

CM1-CT

MULTIFUNCTION COUNTER

Manual



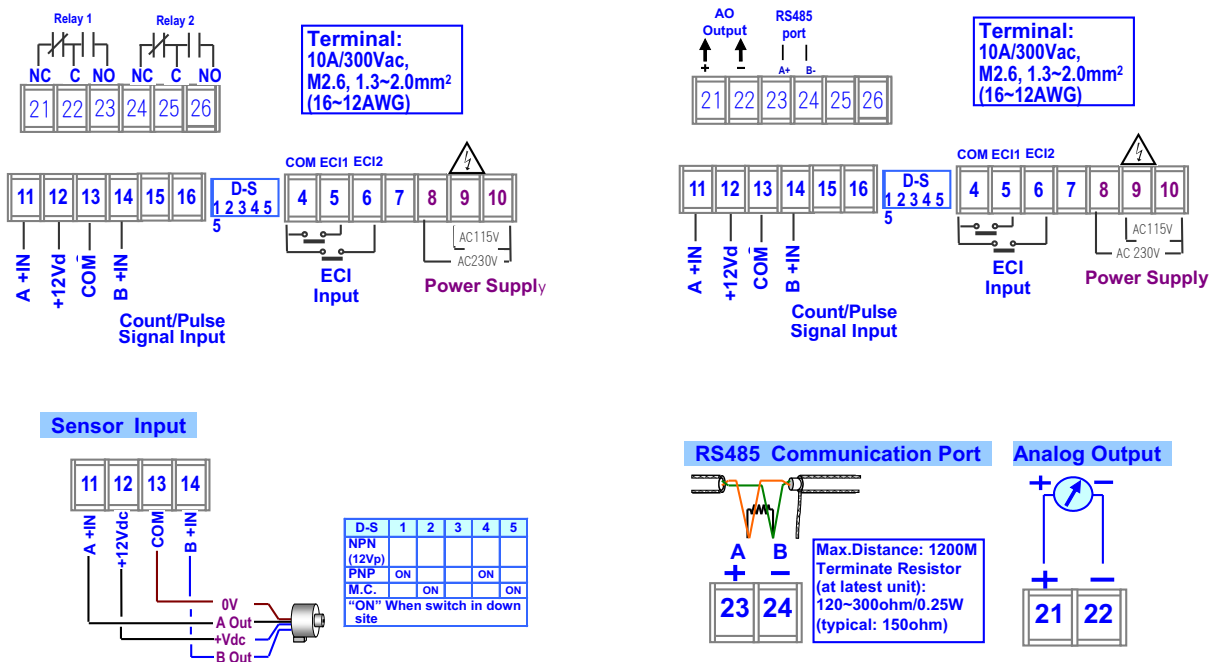
CM1-CT

MULTIFUNCTION COUNTER



CM1-CT multifunction counter has 2 pulse inputs, applicable to proximity switch, photoelectric sensor, encoder etc..
Counting function can be increase or decrease, positioning, batch count etc..., it's provided with display, Relay output and Modbus RTU communication port.

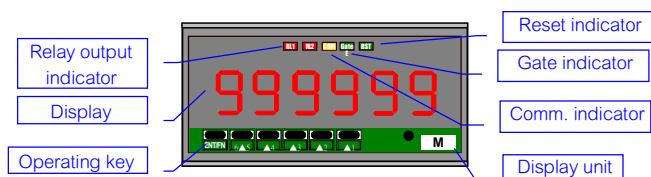
Connection Diagram



Error Masage

Description	Display	Note
Positive-overflow (Signal over display range)	ouFL	Please check the input signal
Negative-overflow (Signal under display range)	-ouFL	Please check the input signal
EEPROM occurs error	EEP FR IL	Please send back to repaired

