CS2-TM(Pulse Input) TOTALIZER / BATCH / IMMEDIATE VALUE (for Flowmeter or Lengh/RPM) CONTROLLER USER MANUAL

■ DESCRIPTION

The CS2-TM(Pulse Input) is innovation totalizer. Adtek builds in high technology with wide input range from 0.01Hz~ 140.00KHz with auto-range function at same unit. There are three setting modes for K factor, 1/K factor and flow speed to match the difference output description of flowmeters.

The Totalizer provides high accuracy measurement, display, control and communication (Modbus RTU mode) of Pulse from flowmeter or encoder, approach switch, photo switch for length control.

There are two display screen and 3 external control input (DI) in standard and the optional 4 Relay, 1 Analogue, 1 Pulse and RS485 port available. They are also support fantastic control function as like as N, C, R mode for totalizer and batch control.

■ FEATUTRES

- Measuring Pulse *AUTO RANGE* 0.01Hz~100KHz(optional:140KHz); Contact / NPN / PNP / Voltage Pulse can be switch on rear of meter
- *Dual display screen for 10 digital Totalizer or Batch counter + 4 2/3 Immediate Value(PV) or 6 digital Batch programmable.*
- 4 relay can be individual programmed to relative immediate value, totalizer or batch.
  - ➢ Relative to Immediate Value(PV): Functions settable Energized Mode Hi / Lo / Hi(Lo) Hold / Do / Go, Hysteresys, Energized Delay, De-energized Delay, Energized latch or Energized by *RS485 command.*
  - ➢ Relative to Totalizer / Batch: N/C/R mode and energized time programmable.
- 3 external control input can be individual programmed for immediate value(PV) or totalizer / batch.
  - ➢ Immediate Value(PV): *PV Hold / Reset for Maximum or Minimum Hold / DI / Reset for Relay Energized Latch*
  - ➢ Totalizer / Batch: Reset, Gate
- Analogue Output and Pulse Output available in option
- RS485(Modbus RTU mode), Baud Rate is up to 38400bps
- Comply to CE standard

FUNCTIONS

■ Input & Scaling

■ Input Range

The meter has been designed very wide input range from 0.01Hz~100.00KHz(Option: 0.01Hz~140.00KHz) that can cover almost any application for flowmeter. User doesn't need to specify the input range.

■ Three setting modes for flowmeters

There are three types setting for Pulse/Flow-unit(K factor), Flow/Pulse(1/K factor) and Flow rate/Hz to match the difference output description of flowmeters. Engineer needs just to check the mode of flowmeter and setting. The totalizer will calculating the flow rate, and accumulation.

- ● ₁Pulse/Flow-unit(K factor):
  - ➢ The decimal point of K Factor: Setting range from 0.0 to 0.0000.
  - ➢ Pulse/Flow-unit(K factor): Setting range from 0.0001 to 9999.9
- ● Flow/Pulse (1/K factor):
  - ➢ The decimal point of 1/K Factor: Setting range from 0.0 to 0.0000.
  - ➢ Flow/Pulse(1/K factor): Setting range from 0.0001 to 9999.9
- ● ⌐⌐⌐ Valume/Hz:
  - ➢ The decimal point of pipe's diameter: Setting range from 0.0 to 0.0000.
  - ➢ Diameter of pipe: Setting range from 0.0 to 0.0000M
  - ➢ The decimal point of flow speed (Lengh/sec): Setting range from 0.0 to 0.0000.
  - ➢ Flow Speed: Setting range from 0.0001 to 9999.9M

■ DISPLAY FUNCTIONS

■ Dual Display screens
Down screen can be **Immediate Value(PV) and Batch** programmable; Up screen can be **Totalizer and Batch counter** programmable.

■ Maximum Hold or Minimum Hold for PV
When the `DSPLY` function in 【Input Group】 set to be `MAX.H`(Max. Hold) or `Mini.H`(Mini. Hold), The meter will keep display in maximum (or minimum) value of Immediate Value(PV) during power on, until manual reset by front key in 【User Level】, Up/Down Key function or 【External Control Input(E.C.I.)】; The Reset functions will be explan in detail in following. Please paste the sticker `M.H` on the red square LED to identify the status of display.
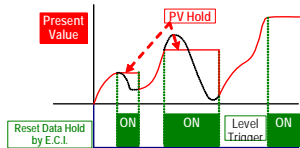
■ Immediate Value(PV) Hold
When the External Control input set to be `Pv. HLd`(PV Hold) function in 【ECI Gruop】, The display will be hold, when the E.C.I. is closed until the E.C.I. is to be open.
Please paste the sticker `PV.H` on the green square LED of ECI to identify the status of display.
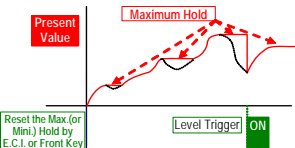
■ Write to display by RS485 command
The display can be written by RS485 command. At meantime, the display is no longer according to the input signal. In past, The meter normally receive 4~20mA or 0~10V from AO card or BCD card of PLC. We support a new solution by RS485 writing in so that can be **save cost and wiring** into PLC.
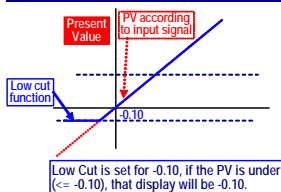
■ Low Cut
Setting range from -29999~+29999 counts.
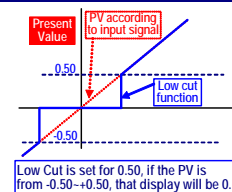
> If the setting value is positive, it means the range of absolute value will be 0; PV≤ Setting value, the display will be 0;
> Ex：Low Cut is set for 0.10, if the display is from -0.10~+0.10, that will be 0.
> If the setting value is negative, it means the range of under setting value will be 0; PV≤ -Setting value, the display will be 0;
> Ex：Low Cut is set for -0.01, if the display is ≤ -0.01, and all the display will be 0.

■ Digital Fine Adjustment
Setting range from -19999~+29999 ;
Users can get Fine Adjustment by front key of the meter, and "Just Key In" the value which user want to show in the current input signals.

Auto Range:
Three mode selectable between `Auto`(Auto range)/`SEMi`(Semi-Auto range)/`MANUL`(Manual range)
- `Auto`(Auto range): The decimal point will be auto changed according to the input frequency so that keep reading in the highest resolution.
- `SEMi`(Semi-Auto range): The decimal point will be auto changed according to the input frequency to keep reading in the highest resolution under setting position of decimal point.
- `MANUL`(Manual range): The decimal point will be fixed according to the setting of decimal point. So, it's possible to show "overflow", if the input frequency is over the display range.

■ Time out at Lowest frequency
In the case of low frequency, the totalizer can not to identify that is low frequency and no input until the next pulse input. Sometimes, it takes a long period.
CS2-TM builds in a time out function to cut out the reading. There are two modes `MAnAL` / `AUto` can be selected.
- `MANUL`(Manual): There is a period named `ito` can be set from 0.0 sec~999.9sec. The reading will display "0", when the next pulse doesn't input during the setting time.
- `Auto`(Auto range): The reading will display "0", when the next pulse doesn't input during the time that gave by formular of meter's firmware.

■ READING STABLE FUNCTIONS

■ Average Display update
Setting range: 1~99 times;
The meter's sampling is 15cycle/sec. If the `AvG`(Average) set to be 3, it means the meter is sampling 3 readings, and calculating the average then update display once. At meantime, the display update will be 5 times/sec.

■ Digital filter
Setting range from 0(None)/1~99 times. The digital filter can reduce the magnetic noise in field.

■ RELAY FUNCTIONS

■ Multi-Cross Function selection
4 relay can be programmable to relative Totalizer, Batch, Batch Counter and Immediate Value(PV) with individual functions.

Relative to Immediate Value(PV)

■ Relay energized mode Hi / Lo / Hi.HLd / Lo.HLd / DO/ Go-1.2
- **Hi**: Relay will energize when PV > Set-Point
- **Lo**: Relay will energize when PV < Set-Point
- **Hi.HLd (Lo.HLd)**: When the PV Higher (or lower) than set-point, the relay will be energized and hold until manual reset by from key in〔User Level〕or〔E.C.I.〕.
- **DO**: Relay is energized by RS485 command directly, and no longer to compare with set-point of relay
- **Go-1.2**: Go function with〔Set-Point 1〕and〔Set-point 2〕. Go relay energized when the condition is set-point 1(Hi) > PV > set-point 2(Lo)

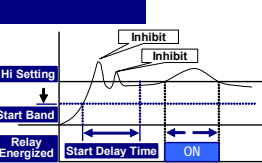Hi / Lo / Go Relay Energized
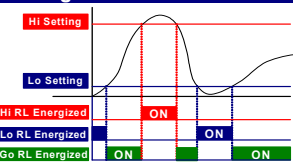
Hi(Lo) Energized Hold & Reset
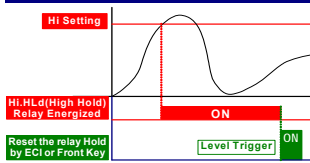
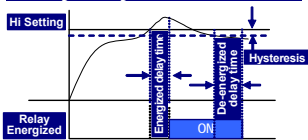### ■ Hysteresis: Settable range from 0~9999 Counts
■ Relay energized delay: Settable range from 0.1(second)~9(minutes)59.9(seconds);
### ■ Relay de-energized delay: Settable range from 0.1(second)~9(minutes)59.9(seconds)

Start Delay


Energized / De-energized Delay & Hysteresis

### Relative to Totalizer / Batch / Batch Counter

■ N/C/R Mode
The 3 mode are very useful idea to control the totalizer and batch. The relay energized condition is according to not only energized level, but also time and reset for totalizer, batch and batch counter.
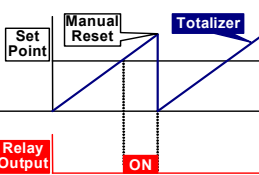
N MODE:
When the condition of **Set Point** is met:
1. the relay will be energized;
2. The totalizer will run as same as usual; until manual reset by front key or by rear terminal, the totalizer will be reseted to "0" and the relay will be de-energized.
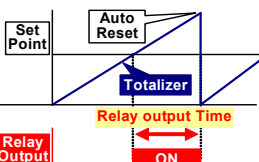
R MODE:
When the condition of **Set Point** is met:
1. The relay will be energized; until the time is over Relay output time **rY.1(2).ot**(Relay1(2) output time).
2. The totalizer will run as same as usual; until the time is over Relay output time **rY.1(2).ot**(Relay1(2) output time),The totalizer will be reset to "0".
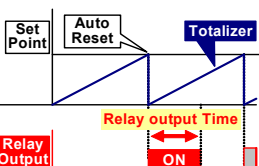
C MODE:
When the condition of **Set Point** is met:
1. The relay will be energized; until the time is over Relay output time **rY.1.ot** or **rY.2.ot**.
2. The totalizer will be reset to "0", then counts-up from "0".

- **Period of Relay on:**
  0:00.0~9(Minutes):59.9(Second)

## ■ 3 External Control Inputs(E.C.I.)

For Immediate Value(PV)

- **Relative PV or Tare:** The E.C.I. can be set to be **Rel.Pv**(Relative PV) function. When the E.C.I. is closed, the reading will show the differential value.
- **PV Hold:** The E.C.I. can be set to be **Pv.HLd**(PV Hold) function. The display will be hold when the E.C.I. is closed, until the E.C.I. is to be open. Please refer to the below figure.
- **Reset for Maximum or Minimum Hold:** Please refer to the below figure.

Max. (Mini.) Hold & Reset
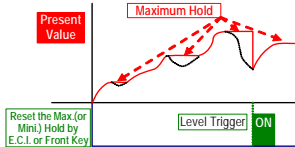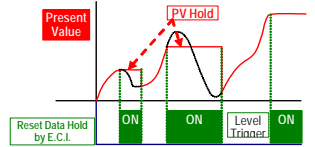
PV Hold & Reset

- **DI(Digital Input):** The E.C.I can be set to be **DI**(Digital Input) function, when the meter building in RS485 port. The computer is easier to get a switch status through the meter as like as DI of PLC.
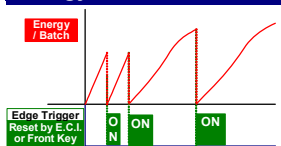- **Reset for Relay Energized Latch:** If relay energized mode was set to be Energized hold, the E.C.I. can be set to be **rY.rSt**(Reset Relay function). When the PV meets the condition of relay energizing, the relay will be hold until the E.C.I. is closed.

For Totalizer / Batch

Gate for Energy / Batch Energy
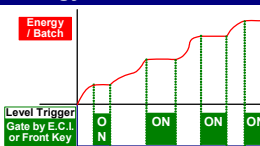
Reset for Energy / Batch Energy

■ Gate
- **Gate GAtE**: Totalizer and Batch will be stop to count, when E.C.I. lis close.
- **Batch Gate bt.GtE**: Batch will be stop to count, when E.C.I. lis close.
- **Totalizer Gate tL.GtE**: Totalizer will be stop to count, when E.C.I. lis close.

