999~999999) Hi Bit
40036	0023		R/W	A/O hi scale setting, range: FFFCF2C1~000F423F (-199999~999999) Lo Bit
40037	0024	DSPL	R/W	Display low scale setting, range:FFFCF2C1~000F423F (-199999~999999) Hi Bit
40038	0025		R/W	Display low scale setting, range:FFFCF2C1~000F423F (-199999~999999)Low Bit
40039	0026	DSPH	R/W	Display hi scale setting, range: FFFCF2C1~000F423F (-199999~999999) Hi Bit
40040	0027		R/W	Display hi scale setting, range: FFFCF2C1~000F423F (-199999~999999) Low Bit
40041	0028	DOFST	R/W	Display Offset setting, range: FFFCF2C1~000F423F (-199999~999999) Hi Bit
40042	0029		R/W	Display Offset setting, range: FFFCF2C1~000F423F (-199999~999999) Lo Bit
40043	002A	DGAIN	R/W	Display gain setting, range: 00000001~000F423F (1~999999) Hi Bit
40044	002B		R/W	Display gain setting, range: 00000001~000F423F (1~999999) Lo Bit
40045	002C	SCALE	R/W	Total scale setting, range: 00000001~000F423F (1~999999) Hi Bit
40046	002D		R/W	Total scale setting, range: 00000001~000F423F (1~999999) Low Bit
40047	002E	ALP	R/W	Alarm batch run, range: FFFCF2C1~000F423F (-199999~999999)Hi Bit
40048	002F		R/W	Alarm batch run , range: FFFCF2C1~000F423F (-199999~999999)Low Bit

Modbus	Hex	Name	Act	Descriptions
40049	0030	ALT	R/W	Total alarm, range: FFFCF2C1~000F423F (-199999~999999)Hi Bit
40050	0031		R/W	Total alarm, range: FFFCF2C1~000F423F (-199999~999999)Low Bit
40051	0032	ALR1	R/W	Rate 1 display, range: FFF CF2C1~000F423F(-199999~999999) Hi Bit
40052	0033		R/W	Rate 1 display, range: FFFCF2C1~000F423F (-199999~999999) Low Bit
40053	0034	ALR2	R/W	Rate 2 display, range: FFF CF2C1~000F423F(-199999~999999) Hi Bit
40054	0035		R/W	Rate 2 display, range: FFFCF2C1~000F423F (-199999~999999) Low Bit
40055	0036	RATE	R/W	Rate 2 display, range:FFFCF2C1~000F423F (-199999~999999) Hi Bit
40056	0037		R/W	Rate 2 display, range: FFFCF2C1~000F423F (-199999~999999) Low Bit
40057	0038	PV	R/W	Current present value setting, range: FFFCF2C1~000F423F (-199999~999999) Hi Bit
40058	0039		R/W	Current present value setting, range: FFFCF2C1~000F423F (-199999~999999) Low Bit
40059	003A	TV	R/W	Current total value setting, range: FFFCF2C1~000F423F (-199999~999999) Hi Bit
40060	003B		R/W	Current total value setting, range: FFFCF2C1~000F423F (-199999~999999) Low Bit

4.2 INDEX CODE SUPPLEMENT

* The following codes are for hexadecimal.

Page / Name	Page / Name	Page / Name	Page / Name	Page / Name
00: SYS	01: roP	02: AoP	03: doP	04: P.Cod
05: E-00	06: PoLAr	07: FrAME	08: LoCK	09: ACtP
0A: ACtt	0B: ACtr1	0C: ACtr2	0D: buZZ	0E: dPr
0F:dPt	10:C.tiME	11:bAUd	12:Pari	13: AvG
14: Addr	15: dELr1	16: dELr2	17: Sb	18: Sdt
19: LCut	1A: dELP	1B: dELt	1C: HYSr1	1D: HYSr2
1E: CodE	1F: AoFSt	20: AGAin	21: AZEro	22: ASPAn
23: AnLo	24: AnHi	25: dSPL	26: dSPH	27: doFSt
28: dGAin	29: SCALE	2A: ALP	2B: Alt	2C: Alr1
2D: Alr2	2E: Current Display			