Front Panel



Display: 0.8"(20.0mm) red high-brightness LED

RL1 : Relay 1 output indicator **RL2** : Relay 2 output indicator

COM :RS485 communication indicator

ECI indicator: 2 green LED

RST :ECI 1 **GAT** :ECI 2

Operating key (1) can be set to Reset function as ECI 1

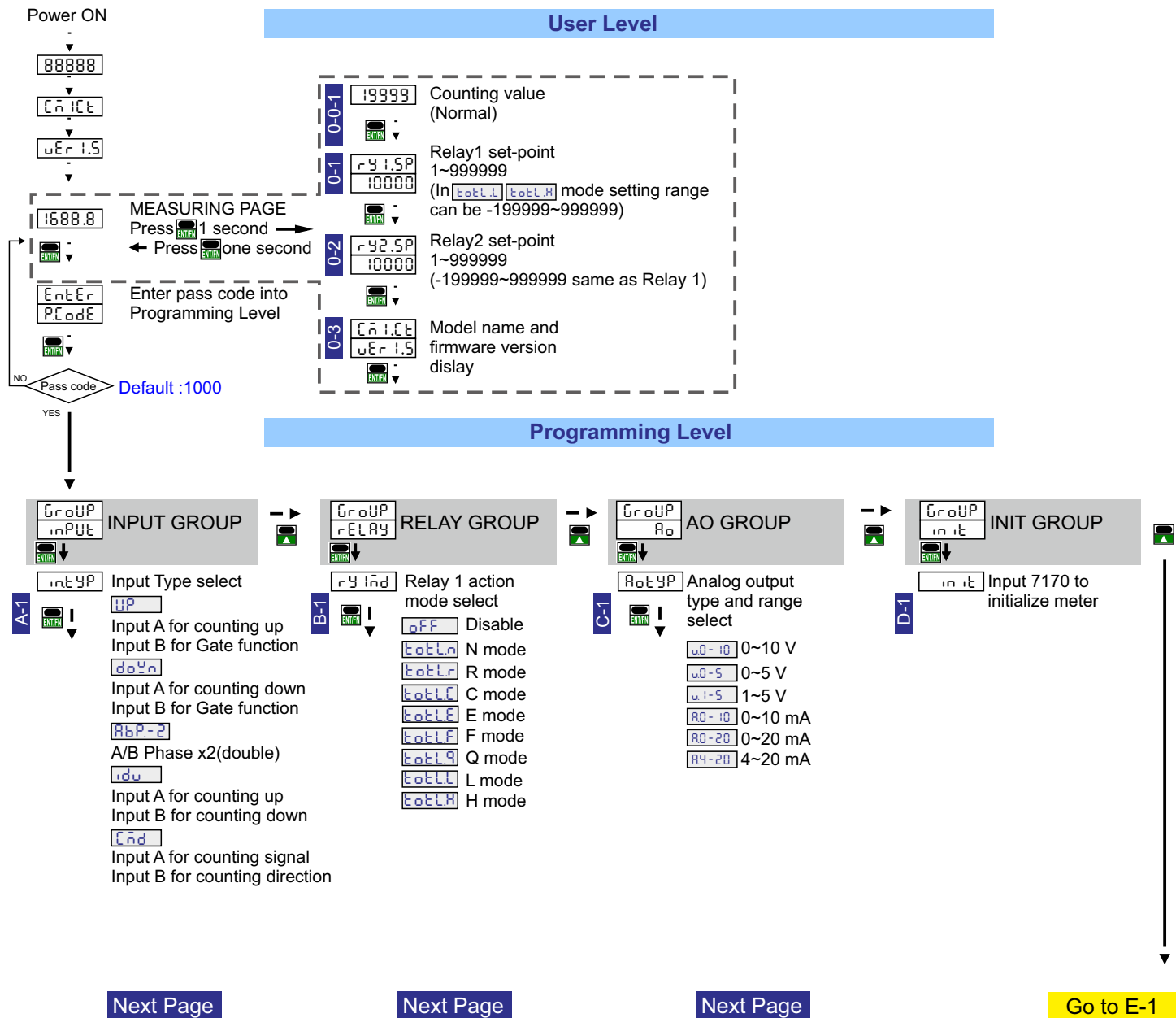
Operating key (2) can be set to Gate function as ECI 2

■ Operating Key

Operating Key :  Up key (1~6, 5 and 6 are same a key)  Enter/Function key
In parameter setting page, if didn't press any key over 2 minutes, or press  over 1 second, then return to measuring page

Key	Function
 Enter/Function key	(1) In function index page, press 1 second to back to previous page (2) In function setting page, press 1 second to back to function index page (3) In function setting page, press to next function page (4) In parameter setting, press 1 second will abort setting and go back function page (5) In parameter setting, press to enter value or confirm selection
 (1~6) Up key	(1) In function index page, press to function select (2) In parameter setting, press to parameter select or numeric input (press and hold can accelerate the numeric increase)