■ Reset
- **Reset rESEt**: Totalizer and Batch will be reset to "0", when E.C.I. lis close.
- **Totalizer Reset tL.rSt**: Totalizer will be reset to "0", when E.C.I. lis close.
- **Batch Reset bt.rSt**: Batch will be reset to "0", when E.C.I. lis close.

■ ANALOGUE OUTPUT FUNCTIONS

Relative to immediate value(PV), totalizer, batch or batch count programmable.

- **Ao.LS**: Setting range: -19999~+29999; Analogue Output Low relative Low Scale
- **Ao.HS**: Setting range: -19999~+29999; Analogue Output relative High Scale
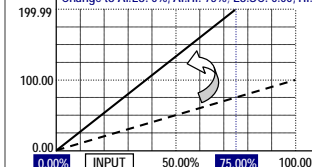
■ Fine Zero & Span Adjustment for Analog Output:
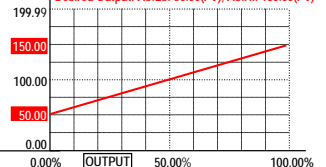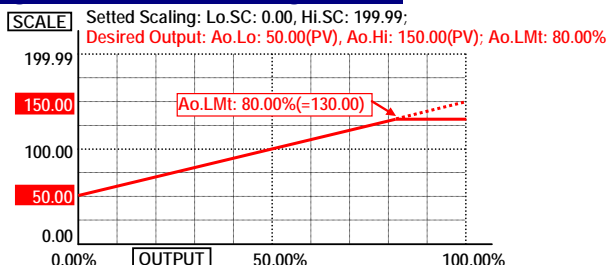**Users can get Fine Adjustment of analogue output by front key of the meter. Please connect standard meter to the terminal of analogue output. To press the front key(up or down key) of meter to adjust and check the meter the output.**

- **Ao.Zro:** **Fine Zero Adjustment for Analog Output; Setting range: -38011~27524;**
- **Ao.Spn:** **Fine Span Adjustment for Analog Output; Setting range: -38011~27524;**

■ High Limited for Analog Output

SCALE Setted Scaling: Lo.SC: 0.00, Hi.SC: 199.99;
Desired Output: Ao.Lo: 50.00(PV), Ao.Hi: 150.00(PV); Ao.LMt: 80.00%

SCALE		
199.99		
150.00	Ao.LMt: 80.00%(=130.00)	
100.00		
50.00		
0.00		
	0.00% OUTPUT 50.00% 100.00%	

■ Pulse Output

■ Relative to Totalizer, batch or batch counter
- **Pulse divider PLS.dv : Settable range from 1~9999.**
  - ➤ **PLS.dv set to be 1 : It will output 1 pulse, when totalizer increases "1Count". Ex: It will output 1 pulse, when totalizer from 12345.678 increse to 12345.679,**
  - ➤ **PLS.dv set to be 1000 : It will output 1 pulse, when totalizer increases "1000Count". Ex: It will output 1 pulse, when totalizer from 12345.678 increase to 12346.678.**
- **The maximum output is 1000Hz. Please sets lower resolution of totalizer, when the output over 1000Hz.**
- **Duty Cycle: 50%**
- **Please specify Relay or Open Collect output in order**

■ OEM function is welcome

■ RS485 Communication
- **Protocol: ModBus RTU Mode**
- **Baud Rate: Setting range:1200/2400/4800/ 9600/ 19200/38400**
- **Data Bits: Selectable 7 or 8 bits**
- **Stop Bits: Selectable 1 or 2 bits**
- **Parity: Selectable Even / Odd / None**
- **Divice Number: 1~255**

■ Remote Display function
The display can be written by RS485 command. In past, the meter normally receive 4~20mA or 0~10V from AO card or BCD card of PLC. We support a new solution by RS485 writing in so that can be save cost and wiring into PLC.

CS2 APPLICATION FOR RS485 WRINTING IN

RS 485 Modbus RTU Mode (up to 38400bps)
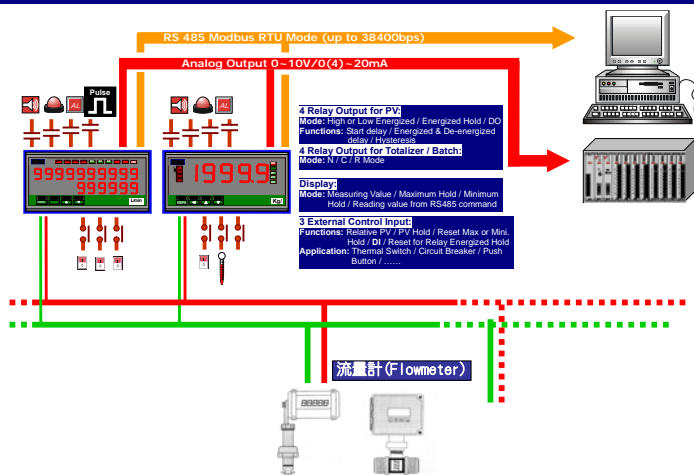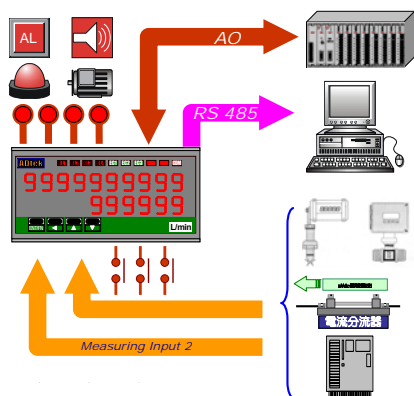RS485 wiring 1.2KM maximum Terminate Resistor:
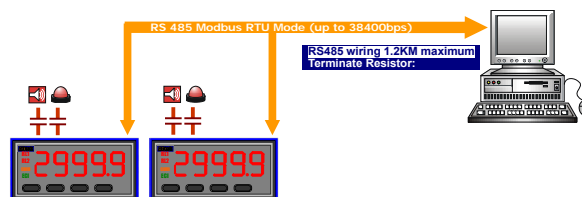
When the diPLY (Display Function) set to be RS485, it means, the PV screen will show the number from RS485 command & data. The data(number) will be same as PV that will compare with set-point, analogue output and ECI functions so that is to control analogue output, relay energized and so on.
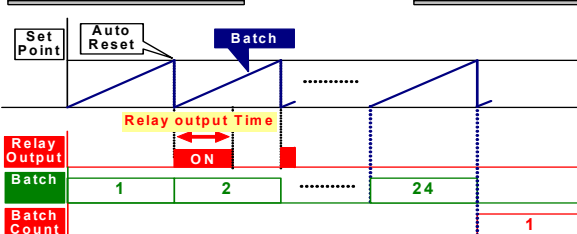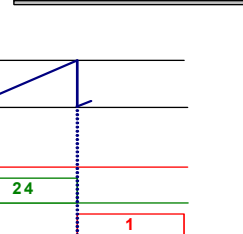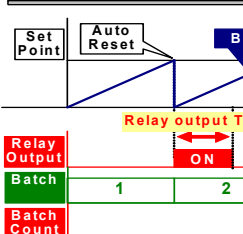
■ APPLICATIONS

Flowmeter Controller - RS485 communication Batch Control

AL
AO
RS 485
Measuring Input 2

CS2-TM & CS2-PR APPLICATION FOR FLOWMETER / PRESSURE MEASURING

RS 485 Modbus RTU Mode (up to 38400bps)
Analog Output 0~10V/0(4) ~20mA
Pulse
AL

4 Relay Output for PV:
Mode: High or Low Energized / Energized Hold / DO
Functions: Start delay / Energized & De-energized delay / Hysteresis

4 Relay Output for Totalizer / Batch:
Mode: N / C / R Mode

Display:
Mode: Measuring Value / Maximum Hold / Minimum Hold / Reading value from RS485 command

3 External Control Input:
Functions: Relative PV / PV Hold / Reset Max or Mini. Hold / DI / Reset for Relay Energized Hold
Application: Thermal Switch / Circuit Breaker / Push Button / ......
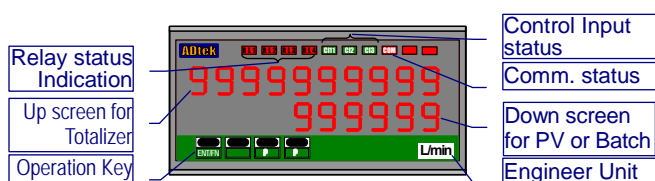
流量計（Flowmeter）

For batch control. Ex. Package Machine for Beer, UP.dSP set to be Bt.Cnt , and dSPLY for down screen set to be bAtCH , Relay 1 energized mode set to be btCH.C , and set-point is 750mL. Relay 2 energized mode set to be totL.C , and set-point is 24.
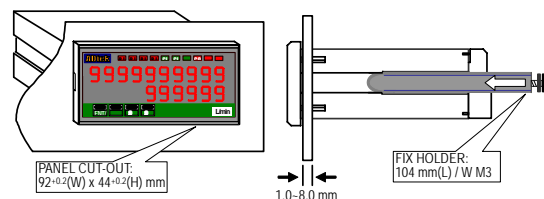
The Batch counter will count 1 and relay 1 energized when batch increase to 750mL. It mens finishing 1 bottle beer. When Batch counter in up screen increase to 24, the relay 2 energized to pack one box.
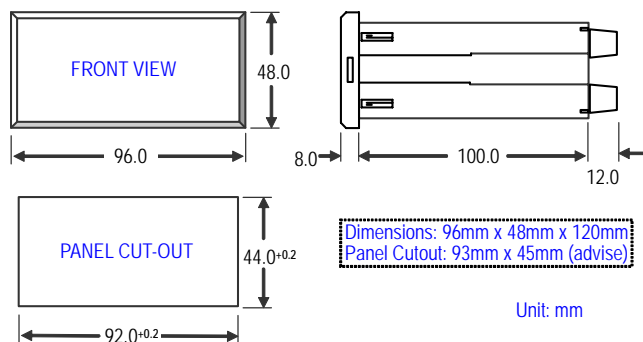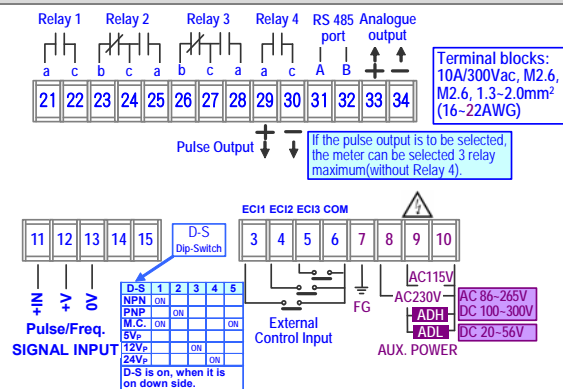

Up Screen for Batch Counter
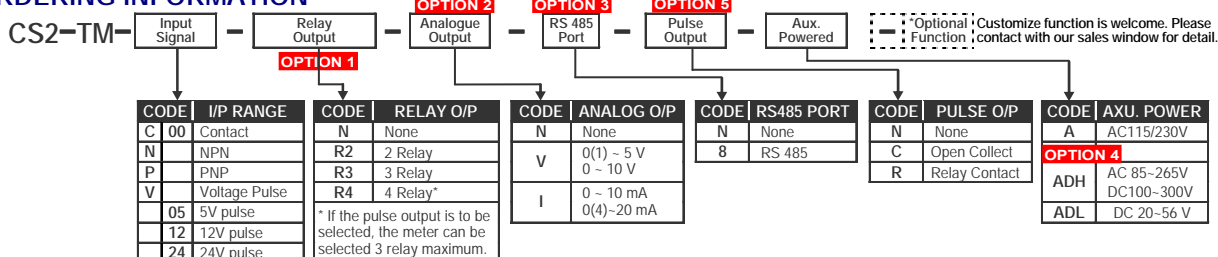Down screen for Batch
750.00 mL

Up Screen for Batch Counter
Down screen for Batch
24
750.00 mL

Set Point | Auto Reset | Batch
Relay Output: ON
Relay output Time
Batch: 1 | 2 | .... | 24
Batch Count: 1

■ FRONT PANEL

Relay status Indication
Up screen for Totalizer
Operation Key
Control Input status
Comm. status
Down screen for PV or Batch
Engineer Unit

■ INSTALLATION

PANEL CUT-OUT: 92+0.2(W) x 44+0.2(H) mm
1.0~8.0 mm
FIX HOLDER: 104 mm(L) / W M3

■ DIMENSIONS

FRONT VIEW
48.0
96.0
8.0
100.0
12.0

PANEL CUT-OUT
44.0+0.2
92.0+0.2

Dimensions: 96mm x 48mm x 120mm
Panel Cutout: 93mm x 45mm (advise)

Unit: mm

■ WIRING DIAGRAM

Relay 1 | Relay 2 | Relay 3 | Relay 4 | RS 485 port | Analogue output

| a c | b c a | b c a | a c | A B | + - |
| 21 22 | 23 24 25 | 26 27 28 | 29 30 | 31 32 | 33 34 |

Terminal blocks: 10A/300Vac, M2.6, M2.6, 1.3~2.0mm² (16~22AWG)

Pulse Output
If the pulse output is to be selected, the meter can be selected 3 relay maximum(without Relay 4).

ECI1 ECI2 ECI3 COM

| 11 12 13 14 15 | | 3 4 5 6 7 8 9 10 |

D-S Dip-Switch

D-S	1	2	3	4	5
NPN	ON				
PNP		ON			
M.C.			ON		
5V_P				ON	
12V_P				ON	
24V_P					ON

D-S is on, when it is on down side.

N+ / V+ / 0V
Pulse/Freq.
SIGNAL INPUT

External Control Input
FG
AC115V
AC230V
ADH
ADL
AC 86~265V DC 100~300V
DC 20~56V
AUX. POWER

■ ORDERING INFORMATION

■ ORDERING INFORMATION

CS2-TM - [Input Signal] - [Relay Output] - [Analogue Output] - [RS 485 Port] - [Pulse Output] - [Aux. Powered]

OPTION 1 / OPTION 2 / OPTION 3 / OPTION 5

Optional Function | Customize function is welcome. Please contact with our sales window for detail.

CODE	I/P RANGE
C 00	Contact
N	NPN
P	PNP
V	Voltage Pulse
05	5V pulse
12	12V pulse
24	24V pulse

CODE	RELAY O/P
N	None
R2	2 Relay
R3	3 Relay
R4	4 Relay*

* If the pulse output is to be selected, the meter can be selected 3 relay maximum.

CODE	ANALOG O/P
N	None
V	0(1) ~ 5 V / 0 ~ 10 V
I	0 ~ 10 mA / 0(4)~20 mA

CODE	RS485 PORT
N	None
8	RS 485

CODE	PULSE O/P
N	None
C	Open Collect
R	Relay Contact

CODE	AXU. POWER
A	AC115/230V
ADH	AC 85~265V / DC100~300V
ADL	DC 20~56 V

OPTION 4

■ OPERATION:

■ ERORR MASSAGE

STEP	DESCRIPTION	DISPLAY	FLASH	REMARK
	BEFORE POWER ON, PLEASE CHECK THE SPECIFICATION AND CONNECTION AGAIN.			
	SELF-DIAGNOSIS AND ERROR CODE:			
	ouFL : Display is positive-overflow (Signal is over display range)	ouFL		(Please check the input signal)
	-ouFL : Display is negative-overflow (Signal is under display range)	-ouFL		(Please check the input signal)
	ouFL : ADC is positive-overflow (Signal is higher than input 120%)	ouFL		(Please check the input signal)
	-ouFL : ADC is negative-overflow (Signal is lower than input -120%)	-ouFL		(Please check the input signal)
	EEP / FAiL : EEPROM occurs error	EEP	FAiL	(Please send back to manufactory for repaired)
	AiC.nG / Pu : Calibrating Input Signal do not process	AiC.nG	Pu	(Please process Calibrating Input Signal)
	AiC. / FAiL : Calibrating Input Signal error	AiC.	FAiL	(Please check Calibrating Input Signal)
	AoC.nG / Pu : Calibrating Output Signal do not process	AoC.nG	Pu	(Please process Calibrating Output Signal)
	AiC. / FAiL : Calibrating Output Signal error	AiC.	FAiL	(Please check Calibrating Output Signal)

■ FRONT PANEL:

Relay status Indication
Up screen for Totalizer
Operation Key

Control Input status
Comm. status
Down screen for PV or Batch
Engineer Unit
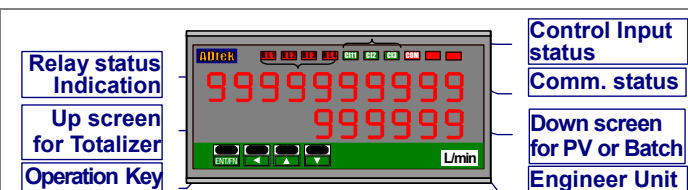
CS2-TM has two display screens and I/O status indication for purposes.

■ Numeric Screens
- **Up screen:** 0.28"(0.71cm) red high-brightness LED for 10 digital totalizer.
- **Down screen:** 0.28"(0.71cm) red high-brightness LED for Immediate Value 4 2/3 digital or Batch 6 digital.

■ I/O Status Indication
- **Relay Energized:** 4 square red LED
  - RL1 display when Relay 1 energized;
  - RL2 display when Relay 2 energized;
  - RL3 display when Relay 3 energized;
  - RL4 display when Relay 4 energized;
- **External Control Input Energized:** 3 square green LED
  - ECI1 display when E.C.I. 1 close(dry contact)
  - ECI2 display when E.C.I. 2 close(dry contact)
  - ECI3 display when E.C.I. 3 close(dry contact)
- **RS485 Communication:** 1 square red LED
  - COM will flash when the meter is receive or send data, and COM flash quickly means the data transient quicker.

■ Stickers:
Each meter has a sticker what are functions and engineer label enclosure.
- **Relay energized mode:** HH Hi Lo LL Do
- **E.C.I. functions mode:**
  - PV.H PV.H(PV Hold) / Tare Tare / DI DI /
  - M.RS M.RS(Maximum or Minimum Reset) /
  - R.RS R.RS(Reset fo Relay Latch)
- **Engineer Label:** over 80 types.

■ Operating Key: 4 keys for Enter(Function) / Shift(Escape) / Up key / Down key

	Setting Status	Function Index
Up key	Increase number	Go back to previous function index
Down key	Decrease number	Go to next function index
Shift key	Shift the setting position	Go back to this function index, and abort the setting
Enter/Fun key	Setting Confirmed and save to EEProm	From the function index to get into setting status

■ Pass Word:
Setting range:0000~9999;
User has to key in the right pass word so that get into【Programming Level】. Otherwise, the meter will go back to measuring page. If user forget the password, please contact with the service window.

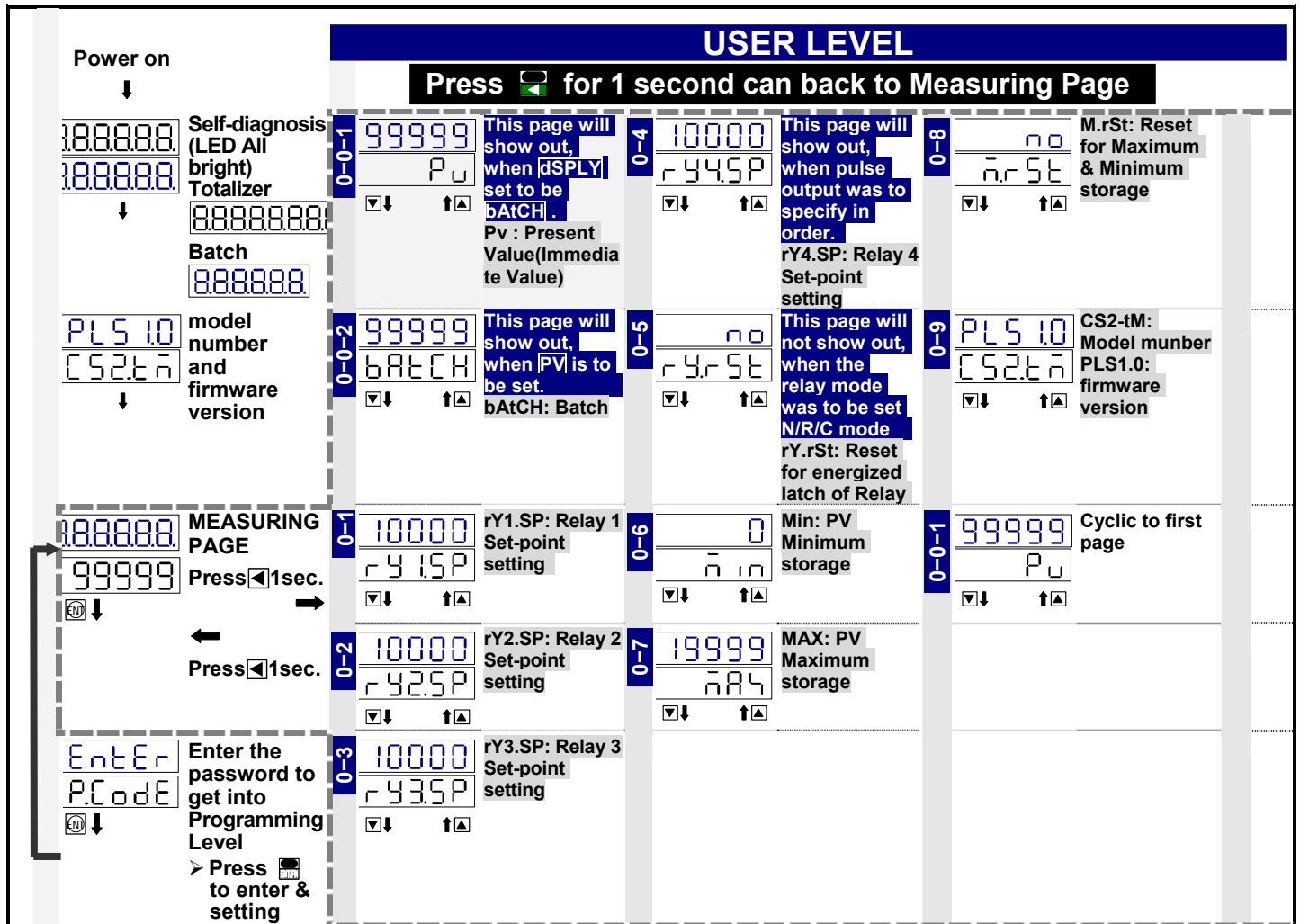## ■ Function Lock: There are 4 levels selectable for lock.
- **None:** no lock all.
- **User Level:** User level lock. User can get into user level for checking but setting.
- **Programming Level:** Programming level lock. User can get into programming level for checking but setting.
- **ALL:** All lock. User can get into all level for checking but setting.

■ Front Key Function
- The Key can be set to be the same function as the setting of ECI1.
- The Key can be set to be the same function as the setting of ECI2.
  Ex. The ECI1 set to be Pv.HLd and the function E.1=UP set to be YES in〔ECI Group〕. When user presses Key, the PV will hold as like as ECI1 close.
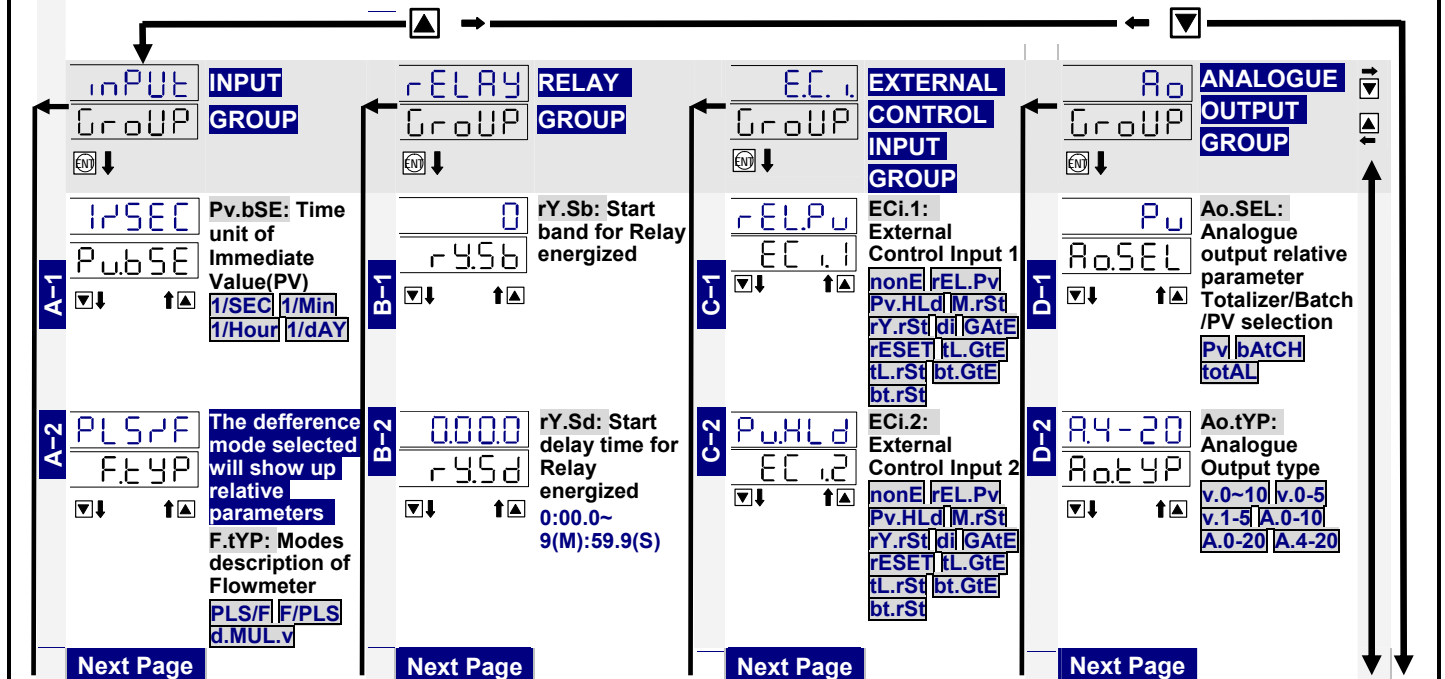- ➤ If the front key function has been set, the terminal input for ECI will be disabling.
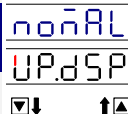
■ OPERATING DIAGRAM:

➢ USER LEVEL

USER LEVEL

Press ◁ for 1 second can back to Measuring Page

Power on ↓		
`18.8.8.8.8` `18.8.8.8.8`	**Self-diagnosis (LED All bright) Totalizer**	
`8.8.8.8.8.8.`		
`8.8.8.8.8`	**Batch**	
`PLS1.0` `CS2.tn` ↓	**model number and firmware version**	

0-0-1 `99999 Pu` ▽↓ ↑▲ — This page will show out, when **dSPLY** set to be **bAtCH** . Pv : Present Value(Immediate Value)

0-0-2 `99999 bAtCH` ▽↓ ↑▲ — This page will show out, when **PV** is to be set. bAtCH: Batch

0-1 `10000 rY1.SP` ▽↓ ↑▲ — rY1.SP: Relay 1 Set-point setting

0-2 `10000 rY2.SP` ▽↓ ↑▲ — rY2.SP: Relay 2 Set-point setting

0-3 `10000 rY3.SP` ▽↓ ↑▲ — rY3.SP: Relay 3 Set-point setting

0-4 `10000 rY4.SP` ▽↓ ↑▲ — This page will show out, when pulse output was to specify in order. rY4.SP: Relay 4 Set-point setting

0-5 `no rY.rSt` ▽↓ ↑▲ — This page will not show out, when the relay mode was to be set N/R/C mode rY.rSt: Reset for energized latch of Relay

0-6 `0 Min` ▽↓ ↑▲ — Min: PV Minimum storage

0-7 `19999 MAX` ▽↓ ↑▲ — MAX: PV Maximum storage

0-8 `no M.rSt` ▽↓ ↑▲ — M.rSt: Reset for Maximum & Minimum storage

0-9 `PLS1.0 CS2.tn` ▽↓ ↑▲ — CS2-tM: Model munber PLS1.0: firmware version

0-10 `99999 Pu` ▽↓ ↑▲ — Cyclic to first page

`188888` `99999` EN↓	**MEASURING PAGE** Press ◁ 1sec. →
	← Press ◁ 1sec.
`EntEr` `P.CodE` EN↓	**Enter the password to get into Programming Level** ➢ Press ▣ to enter & setting

Correct? NO ← / YES ↓
Default =1000

PROGRAMMING LEVEL

Press ◁ for 1 second to back Measuring Page

▲ → ← ▼

`inPUt` `GroUP` EN↓ **INPUT GROUP**	`rELAY` `GroUP` EN↓ **RELAY GROUP**	`E.C.i.` `GroUP` EN↓ **EXTERNAL CONTROL INPUT GROUP**	`Ao` `GroUP` EN↓ **ANALOGUE OUTPUT GROUP** ⇕ ▲
A-1 `1/SEC` `Pu.bSE` ▽↓ ↑▲ — Pv.bSE: Time unit of Immediate Value(PV) 1/SEC 1/Min 1/Hour 1/dAY	**B-1** `0` `rY.Sb` ▽↓ ↑▲ — rY.Sb: Start band for Relay energized	**C-1** `rEL.Pu` `EC.i.1` ▽↓ ↑▲ — ECi.1: External Control Input 1 nonE rEL.Pv Pv.HLd M.rSt rY.rSt di GAtE rESET tL.GtE tL.rSt bt.GtE bt.rSt	**D-1** `Pu` `Ao.SEL` ▽↓ ↑▲ — Ao.SEL: Analogue output relative parameter Totalizer/Batch /PV selection Pv bAtCH totAL
A-2 `PLS/F` `F.tYP` ▽↓ ↑▲ — The defference mode selected will show up relative parameters F.tYP: Modes description of Flowmeter PLS/F F/PLS d.MUL.v	**B-2** `0.00.0` `rY.Sd` ▽↓ ↑▲ — rY.Sd: Start delay time for Relay energized 0:00.0~ 9(M):59.9(S)	**C-2** `Pu.HLd` `EC.i.2` ▽↓ ↑▲ — ECi.2: External Control Input 2 nonE rEL.Pv Pv.HLd M.rSt rY.rSt di GAtE rESET tL.GtE tL.rSt bt.GtE bt.rSt	**D-2** `A.4-20` `Ao.tYP` ▽↓ ↑▲ — Ao.tYP: Analogue Output type v.0~10 v.0-5 v.1-5 A.0-10 A.0-20 A.4-20
Next Page	**Next Page**	**Next Page**	**Next Page**

Column A

A-3-1-1 — Display: `0` / `PrF.dP`
The page will show out, when PLS/F is to be set.
P/F.dP: Decimal Point of P/Flow(unit) (K Factor)
0~0.0000

A-3-1-2 — Display: `10000` / `PLS/F`
PLS/F: P/Flow(unit) (K Factor) Setting
0.0000~999.99

A-3-2-1 — Display: `0` / `FrP.dP`
The page will show out, when F/PLS is to be set.
F/P.dP: Decimal Point of Flow/P (1/K Factor)
0~0.0000

A-3-2-2 — Display: `10000` / `F/PLS`
F/PLS: Flow/Pulse (1/K Factor) Setting
0.0000~999.99

A-3-3-1 — Display: `0` / `di.A.dP`
The page will show out, when d.MUL.v is to be set.
diA.dP: Decimal Point of diameter of pipe
0~0.0000

A-3-3-2 — Display: `10000` / `di.AMt`
The page will show out, when d.MUL.v is to be set.
diAMt: Diameter of pipe setting
0.0000~999.99M

A-3-3-3 — Display: `0` / `vL.dP`
The page will show out, when d.MUL.v is to be set.
vL.dP: Decimal Point of Flow speed (Lengh/sec)
0~0.0000

A-3-3-4 — Display: `0` / `vL/HZ`
The page will show out, when d.MUL.v is to be set.
vL/ Hz: Volume/Hz, Flow speed setting
0.0000~999.99

A-4 — Display: `0` / `dP`
dP: Decimal point of set-point for Realy energized
0~0.0000

Next Page

Column B

B-3 — Display: `totL.n` / `rY1.nd`
rY1.Md: Relay 1 energized mode
oFF Lo Hi Hi.HLd Lo.HLd do btcH.n btcH.r btcH.C totL.n totL.r totL.C

B-4-0 — Display: `0.00.0` / `rY1.ot`
The page will show out, when rY1.Md set to be N/R/C mode.
rY1.ot: Relay 1 energized time
0:00.0~ 9(M):59.9(S)

B-4 — Display: `0` / `rY1.HY`
The page will show out, when rY1.Md set to be Hi/Lo mode.
rY1.HY: Relay 1 Hysteresis
0~5000 counts

B-5 — Display: `0.00.0` / `rY1.rd`
The page will show out, when rY1.Md set to be Hi/Lo mode.
rY1.rd: Relay 1 energized delay time
0:00.0~ 9(M):59.9(S)

B-6 — Display: `0.00.0` / `rY1.Fd`
The page will show out, when rY1.Md set to be Hi/Lo mode.
rY1.Fd: Relay 1 de-energized delay time
0:00.0~ 9(M):59.9(S)

B-7 — Display: `Hi` / `rY2.nd`
rY2.Md: Relay 2 energized mode
oFF Lo Hi Hi.HLd Lo.HLd do btcH.n btcH.r btcH.C totL.n totL.r totL.C

B-8-0 — Display: `0.00.0` / `rY2.ot`
The page will show out, when rY2.Md set to be N/R/C mode.
rY2.ot: Relay 2 energized time
0:00.0~ 9(M):59.9(S)

B-8 — Display: `0` / `rY2.HY`
The page will show out, when rY2.Md set to be Hi/Lo mode.
rY2.HY: Relay 2 Hysteresis
0~5000 counts

B-9 — Display: `0.00.0` / `rY2.rd`
The page will show out, when rY2.Md set to be Hi/Lo mode.
rY2.rd: Relay 2 energized delay time
0:00.0~ 9(M):59.9(S)

Next Page

Column C

C-3 — Display: `n.rSt` / `EC i.3`
ECi.3: External Control Input 3
nonE rEL.Pv Pv.HLd M.rSt rY.rSt di GAtE rESET tL.GtE tL.rSt bt.GtE bt.rSt

C-4 — Display: `12` / `dEbnc`
dEbnc: Debouncing of external control Input
5~255(x 8ms)

C-5 — Display: `YES` / `E.1=UP`
E.1=UP: E.C.I.1=UP; Up key will be same function as E.C.I.1 set.
YES no

C-6 — Display: `YES` / `E.2=dn`
E.2=dn: E.C.I.2=Down; Down key will be same function as E.C.I.2 set.
YES no

Column D

D-3 — Display: `0` / `Ao.LS`
Ao.LS: Analogue Output relative Low Scale
Immediate Value(PV): -19999~+29999
Totalizer/Batch: 0~9999999999

D-4 — Display: `19999` / `Ao.HS`
Ao.HS: Analogue Output relative High Scale
Immediate Value(PV): -19999~+29999
Totalizer/Batch: 0~9999999999

D-5 — Display: `0` / `Ao.Pro`
Ao.Zro: Fine Zero Adjustment for Analog Output
Immediate Value(PV): -38011~+27524
Totalizer/Batch: 0~9999999999

D-6 — Display: `0` / `Ao.SPn`
Ao.SPn: Fine Span Adjustment for Analog Output
Immediate Value(PV): -38011~+27524
Totalizer/Batch: 0~9999999999

D-7 — Display: `nonE` / `P.S.CLr`
Z.S.CLr: Clear Fine Zero / Span Adjustment for Analog Output
nonE Ao.Zro Ao.SPn both

D-8 — Display: `110.00` / `Ao.LMt`
Ao.LMt: Analog Output High Limit
-0.00~110.00% of FS

RS485 GROUP — Display: `rS485` / `GroUP`
RS485 GROUP

E-1 — Display: `1` / `AdrES`
AdrEs: Device number of the meter
1~255

Next Page

A-5 `0` / `ttL.dP`
ttL.dP: Decimal point of totalizer
0~0.0000

A-6 `noRAL` / `UP.dSP`
UP.dSP: Up screen displays totalizer or batch Counter
noMAL Bt.Cnt
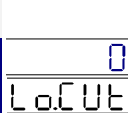
A-7 `ouFL` / `oFL.nd`
oFL.Md: overflow mode of totalizer or batch
ovFL rCYCL

A-8 `PStvE` / `SiGn`
SiGn: Sign of accumulate up or down
PStvE dUAL
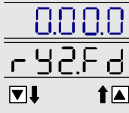
A-9 `100.00` / `Pv.SPn`
Pv.SPn: Fine Span Adjustment for Immediate Value(PV) display
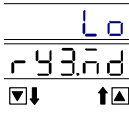
A-10 `no` / `S.CLr`
S.CLr: Clear Fine Span Adjustment for Immediate Value(PV) display
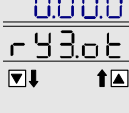
A-11 `Pv` / `dSPLY`
dSPLY: Display Function for down screen
Pv Mini.H MAX.H RS485 bAtCH
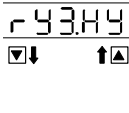
A-12 `0` / `Lo.CUt`
Lo.Cut: Low Cut
-29999~+29999

Next Page

B-10 `0.00.0` / `rY2.Fd`
The page will show out, when rY2.Md set to be Hi/Lo mode.
rY2.Fd: Relay 2 de-energized delay time
0:00.0~9(M):59.9(S)
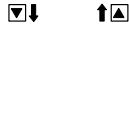
B-11 `Lo` / `rY3.nd`
rY3.Md: Relay 3 energized mode
oFF Lo Hi Hi.HLd Go-1.2 Lo.HLd do btcH.n btcH.r btcH.C totL.n totL.r totL.C

B-12-0 `0.00.0` / `rY3.ot`
The page will show out, when rY3.Md set to be N/R/C mode.
rY3.ot: Relay 3 energized time
0:00.0~9(M):59.9(S)

B-12 `0` / `rY3.HY`
The page will show out, when rY3.Md set to be Hi/Lo mode.
rY3.HY: Relay 3 Hysteresis
0~5000 counts
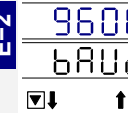
B-13 `0.00.0` / `rY3.rd`
The page will show out, when rY3.Md set to be Hi/Lo mode.
rY3.rd: Relay 3 energized delay time
0:00.0~9(M):59.9(S)

B-14 `0.00.0` / `rY3.Fd`
The page will show out, when rY3.Md set to be Hi/Lo mode.
rY3.Fd: Relay 3 de-energized delay time
0:00.0~9(M):59.9(S)

B-15 `Lo` / `rY4.nd`
The page will not show out, when pulse output has been specified.
rY4.Md: Relay 4 energized mode
oFF Lo Hi Hi.HLd Lo.HLd do btcH.n btcH.r btcH.C totL.n totL.r totL.C

B-16-0 `0.00.0` / `rY4.ot`
The page will show out, when rY4.Md set to be N/R/C mode.
rY4.ot: Relay 4 energized time
0:00.0~9(M):59.9(S)

Next Page

E-2 `9600` / `bAUd`
bAUd: Baud rate
1200 2400 4800 9600 19200 38400

E-3 `n.Stb.2` / `PritY`
PritY: Parity
n.Stb.1 n.Stb.2 odd EvEn

A-13 `AUto` `ito.nd` ▽↓ ↑▲	**ito.Md:** Input Time Out Mode AUto MAnUL	**B-16** `0` `rY4.HY` ▽↓ ↑▲	The page will show out, when rY4.Md set to be Hi/Lo mode. **rY4.HY: Relay 4 Hysteresis** 0~5000 counts
A-14 `0` `ito` ▽↓ ↑▲	The page will show out, when ito.Md set to be MAnUL . **Ito: The time of time out**	**B-17** `0.00.0` `rY4.rd` ▽↓ ↑▲	The page will show out, when rY4.Md set to be Hi/Lo mode. **rY4.rd: Relay 4 energized delay time** 0:00.0~ 9(M):59.9(S)
A-15 `AUto` `rAnGE` ▽↓ ↑▲	**rAnGE:** Input range AUto SEMi MAnUL	**B-18** `0.00.0` `rY4.Fd` ▽↓ ↑▲	The page will show out, when rY4.Md set to be Hi/Lo mode. **rY4.Fd: Relay 4 de-energized delay time** 0:00.0~ 9(M):59.9(S)
A-16 `5` `AvG` ▽↓ ↑▲	**AvG: Average display for immediate Value(PV)**		
A-17 `0` `d.FiLt` ▽↓ ↑▲	**d.Filt: Digital Filter**		
A-18 `1` `PLS.dv` ▽↓ ↑▲	The page will show out, when pulse output specified. **PLS.dv: Pulse divider**		
A-19 `0` `P.CodE` ▽↓ ↑▲	**P.CodE: Pass code**		
A-20 `nonE` `F.LoCK` ▽↓ ↑▲	**F.LoCK: Function lock** nonE USEr EnG ALL		

■ OPERATING STEPS:
➢ USER LEVEL

		DESCRIPTION	PARAMETERS	
POWER ON			Please check the specification and wiring first.	
`8.8.8.8.8.` `8.8.8.8.8` ↓		**Self-diagnosis (LED All bright)** `8.8.8.8.8.8.8.8.8.` Totalizer `8.8.8.8.8.` Batch		
`PLS 1.0` `CS2.tn` ↓		**model number and firmware version**		

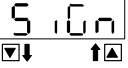|			
188888. 99999 ◄↓		**Measuring Page** 10 digital Totalizer or batch counter + 4 2/3 digital immediate Vale(PV) or 10 digital Totalizer + 6 digital Batch	**Press ⬛ for 1 second can back to Measuring Page**
0-0-1 99999 Pu ▼↓ ↑▲		This page will show out, when dSPLY set to be bAtCH . **Pv: Present Value;**	
0-0-2 99999 bAtCH ▼↓ ↑▲		This page will show out, when dSPLY set not to be bAtCH . **bAtCH: Batch**	
0-1 rY1.SP ▼↓ ↑▲	10000	**rY1.SP: Relay 1 Set-point setting** ➢ Please check the setting of Relay energized mode and keep in mind. If the relay mode set to relative immediate value, the energized mode will be <u>Hi</u> or <u>Lo</u>. If the relay mode set to relative totalizer or batch, the energized mode will be <u>N/R/C</u>.	**Setting Range: Immediate Value(PV): -19999~+29999 Totalizer/Batch: 0~9999999999** ◄Shift ▲Up ▼Down ⬛Enter
0-2 rY2.SP ▼↓ ↑▲	10000	**rY2.SP: Relay 2 Set-point setting** ➢ Please check the setting of Relay energized mode and keep in mind.	**Setting Range: Immediate Value(PV): -19999~+29999 Totalizer/Batch: 0~9999999999** ◄Shift ▲Up ▼Down ⬛Enter
0-3 rY3.SP ▼↓ ↑▲	10000	**rY3.SP: Relay 3 Set-point setting** ➢ Please check the setting of Relay energized mode and keep in mind.	**Setting Range: Immediate Value(PV): -19999~+29999 Totalizer/Batch: 0~9999999999** ◄Shift ▲Up ▼Down ⬛Enter
0-4 rY4.SP ▼↓ ↑▲	10000	This page will show out, when pulse output was to specify in order. **rY3.SP: Relay 3 Set-point setting** ➢ Please check the setting of Relay energized mode and keep in mind.	**Setting Range: Immediate Value(PV): -19999~+29999 Totalizer/Batch: 0~9999999999** ◄Shift ▲Up ▼Down ⬛Enter
0-5 rY.rSt ▼↓ ↑▲	no	**rY.rSt: Reset for energized hold of Relay**	Slecttable: YES / no ▲Up ▼Down ⬛Enter
0-6 min ▼↓ ↑▲		**Min: PV Minimum storage;** The meter will save the minimum of immediate vale(PV) during power on.	**Review only**
0-7 MAY ▼↓ ↑▲		**MAX: PV Maximum storage) ;** The meter will save the maximum of immediate vale(PV) during power on. The maximum can be reset by front key in M.rSt of【User Level】. It will save newest maximum after reset.	**Review only**
0-8 m.rSt ▼↓ ↑▲	no	**M.rSt: Maximum & Minimum reset;** The maximum and minimum can be reset by front key in M.rSt of【User Level】. It will save newest maximum and minimum after reset.	Slecttable: YES / no ▲Up ▼Down ⬛Enter
0-9 PLS1.0 CS2tm ▼↓ ↑▲		**CS2-tM: Model number** **PLS1.0: Frimware version**	**Review only It will be announce in our website when it has been version changed.**
0-1 99999 Pu ▼↓ ↑▲		**Cyclic to first page** **Press ⬛ for 1 second can back to Measuring Page in any page.**	
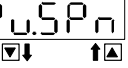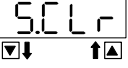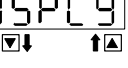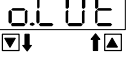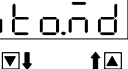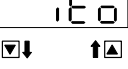
➢ PROGRAMMING LEVEL
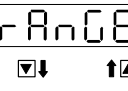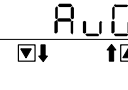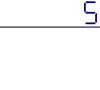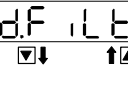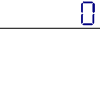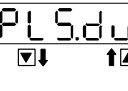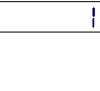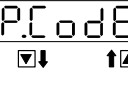
		DESCRIPTION	PARAMETERS	
`18.8.8.8.` `99999` [EN]↓		**MEASURING PAGE**		
`EntEr` `P.CodE` [EN]↓		**PASS CODE PAGE**	If user wants to change the pass code, please go to step A-20 to set. Please remind the new pass code.	
NO ← ⟨Correct?⟩ YES ↓	`10000`	Enter the pass code to get into programming level.		

Press [◀] for 1 second to back Measuring Page

[▲] → ← [▼]

`GroUP` `inPUt`	[▼]→ ←[▲]	`GroUP` `rELAY`	[▼]→ ←[▲]	`GroUP` `E.C.i.`	[▼]→ ←[▲]	`GroUP` `Ao`	[▼]→ ←[▲]	`GroUP` `rS485`
INPUT GROUP		**RELAY GROUP**		**EXTERNAL CONTROL INPUT GROUP**		**ANALOGUE OUTPUT GROUP**		**RS485 GROUP**
PRESS [▪] TO ENTER		**PRESS [▪] TO ENTER**		**PRESS [▪] TO ENTER**		**PRESS [▪] TO ENTER**		**PRESS [▪] TO ENTER**
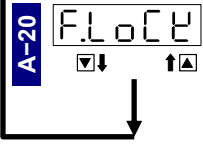
➢ INPUT GROUP

		DESCRIPTION	PARAMETERS	
`GroUP` `inPUt` [ENT FN]↓		**INPUT GROUP INDEX**	**In following page, press [◀] for 1 second to back INPUT GROUP INDEX.**	
A-1 `Pu.bSE` [▼]↓ [▲]↑	`1/SEC`	**Pv.bSE: Time unit of Immediate Value(PV);** Please refer to the specification and output of flowmeter, and then set the time base.	Selectable: **1/SEC 1/Min 1/Hour 1/dAY** **1/SEC: Flow/Second** **1/Min: Flow/Minute** **1/Hour: Flow/Hour** **1/dAY: Flow/Day** [▲]Up [▼]Down [▪]Enter	
A-2 `F.tYP` [▼]↓ [▲]↑	`PLS/F`	**The defference mode selected will show up relative parameters following** **F.tYP: Flow Rate type;** There three three types setting for Pulse/Flow-unit(K factor), Flow/Pulse(1/K factor) and Flow rate/Hz to match the difference output description of flowmeters. Engineer needs just to check the mode of flowmeter and setting. The totalizer will calculating the flow rate, and accumulation.	Selectable: **PLS/F F/PLS d.MUL.v** **PLS/F**:Pulse/Flow(K Factor); Settable the decimal point of Pulse/Flow(K Factor) and Pulse/Flow(K Factor) **F/PLS**:Flow/Pulse(1/K Factor); Settable the decimal point of Flow/Pulse(1/K Factor) and Flow/Pulse(1/K Factor) **d.MUL.v**: πr^2 x Flow Speed; Settable the decimal point of diameter of pipe, flow speed and F diameter of pipe, flow speed. [▲]Up [▼]Down [▪]Enter	
Next P.				

Code	Display	Value	Description	Selectable/Setting
A-3-1-1	PrF.dP	0	The page will show out, when F.tYP set is to be PLS/F. P/F.dP: Decimal Point of Pulse/Flow or K factor;	Selectable: 0 / 0.0 / 0.00 / 0.000 / 0.0000 Up Down Enter
A-3-1-2	PLS/F	10000	The page will show out, when F.tYP set is to be PLS/F. PLS/F: Pulse/Flow(K factor);	Setting Range: 0.0000~999.99 Shift Up Down Enter
A-3-2-1	FrP.dP	0	The page will show out, when F.tYP set is to be F/PLS. F/P.dP:Decimal Point of Flow/Pulse(1/K factor);	Selectable: 0 / 0.0 / 0.00 / 0.000 / 0.0000 Up Down Enter
A-3-2-2	FrPLS	10000	The page will show out, when F.tYP set is to be F/PLS. F/PLS: Flow/Pulse(1/K Factor);	Setting Range: 0.0000~999.99 Shift Up Down Enter
A-3-3-1	diA.dP	0	The page will show out, when F.tYP set is to be d.MUL.v. diA.dP: Decimal Point of Diameter for pipe;	Selectable: 0 / 0.0 / 0.00 / 0.000 / 0.0000 Up Down Enter
A-3-3-2	diAMt	10000	The page will show out, when F.tYP set is to be d.MUL.v. diAMt: Diameter of pipe;	Setting Range: 0.0000~9999.9M Shift Up Down Enter
A-3-3-3	vL.dP	0	The page will show out, when F.tYP set is to be d.MUL.v. vL.dP: Decimal Point of Flow Speed;	Selectable: 0 / 0.0 / 0.00 / 0.000 / 0.0000 Up Down Enter
A-3-3-4	vL/HZ	0	The page will show out, when F.tYP set to be d.MUL.v. vL/HZ: Volume or Flow Rate/Hz; Volume or Flow Rate/Hz	Setting Range: 0.0000~999.99 Shift Up Down Enter
A-4	dP	0	dP: Decimal Point of Relay Set-Point The totalizer has been designed auto range and decimal point moving to keep highest resolution. Therefore, user has to set the decimal point for set-point.	Selectable: 0 / 0.0 / 0.00 / 0.000 / 0.0000 Up Down Enter
A-5	ttL.dP	0	ttL.dP: Decimal Point of Totalizer Please don't set the big difference resolution between totalizer and immediate value(PV) to cause totalizer increasing too slowly.	Selectable: 0 / 0.0 / 0.00 / 0.000 / 0.0000 Up Down Enter
A-6	UP.dSP	noMAL	UP.dSP/ttL.Md: Up screen display selection The function is very useful to achieve batch control. Plesae refer to the application of this manual	Seletable: noMAL(Normal): Up screen display totalizer Bt.Cnt(Batch Counter): Up screen display btach Counter; Up Down Enter
A-7	oFL.md	ouFL	oFL.Md: Run Mode after overflow for Totalizer/Batch/Batch count;	Selectable: ovFL(overflow): Up screen will show ovFL, when it is over-flow. rCYCL(Recycle): Up screen will re-count from 0, when it is over-flow. Up Down Enter
Next P.				

A-8 `SiGn`	`PStvE`	**Don't Care about the function** **SiGn: Up & down count of Totalizer accoding to + or – of PV**	Selectable: **PStvE**(Pasitive): Totalizer or Batch will count increase when immediate value(PV)＞0. **dUAL**(Dual): Totalizer or Batch will count increase when immediate value(PV)＞0. And, Totalizer or Batch will count decrease when immediate value(PV)＜0. ▲Up ▼Down Enter	
A-9 `Pv.SPn`	`100.00`	**Pv.SPn: Fine Span Adjustment for PV display;** Users can get Fine Adjustment by front key of the meter, and "Just Key In" the value which user want to show in the current input signals.	Setting Range: -29999~+29999 ◀Shift ▲Up ▼Down Enter	
A-10 `S.CLr`	`no`	**S.CLr: Clear Fine Span Adjustment for PV display;**	Selectable: **no** (No): Do not clear the fine span adjustment. **YES**(Yes): To clear the fine span adjustment. ▲Up ▼Down Enter	
A-11 `dSPLY`	`Pv`	**dSPLY: Display Function for down screen** The display can be written by RS485 command. At meantime, the display is no longer according to the input signal. In past, The meter normally receive 4~20mA or 0~10V from AO card or BCD card of PLC. We support a new solution by RS485 writing in so that can be save cost and wiring into PLC.	Selectable: **Pv**(PV): Down screen shows Immediate Value(PV) **bAtCH**(Batch): Down screen shows batch **Mini.H**:Minimum Hold for Immediate Value(PV) **MAX.H**:Maximum Hold Immediate Value(PV) **RS485**(RS485): Remote display from RS485 command of master. ▲Up ▼Down Enter	
A-12 `Lo.CUt`	`0`	**Lo.CUt:Low Cut** If the setting value is positive, it means the range of absolute value will be 0; PV≤ Setting value, the display will be 0. If the setting value is negative, it means the range of under setting value will be 0; PV≤ -Setting value, the display will be 0.	Setting Range: ±29999 counts ◀Shift ▲Up ▼Down Enter	
A-13 `ito.nd`	`Auto`	**ito.Md:Input Time Out Mode** In the case of low frequency, the totalizer can not to identify that is low frequency and no input until the next pulse input. Sometimes, it takes a long period. CS2-TM builds in a time out function to cut out the reading(to be "0"). There are two modes **MAnAL / AUto** can be selected.	Selectable: **Auto**: The reading will display "0", when the next pulse doesn't input during the time that gave by formular of meter's firmware. **MAnUL**: The reading will display "0", when the next pulse doesn't input during the setting time. ▲Up ▼Down Enter	
A-14 `ito`	`0.0`	**The page will show out, when ito.Md set to be MAnUL.** **Ito: Input Time Out;** The time setting for Input time out.	Setting Range: 0.0 sec~999.9sec ◀Shift ▲Up ▼Down Enter	
Next P.				

A-15 `rAnGE` ▼↓ ↑▲	`Auto`	**rAnGE(Range): Input frequency range** Adtek builds in high technology with wide input range from 0.01Hz~ 140.00KHz with auto-range function at same unit. However, we keep three way for the input range selection as Auto range, Semi-Auto range and manual. ※ **When by the RS485 read present value,can only choose MAnUL**	Selectable: **Auto**(Auto range): The decimal point will be auto changed according to the input frequency so that keep reading in the highest resolution. **SEMi**(Semi-Auto range): The decimal point will be auto changed according to the input frequency to keep reading in the highest resolution under setting position of decimal point. **MAnUL**(Manual range): The decimal point will be fixed according to the setting of decimal point. So, it's possible to show "overflow", if the input frequency is over the display range. ▲Up ▼Down Enter
A-16 `AuG` ▼↓ ↑▲	`5`	**AvG: Average** The meter's sampling is 15cycle/sec. If the **AvG**(Average) set to be 3, it means the meter is sampling 3 readings, and calculating the average then update display once. At meantime, the display update will be 5 times/sec.	Setting Range: 1(no function)~99 times ◄Shift ▲Up ▼Down Enter
A-17 `d.FiLt` ▼↓ ↑▲	`0`	**d.FiLt: Digital filter** The digital filter can reduce the magnetic noise in field.	Setting range: 0(no function)/1~99 times. ◄Shift ▲Up ▼Down Enter
A-18 `PLS.dv` ▼↓ ↑▲	`1`	**PLS.dv: Pulse divider** ➢ **PLS.dv** set to be **1**: It will output 1 pulse, when totalizer increases "1Count". Ex: It will output 1 pulse, when totalizer from 12345.678 increse to 12345.679, ➢ **PLS.dv** set to be **1000**: It will output 1 pulse, when totalizer increases "1000Count". Ex: It will output 1 pulse, when totalizer from 12345.678 increase to 12346.678.	Setting Range: 1~9999 ● **The maximum output is 1000Hz. Please sets lower resolution of totalizer, when the output over 1000Hz.** ● **Duty Cycle: 50%** ● **Please specify Relay or Open Collect output in order** ◄Shift ▲Up ▼Down Enter
A-19 `P.CodE` ▼↓ ↑▲	`1000`	**P.CodE: Pass Code** Please remind and write down the new pass code so that get into programming level.	Setting Range: 0000~9999 ◄Shift ▲Up ▼Down Enter
Next P.			
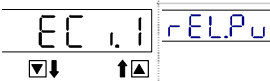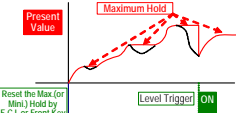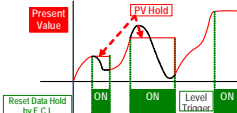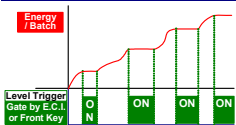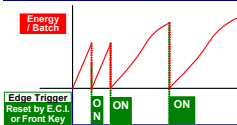
| A-20 `F.LoCk` ▼↓ ↑▲ | `nonE` | **F.LoCk: Function Lock**
There are 4 levels selectable for lock. | Selectable:
nonE(None): no lock all.
USEr(User Level): User level lock. User can get into user level for checking but setting.
EnG(Programming Level): Programming level lock. User can get into programming level for checking but setting.
ALL(All Level): User can get into all level for checking but setting.
▲Up ▼Down ▬Enter | |

		DESCRIPTION	PARAMETERS	
rELAY GroUP ENT FN ↓		**RELAY GROUP INDEX**	**In following page, press ◀ for 1 second to back RELAY GROUP INDEX.**	
B-1 rY.Sb ▽↓ ↑△	0	**rY.Sb: Start band of Relay Output** Start Delay / Energized / De-energized Delay & Hysteresis	**Setting Range: 0~9999 counts** ◀Shift ▲Up ▼Down Enter	
B-2 rY.Sd ▽↓ ↑△	0.00.0	**rY.Sd: Relay Output start delay time**	**Setting Range: 0:00.0~9(M):59.9(S)** ◀Shift ▲Up ▼Down Enter	
B-3 rY1.md ▽↓ ↑△	totL.n	**rY1.Md: Relay 1 energized mode** **Relative Immediate Value(PV): Hi / Lo / Go** **Relative Totalizer / Batch / Batch Counter: N / R / C Mode**	**Selectable:** **oFF**:Turn off the Relay and relative LED. **Lo**:Low Level Energized; Relay will energize when PV < Set-Point. **Hi**:High Level Energized; Relay will energize when PV > Set-Point. **Hi.HLd** / **Lo.HLd**:High / Low Level energized latch; When the PV Higher (or lower) than set-point, the relay will be energized and hold until manual reset by from key in 〔User Level〕 or 〔E.C.I.〕. **do**:Digital Output; Relay is energized by RS485 command directly, and no longer to compare with set-point of relay. **btcH.n**: Batch control with N mode energized. **btCH.r**: Batch control with R mode energized **btCH.C**: Batch control with C mode energized. **totL.n**: Totalizer control with N mode energized. **totL.r**: Totalizer control with R mode energized. **totL.C**: Totalizer control with C mode energized. ▲Up ▼Down Enter	
B-4-0 rY1.ot ▽↓ ↑△	0.00.0	**The page will show out, when rY1.Md set to be N/R/C mode.** **rY1.ot: Relay 1 energized time**	**Setting Range: 0:00.0~9(M):59.9(S)** ◀Shift ▲Up ▼Down Enter	
B-4 rY1.HY ▽↓ ↑△	0	**The page will show out, when rY1.Md set to be Hi/Lo mode.** **rY1.HY: Relay 1 Hysteresis**	**Setting Range: 0~5000 counts** ◀Shift ▲Up ▼Down Enter	
B-5 rY1.rd ▽↓ ↑△	0.00.0	**The page will show out, when rY1.Md set to be Hi/Lo mode.** **rY1.rd: Relay 1 energized delay time**	**Setting Range: 0:00.0~9(M):59.9(S)** ◀Shift ▲Up ▼Down Enter	
B-6 rY1.Fd ▽↓ ↑△	0.00.0	**The page will show out, when rY1.Md set to be Hi/Lo mode.** **rY1.Fd: Relay 1 de-energized delay time**	**Setting Range: 0:00.0~9(M):59.9(S)** ◀Shift ▲Up ▼Down Enter	
Next P.				

B-7 `rY2.Md`	H i	**rY2.Md: Relay 2 energized mode**	**….as Relay 1 Energized Mode…** Selectable: oFF / Lo / Hi / Lo.HLd / Hi.HLd / do / btcH.n / btCH.r / btCH.C / totL.n / totL.r / totL.C ▲Up ▼Down 🔲Enter
B-8-0 `rY2.ot`	0.00.0	The page will show out, when rY2.Md set to be N/R/C mode. **rY2.ot: Relay 2 energized time**	**Setting Range:** 0:00.0~9(M):59.9(S) ◄Shift ▲Up ▼Down 🔲Enter
B-8 `rY2.HY`	0	The page will show out, when rY2.Md set to be Hi/Lo mode. **rY2.HY: Relay 2 Hysteresis**	**Setting Range: 0~5000 counts** ◄Shift ▲Up ▼Down 🔲Enter
B-9 `rY2.rd`	0.00.0	The page will show out, when rY2.Md set to be Hi/Lo mode. **rY2.rd: Relay 2 energized delay time**	**Setting Range:** 0:00.0~9(M):59.9(S) ◄Shift ▲Up ▼Down 🔲Enter
B-10 `rY2.Fd`	0.00.0	The page will show out, when rY2.Md set to be Hi/Lo mode. **rY2.Fd: Relay 2 de-energized delay time**	**Setting Range:** 0:00.0~9(M):59.9(S) ◄Shift ▲Up ▼Down 🔲Enter
B-11 `rY3.Md`	Lo	**rY3.Md: Relay 3 energized mode**	**….as Relay 1 Energized Mode…** Selectable: oFF / Lo / Hi / Lo.HLd / Hi.HLd / do / btcH.n / btCH.r / btCH.C / totL.n / totL.r / totL.C / Go-1.2 ▲Up ▼Down 🔲Enter
B-12-0 `rY3.ot`	0.00.0	The page will show out, when rY3.Md set to be N/R/C mode. **rY3.ot: Relay 3 energized time**	**Setting Range:** 0:00.0~9(M):59.9(S) ◄Shift ▲Up ▼Down 🔲Enter
B-12 `rY3.HY`	0	The page will show out, when rY3.Md set to be Hi/Lo mode. **rY3.HY: Relay 3 Hysteresis**	**Setting Range: 0~5000 counts** ◄Shift ▲Up ▼Down 🔲Enter
B-13 `rY3.rd`	0.00.0	The page will show out, when rY3.Md set to be Hi/Lo mode. **rY3.rd: Relay 3 energized delay time**	**Setting Range:** 0:00.0~9(M):59.9(S) ◄Shift ▲Up ▼Down 🔲Enter
B-14 `rY3.Fd`	0.00.0	The page will show out, when rY3.Md set to be Hi/Lo mode. **rY3.Fd: Relay 3 de-energized delay time**	**Setting Range:** 0:00.0~9(M):59.9(S) ◄Shift ▲Up ▼Down 🔲Enter
B-15 `rY4.Md`	Lo	**rY4.Md: Relay 4 energized mode**	**….as Relay 1 Energized Mode…** Selectable: oFF / Lo / Hi / Lo.HLd / Hi.HLd / do / btcH.n / btCH.r / btCH.C / totL.n / totL.r / totL.C ▲Up ▼Down 🔲Enter
B-16-0 `rY4.ot`	0.00.0	The page will show out, when rY4.Md set to be N/R/C mode. **rY4.ot: Relay 4 energized time**	**Setting Range:** 0:00.0~9(M):59.9(S) ◄Shift ▲Up ▼Down 🔲Enter
B-16 `rY4.HY`	0	The page will show out, when rY4.Md set to be Hi/Lo mode. **rY4.HY: Relay 4 Hysteresis**	**Setting Range: 0~5000 counts** ◄Shift ▲Up ▼Down 🔲Enter
B-17 `rY4.rd`	0.00.0	The page will show out, when rY4.Md set to be Hi/Lo mode. **rY4.rd: Relay 4 energized delay time**	**Setting Range:** 0:00.0~9(M):59.9(S) ◄Shift ▲Up ▼Down 🔲Enter
B-18 `rY4.Fd`	0.00.0	The page will show out, when rY4.Md set to be Hi/Lo mode. **rY4.Fd: Relay 4 de-energized delay time**	**Setting Range:** 0:00.0~9(M):59.9(S) ◄Shift ▲Up ▼Down 🔲Enter

➤ EXTERNAL CONTROL INPUT(E.C.I.) GRUOP (standard function)

		DESCRIPTION	PARAMETERS	

E.C.i.
GroUP
ENT/FN ↓

EC i.1
C-1
▼↓   ↑▲

rEL.Pv

EXTERNAL CONTROL INPUT GROUP INDEX

In following page, press ◀ **for 1 second to back EXTERNAL CONTROL INPUT GROUP INDEX.**

ECi.1: External Control Input 1
Relative to immediate value(PV):

Max. (Mini.) Hold & Reset	PV Hold & Reset

Relative to Totalizer / Batch / Batch Counter

Gate for Energy / Batch Energy	Reset for Energy / Batch Energy

Selectable
none:No function
rEL.Pv: (Relative PV) function. When the E.C.I. is closed, the reading will show the differential value(ΔPV).
Pv.HLd The E.C.I. can be set to be **Pv.HLd**(PV Hold) function. The display will be hold when the E.C.I. is closed, until the E.C.I. is to be open. Please refer to the below figure.
M.rSt: Reset for max./mini. Hold or Memorize.
rY.rSt If relay energized mode was set to be Energized hold, the E.C.I. can be set to be **rY.rSt**(Reset Relay function). When the PV meets the condition of relay energizing, the relay will be hold until the E.C.I. is closed.
di(Digital Input): The E.C.I can be set to be **DI**(Digital Input) function, when the meter building in RS485 port. The computer is easier to get a switch status through the meter as like as DI of PLC.
GAtE(Gate): Totalizer, Batch and Btach Counter will be stop to count, when E.C.I. Iis close.
rESEt(Reset for Totalizer & Batch): Totalizer, Batch and Btach Counter will be reset to "0", when E.C.I. Iis close.
tL.GtE(Gate for Totalizer/Batch counter): Totalizer or Batch Counter will be stop to count, when E.C.I. Iis close.
tL.rSt(Reset for Totalizer): Totalizer or Batch Counter will be reset to "0", when E.C.I. Iis close.
bt.GtE(Gate for Batch): Batch will be stop to count, when E.C.I. Iis close.
bt.rSt(Reset for Batch): Batch will be reset to "0", when E.C.I. Iis close.
🔼Up 🔽Down 📄Enter

Next P.

			DESCRIPTION	PARAMETERS	
C-2	EC i.2 / Pv.HLd		**ECi.2: External Control Input 2**	**Selectable: same as ECI1** …other as same as ECI1… ▲**Up** ▼**Down** **Enter**	
C-3	EC i.3 / ñ.rSt		**ECi.3: External Control Input 3**	**Selectable: same as ECI1** …other as same as ECI1… ▲**Up** ▼**Down** **Enter**	
C-4	dEbnc / 12		**dEbnc: Debouncing of external control Input**	**Setting Range: 5~255(x 8ms)** **Shift** ▲**Up** ▼**Down** **Enter**	
C-5	E.1-UP / YES		**E.1=UP(E.C.I.1=UP)** The ▲Key can be set to be the same function as the setting of ECI1. Ex. The ECI1 set to be Pv.HLd and the function E.1=UP set to be YES in 【ECI Group】. When user presses ▲Key, the PV will hold as like as ECI1 close. ➢ **If the front key function has been set, the terminal input for ECI will be disabling.**	**Selectable:** YES : Up Key is to be same function as ECI1 no : Up Key isn't to be same function as ECI1 ▲**Up** ▼**Down** **Enter**	
C-6	E.2=dn / YES		**E.2=dn(E.C.I.2=Down)** The ▼Key can be set to be the same function as the setting of ECI2.	**Selectable:** YES : Down Key is to be same function as ECI2 no : Down Key isn't to be same function as ECI2 ▲**Up** ▼**Down** **Enter**	

➢ **ANALOGUE OUTPUT GRUOP**

			DESCRIPTION	PARAMETERS	
	Ao GroUP ENT FN		**ANALOGUE OUTPUT GROUP INDEX**	**In following page, press ◄ for 1 second to back ANALOGUE OUTPUT GROUP INDEX.**	
D-1	Ao.SEL / Pv		**Ao.SEL: Analogue output relative parameter Totalizer/Batch/Batch Counter/Immediate Value(PV) selection**	**Selectable** **Pv: Present Value** **bAtCH: Batch** **totAL: Totalizer / Batch Counter** ▲**Up** ▼**Down** **Enter**	
D-2	Ao.tYP / A.4-20		**Ao.tYP: Analogue Output type selection** **Analogue output type has been fixed in mA or V according to customer ordering. Therefore, the type selection is for ranges in same type.**	**Selectable:** **Voltage Output:** v.0-10(0~10V) / v. 0-5(0~5V) / v.1-5(1~5V) / **Current Output:** A.0-10(0~10mA) / A.0-20(0~20mA) / A.4-20(4~20mA) ▲**Up** ▼**Down** **Enter**	
D-3	Ao.LS / 0		**Ao.LS: Analogue Output relative Low Scale**	**Setting Range:** **Immediate Value(PV):** **-19999~+29999** **Totalizer/Batch: 0~9999999999** **Shift** ▲**Up** ▼**Down** **Enter**	
	接下頁				

			DESCRIPTION	PARAMETERS	
D-4	`Ao.HS` ▼↓ ↑▲	`100.00` 根據 Hi.SC 設定變動	**Ao.HS:Analogue Output relative High Scale**	**Setting Range:** **Immediate Value(PV):** **-19999~+29999** **Totalizer/Batch: 0~9999999999** ◀Shift ▲Up ▼Down Enter	
D-5	`Ao.Pro` ▼↓ ↑▲	`0.00`	**Ao.Zro: Fine Zero Adjustment for Analog Output** Users can get Fine Adjustment of analogue output by front key of the meter. Please connect standard meter to the terminal of analogue output. To press the front key(up or down key) of meter to adjust and check the meter the output.	**Setting Range: -38011~27524** ◀Shift ▲Up ▼Down Enter	
D-6	`Ao.SPn` ▼↓ ↑▲	`0.00`	**Ao.SPn: Fine Span Adjustment for Analog Output**	**Setting Range: -38011~27524** ◀Shift ▲Up ▼Down Enter	
D-7	`Z.S.CLr` ▼↓ ↑▲	`nonE`	**Z.S.CLr: Clear Fine Zero / Span Adjustment for Analog Output**	**Selectable:** **nonE: Do not clear** **Ao.Zro: Clear low adjustment** **Ao.SPn: Clear high adjustment** **both: Clear low and high** **adjustment** ▲Up ▼Down Enter	
D-8	`Ao.LMt` ▼↓ ↑▲	`110.00`	**Ao.LMt: Analog Output High Limit** SCALE · Setted Scaling: Lo.SC: 0.00, Hi.SC: 199.99; Desired Output: Ao.Lo: 50.00(PV), Ao.Hi: 150.00(PV); Ao.LMt: 80.00% 199.99 150.00 Ao.LMt: 80.00%(=130.00) 100.00 50.00 0.00 — 0.00% OUTPUT 50.00% 100.00% **Setting Range:** **-0.00~110.00% of FS** ◀Shift ▲Up ▼Down Enter		

> **RS485 GRUOP**

			DESCRIPTION	PARAMETERS	
	`rS485` `GroUP` ENT FN↓		**RS485 GROUP INDEX**	**In following page, press ◀ for 1 second to back RS485 GROUP INDEX.**	
E-1	`AdrES` ▼↓ ↑▲	`1`	**Adress: Device number of the meter**	**Setting Range: 1~255** ◀Shift ▲Up ▼Down Enter	
E-2	`bAUd` ▼↓ ↑▲	`9600`	**bAUd: Baud rate**	**Selectable: 1200 / 2400 / 4800 / 9600 / 19200 / 38400** ▲Up ▼Down Enter	
E-3	`PritY` ▼↓ ↑▲	`n.Stb.2`	**PritY: Parity**	**Selectable:** **n.Stb.1: None, 1 stop bit** **n.Stb.2: None, 2 stop bits** **odd: odd** **EvEn: Even** ▲Up ▼Down Enter	

RS485(ModBus RTU Mode)

1. Function 03H (Read Holding Registers)

Request Data Frame; EX: Read the data of display value(0000H starts from 1 Word)

SLAVE Address	FUNCTION	Starting Address Hi	Starting Address Lo	No. of Word Hi	No. of Word Lo	CRC Lo	CRC Hi
01H	03H	00H	00H	00H	01H	84H	0AH

Response Data Frame; EX: The response value is "0"

SLAVE Address	FUNCTION	Byte count	Data Hi	Data Lo	CRC Lo	CRC Hi
01H	03H	02H	00H	00H	B8H	44H

Request Data Frame (EX: Continue to request the data of 10 points)

SLAVE Address	FUNCTION	Starting Address Hi	Starting Address Lo	No. of Word Hi	No. of Word Lo	CRC Lo	CRC Hi
01H	03H	00H	00H	00H	0AH	C5H	CDH

Response Data Frame

SLAVE Address	FUNCTION	Byte count	Data(1) Hi	Data(1) Lo	…	…	Data(10) Hi	Data(10) Lo	CRC Lo	CRC Hi
01H	03H	14H	00H	00H	…	…	01H	00H	--	--

2. Writing Command by Function 06H (Preset Single Register)

Request Data Frame

SLAVE Address	FUNCTION Code	Starting Address Hi	Starting Address Lo	Preset DATA Hi	Preset DATA Lo	CRC Lo	CRC Hi
01H	06H	00H	00H	00H	02H	08H	0BH

Response Data Frame

SLAVE Address	FUNCTION Code	Starting Address Hi	Starting Address Lo	Preset DATA Hi	Preset DATA Lo	CRC Lo	CRC Hi
01H	06H	00H	00H	00H	02H	08H	0BH

■ CS2-TM(Pulse Input) ADDRESS TABLE ** Address number are Hexadecimal
➢ User Level

Name	Address	Range	Explain	Initial	Write/Read	Note
		Three Word Area				
TOTAL*	0000h	-1999999999~ 9999999999	Totalizer *(High Word)		R	
TOTAL*	0001h		Totalizer *(Mid Word)		R	
TOTAL*	0002h		Totalizer *(Low Word)		R	
BATCH*	0003h	-1999999999~ 9999999999	Batch *(High Word)		R	
BATCH*	0004h		Batch *(Mid Word)		R	
BATCH*	0005h		Batch *(Low Word)		R	
rY1.SP*	0006h	-1999999999~ 9999999999	Relay1 Set Point *(High Word)	10000	R/W	
rY1.SP*	0007h		Relay1 Set Point *(Mid Word)	10000	R/W	
rY1.SP*	0008h		Relay1 Set Point *(Low Word)	10000	R/W	
rY2.SP*	0009h	-1999999999~ 9999999999	Relay2 Set Point *(High Word)	10000	R/W	
rY2.SP*	000Ah		Relay2 Set Point *(Mid Word)	10000	R/W	
rY2.SP*	000Bh		Relay2 Set Point *(Low Word)	10000	R/W	
rY3.SP*	000Ch	-1999999999~ 9999999999	Relay3 Set Point *(High Word)	10000	R/W	
rY3.SP*	000Dh		Relay3 Set Point *(Mid Word)	10000	R/W	
rY3.SP*	000Eh		Relay3 Set Point *(Low Word)	10000	R/W	
rY4.SP*	000Fh	-1999999999~	Relay4 Set Point *(High Word)	10000	R/W	

Name	Address	Range	Explain	Initial	Write/Read	Note
			9999999999			
r.Y4.5P *	0010h		Relay4 Set Point *(Mid Word)	10000	R/W	

Name	Address	Range	Explain	Initial	Write/Read	Note
r.Y4.5P *	0011h		Relay4 Set Point *(Low Word)	10000	R/W	
Ao.L5 *	0012h	-29999~29999	Analogue Output Low Scale *(High Word)	0	R/W	
Ao.L5 *	0013h		Analogue Output Low Scale *(Mid Word)	0	R/W	
Ao.L5 *	0014h		Analogue Output Low Scale *(Low Word)	0	R/W	
Ao.H i *	0015h	-29999~99999	Analogue Output High Scale *(High Word)	19999	R/W	
Ao.H i *	0016h		Analogue Output High Scale *(Mid Word)		R/W	
Ao.H i *	0017h		Analogue Output High Scale *(Low Word)		R/W	
		Two Word Area				
PV*	0018h		Present Value(Immediately) *(High Word)		R	
PV*	0019h		Present Value(Immediately) *(Low Word)		R	
Pv.HLd *	001Ah		PV Hold(Immediately) *(High Word)		R	
Pv.HLd *	001Bh		PV Hold(Immediately) *(Low Word)		R	
n in *	001Ch		The Minimum of PV *(High Word)		R	
n in *	001Dh		The Minimum of PV *(Low Word)		R	
nAY *	001Eh		The Maximum of PV *(High Word)		R	
nAY *	001Fh		The Maximum of PV *(Low Word)		R	
di.Ant *	0020h	1~99999	Diameter of pipe line *(High Word)	1000	R/W	
di.Ant *	0021h		Diameter of pipe line *(Low Word)		R/W	
uL.rH2 *	0022h	1~99999	Velocity per Hz *(High Word)	1000	R/W	
uL.rH2 *	0023h		Velocity per Hz *(Low Word)		R/W	
Fr.PL5 *	0024h	1~99999	Flow per pulse *(High Word)	1000	R/W	
Fr.PL5 *	0025h		Flow per pulse *(Low Word)		R/W	
Pv.5Pn *	0026h	-262144~262143	PV Span *(High Word)	0	R/W	
Pv.5Pn *	0027h		PV Span *(Low Word)	0	R/W	
RS485*	0028h	-19999~99999	PV will be written in by RS485 *(High Word)	00h	R/W	
RS485*	0029h		PV will be written in by RS485 *(Low Word)	00h	R/W	
		One Word Area				
dP	002Ah	0~4	Decimal Point of setting **0:** 00000 **1:** 0000.0 **2:** 000.00 **3:** 00.000 **4:** 0.0000	00h	R/W	
ttL.dP	002Bh	0~4	Decimal Point of Totalizer **0:** 00000 **1:** 0000.0 **2:** 000.00 **3:** 00.000 **4:** 0.0000	00h	R	
Reserved	002Ch					
Reserved	002Dh					
Reserved	002Eh					
Reserved	002Fh					
Dim.dP	0030h	0~4	Decimal Point of Diameter **0:** 00000 **1:** 0000.0 **2:** 000.00 **3:** 00.000 **4:** 0.0000	03h	R/W	
vL.dP	0031h	0~4	Decimal Point of velocity per Hz **0:** 00000 **1:** 0000.0 **2:** 000.00 **3:** 00.000 **4:** 0.0000	03h	R/W	

Name	Address	Range	Explain	Initial	Write/Read	Note
F.dP	0032h	0~4	Decimal Point of Flow per pulse **0:** 00000 **1:** 0000.0 **2:** 000.00 **3:** 00.000 **4:** 0.0000	03h	R/W	
RELAY STATUS	0033h	0~1	RELAY STATUS **bit0~bit3:** relay1~relay4;	00h	R/W	

Name	Address	Range	Explain	Initial	Write/Read	Note
			0=Relay off **1**=Relay on			
E.C.I. STATUS	0034h	0~1	External Control Input STATUS **bit0~bit2:** E.C.I.1~ E.C.I.3; **0**=Un-triged **1**=Triged	00h	R	
SYSTEM STATUS	0035h		SYSTEM STATUS **bit0**=1, Input EEP fail; **bit1**=1, Analogue Input calibration fail; **bit2**=1, Analogue Input calibration NG; **bit3**=1, Analogue Output calibration fail; **bit4**=1, Analogue Output calibration NG	00h	R	
n̄.rSt	0036h	0~1	Reset Maximum & Minimum Value storage **0:**No **1:**Yes	00h	R/W	

➢ Programming Level

【Input Group】

Name	Address	Range	Explain	Initial	Write/Read	Note
		One Word Area				
Pv.BSE	0037h	0~4	Time Base of PV(Immediately Value) **0:** Second **1:** Minute **2:** Hour **3:** K*Minute **4:** K* Hour	00h	R/W	
ttL.n̄d	0038h	0~1	Mode of Totalizer; **0:**Normal **1:**batch counter	00h	R/W	
oFL.n̄d	0039h	0~1	Run mode after overflow **0:**Overflow **1:**Re-Cycle	00h	R/W	
5 iGn	003Ah	0~1	Sign: Totalizer & Batch increase or increase+decrease with +/- PV **0:**Positive **1:**Dual(Positive and negative)	00h	R/W	
RANGE	003Bh	0~2	Reading of Input Range Mode **0:**Auto **1:**Semi-Auto **2:**Manual	00h	R/W	
ITO.MD	003Ch	0~1	Input Time Out Mode 0: Auto 1: Manual	00h	R/W	
TB.RST	003Dh	0~1	The Reset for Totalizer and Batch **0:**No **1:**Yes	00h	R/W	
dSPLY	003Fh	0~4	Display Mode of down screen **0:** PV **1:** Minimum Hold **2:** Maximum Hold **3:** RS485 **4:** Batch	00h	R/W	
LoCUt	0040h	-19999~19999	Low Cut(Immediately Value)	0	R/W	
AuG	0041h	1~99	Average display for PV(Immediately Value)	5	R/W	
d.F iLt	0042h	0~99	Digital Filter for PV(Immediately Value)	0	R/W	
PLS.du	0043h	1~9999	Pulse devider	1	R/W	
P.CodE	0044h	0000~9999	Pass Code	1000	R/W	
F.LoCY	0045h	0~3	Function Lock **0:** none **1:** User Level **2:** Engineer Level **3:** All	00h	R/W	

【Relay Group】

Name	Address	Range	Explain	Initial	Write/Read	Note
rY.5b	0046h	0000~9999	Start Band of input 1 for relay energized	0	R/W	
rY.5d	0047h	0000~5999 (0.1second)	Start Delay Time of input 1 for relay energized	0	R/W	

Name	Address	Range	Explain	Initial	Write/Read	Note
rY i.n̄d	0048h	0~11	Relay 1 Energized Mode **0: oFF**(no use); **1: Lo**(Low Energized); **2: Hi**(High Energized)	9	R/W	

Name	Address	Range	Explain	Initial	Write/Read	Note
			3: Lo Hold(Low Energized Hold) **4: High Hold**(High Energized Hold) **5: DO**(Digital Output) **6: btCH.n**(Batch with N Mode) **7: btCH.r**(Batch with R Mode) **8: btCH.C**(Batch with C Mode) **9: totL.n**(Totalizer with N Mode) **10: totL.r**(Totalizer with R Mode) **11: totL.C**(Totalizer with C Mode)			
rY1.HY	0049h	0000~5000	Hysteresis of Relay 1	0	R/W	
rY1.rd	004Ah	0000~5999 (0.1second)	Energized Delay Time of Relay 1	0	R/W	
rY1.Fd	004Bh	0000~5999 (0.1second)	De-Energized Delay Time of Relay 1	0	R/W	
rY2.nd	004Ch	0~11	Relay 2 Energized Mode **0: oFF**(no use); **1: Lo**(Low Energized); **2: Hi**(High Energized) **3: Lo Hold**(Low Energized Hold) **4: High Hold**(High Energized Hold) **5: DO**(Digital Output) **6: btCH.n**(Batch with N Mode) **7: btCH.r**(Batch with R Mode) **8: btCH.C**(Batch with C Mode) **9: totL.n**(Totalizer with N Mode) **10: totL.r**(Totalizer with R Mode) **11: totL.C**(Totalizer with C Mode)	6	R/W	
rY2.HY	004Dh	0000~5000	Hysteresis of Relay 2	0	R/W	
rY2.rd	004Eh	0000~5999 (0.1second)	Energized Delay Time of Relay 2	0	R/W	
rY2.Fd	004Fh	0000~5999 (0.1second)	De-Energized Delay Time of Relay 2	0	R/W	
rY3.nd	0050h	0~11	Relay 3 Energized Mode **0: oFF**(no use); **1: Lo**(Low Energized); **2: Hi**(High Energized) **3: Lo Hold**(Low Energized Hold) **4: High Hold**(High Energized Hold) **5: DO**(Digital Output) **6: btCH.n**(Batch with N Mode) **7: btCH.r**(Batch with R Mode) **8: btCH.C**(Batch with C Mode) **9: totL.n**(Totalizer with N Mode) **10: totL.r**(Totalizer with R Mode) **11: totL.C**(Totalizer with C Mode)	0	R/W	
rY3.HY	0051h	0000~5000	Hysteresis of Relay 3	0	R/W	
rY3.rd	0052h	0000~5999 (0.1second)	Energized Delay Time of Relay 3	0	R/W	
rY3.Fd	0053h	0000~5999 (0.1second)	De-Energized Delay Time of Relay 3	0	R/W	

Name	Address	Range	Explain	Initial	Write/Read	Note
rY4.nd	0054h	0~11	Relay 4 Energized Mode **0: oFF**(no use); **1: Lo**(Low Energized); **2: Hi**(High Energized)	0	R/W	

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Name	Address	Range	Explain	Initial	Write/Read	Note
			3: Lo Hold(Low Energized Hold) **4: High Hold**(High Energized Hold) **5: DO**(Digital Output) **6: btCH.n**(Batch with N Mode) **7: btCH.r**(Batch with R Mode) **8: btCH.C**(Batch with C Mode) **9: totL.n**(Totalizer with N Mode) **10: totL.r**(Totalizer with R Mode) **11: totL.C**(Totalizer with C Mode)			
r Y4.HY	0055h	0000~5000	Hysteresis of Relay 4	0	R/W	
r Y4.rd	0056h	0000~5999 (0.1second)	Energized Delay Time of Relay 4	0	R/W	
r Y4.Fd	0057h	0000~5999 (0.1second)	De-Energized Delay Time of Relay 4	0	R/W	
r Y.rSt	0058h	0~1	Reset for Relay Energized Hold **0:** No **1:** Yes	0	R/W	

【External Control Input (ECI) Group】

Name	Address	Range	Explain	Initial	Write/Read	Note
EC i.1	005Ah	0~12	External Control Input 1 **0:nonE** (None); **1:rEL.PV**(Relative PV); **2:PV.HLd**(PV Hold); **3: M.rSt**(Reset for Maximum & Minimum); **4:rY.rSt**(Reset for Relay Hold); **5:di**(Digital Input); **7: GAtE**(Gate for Totalizer & Batch) **8: rESEt**(Reset for Totalizer & Batch) **9: tL.GtE**(Gate for Totalizer) **10: tL.rSt**(Reset for Totalizer) **11: bt.GtE**(Gate for Batch) **12: bt.rSt**(Reset for Batch)	1	R/W	
EC i.2	005Bh	0~12	External Control Input 2 **0:nonE** (None); **1:rEL.PV**(Relative PV); **2:PV.HLd**(PV Hold); **3: M.rSt**(Reset for Maximum & Minimum); **4:rY.rSt**(Reset for Relay Hold); **5:di**(Digital Input); **7: GAtE**(Gate for Totalizer & Batch) **8: rESEt**(Reset for Totalizer & Batch) **9: tL.GtE**(Gate for Totalizer) **10: tL.rSt**(Reset for Totalizer) **11: bt.GtE**(Gate for Batch) **12: bt.rSt**(Reset for Batch)	8	R/W	

Name	Address	Range	Explain	Initial	Write/Read	Note
EC i.3	005Ch	0~12	External Control Input 3 **0:nonE** (None); **1:rEL.PV**(Relative PV); **2:PV.HLd**(PV Hold); **3: M.rSt**(Reset for Maximum & Minimum); **4:rY.rSt**(Reset for Relay Hold); **5:di**(Digital Input); **7: GAtE**(Gate for Totalizer & Batch) **8: rESEt**(Reset for Totalizer & Batch) **9: tL.GtE**(Gate for Totalizer) **10: tL.rSt**(Reset for Totalizer)	7	R/W	

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Name	Address	Range	Explain	Initial	Write/Read	Note
			11: bt.GtE(Gate for Batch) **12: bt.rSt**(Reset for Batch)			
dEbnc	005Dh	5~255	ECI debouncing 5~255 *8mSec	12	R/W	

【Analogue Output Group】

Name	Address	Range	Explain	Initial	Write/Read	Note
AotYP	005Eh	0~5	Analog Output Type **0:** 0~10V **1:** 0~5V **2:**1~5V **3:** 0~20mA **4:** 4~20mA **5:** 0~10mA	4	R/W	
AoSEL	005Fh	0~2	Analog Output Selection **0:** PV **1:** Batch **2:** Totalizer	0	R/W	
P.S.CLr	0060h	0~3	The clear of AO_ZERO and AO_SPAN **0:** None **1:** AO_ZERO **2:** AO_SPAN **3:** Both	0	R/W	
AoLmt	0061h	00.00%~110.00%	Analogue Output High Limit	11000	R/W	

【RS485 Group】

Name	Address	Range	Explain	Initial	Write/Read	Note
AdrES	0062h	1~255	RS485 address	1	R/W	
bAUd	0063h	0~5	RS485 baud rate **0:**1200 **1:**2400 **2:**4800 **3:**9600 **4:**19200 **5:**38400	03h	R/W	
PritY	0064h	0~3	RS485 parity **0:** n-8-1 **1:** n-8-2, **2:** odd, **3:** even,	01h	R/W	