■ Operating Flow Chart

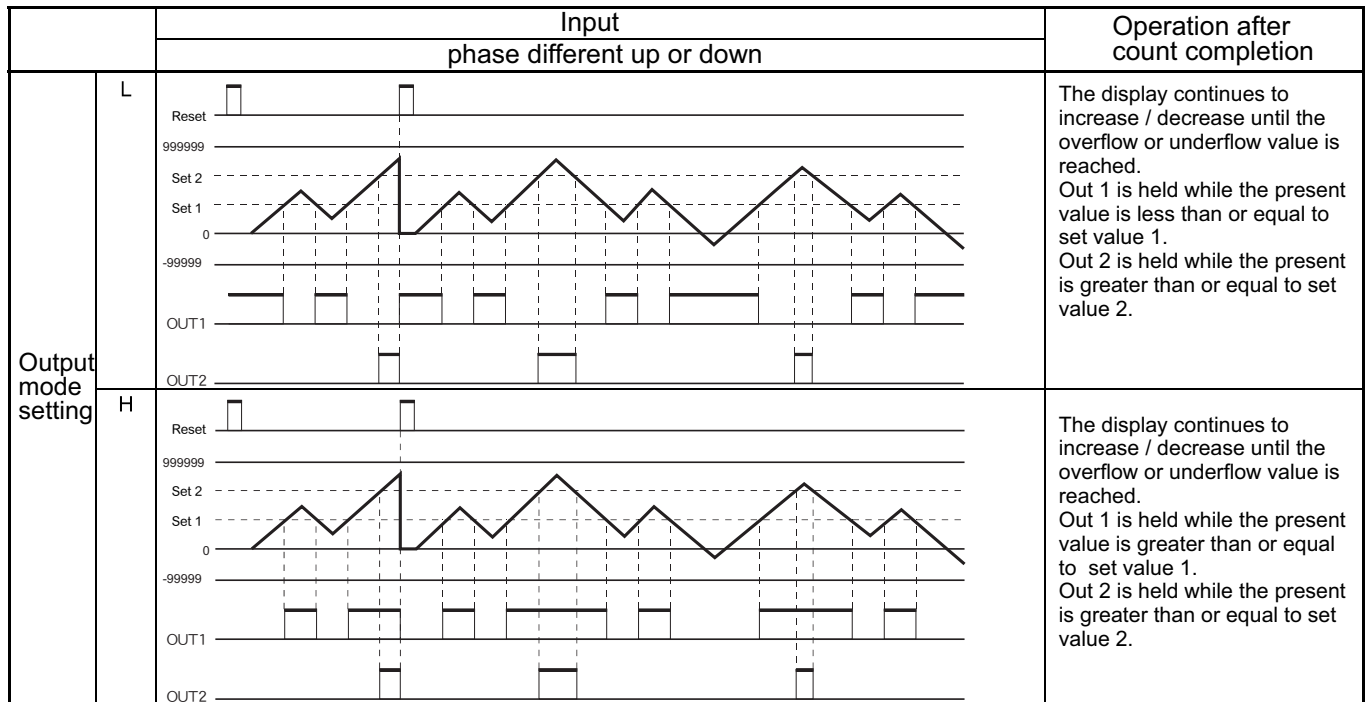


A-2 PuLdP Present value display select Cnt Counting LnEtr Length	B-2 rYlOt Relay 1 action time setting 0.00.0~9(M).59.9(S)	C-2 RoLs Output Low scale setting 0.00 0~+99999	GROUP RS485 Group r5485
A-3 PPr Output pulse per rotation setting 1~999999	B-3 rY2nd Relay 2 action mode select oFF Disable toELn N mode toELr R mode toELC C mode toELE E mode toELF F mode toELQ Q mode toELL L mode toELH H mode	C-3 RoHs Output High scale setting 100.00 0~+99999	E-1 AdRES Station address 1~247
A-4 EUnit Length unit setting M CM YARD Foot	B-4 rY2ot Relay 2 action time setting 0.00.0~9(M).59.9(S)	C-4 RoZro Output zero fine adjust setting 0.00 0~+29999	E-2 bRUD Baud rate 9600 1200 2400 4800 9600 19200
Back to B-1			
A-5 d,ARnt Axis diameter setting 0.00001~9.99999	C-5 RoSPn Output span fine adjust setting 0.00 0~+29999	E-3 Pr,ty Parity check n5tb1 N,8,1 n5tb2 N,8,2 odd O,8,1 Even E,8,1	
*A-4 and A-5 are available when present value display select is length mode			
A-6 CnTSF Counting constant setting 0.00001~9.99999 *Display value = Counting value x CNTSF	C-6 PScLr Clear Zero/Span setting nonE NONE AOZro AOZRO AOsPn AOSPN boEH BOTH	Back to E-1	
A-7 EtLdP Decimal point of display setting 0 0.0 0.00 0.000	C-7 RoLnt Output high limit setting 110.00 0.00~110.00%	Back to C-1	
A-8 oFLnd Process after Overflow setting oVFL Display 'OVFL' rCYCL Recycle counting			
A-9 EC,PEY ECI function key setting yes Enable no Disable 1= Reset 2= Gate			
A-10 PCodE Pass code setting 0000~9999			
Back to A-1			

Relay Action Mode

Optional 2 relay output for N/C/R/E/F/Q/L/H 8 types of control mode.
Function details as below

		Input mode			Operation after count completion
		Up	Down	Up/Down-counting	
Output mode setting	N				The outputs and present value display are held until reset
	C				As soon as the count reaches SV, the present value display returns to the reset start status. Out 1 self-holding output turn OFF after the Out 2 one-shot output time . The Out 1 one-shot output time is independent of Out 2
	R				The present value display return to the reset start status after the one-shot output time. Out1 self-holding output turns OFF after the Out 2 one shot output time The Out 1 one-shot output time is independent of Out 2
	E				The present value display continues to increase/decrease. Out 1 self-holding output turns OFF after the Out 2 one-shot output time The Out 1 one-shot output time is independent of Out 2.
	F				The present value display continues to increase/decrease. Out 1 self-holding output turns OFF after the Out 2 one-shot output time. The Out 1 one-shot output time is independent of Out 2.
	Q				The present value continues to increase/ decrease for the one-shot output time, but returns to the reset start status after the one shot output time has elapsed. Out 1 self-holding output turns OFF after the Out 2 one-shot output time. The Out 1 one-shot output time is independent of Out 2.



■ 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

Request 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	Starting Address Hi	Starting Address Lo	Preset DATA Hi	Preset DATA Lo	CRC Lo	CRC Hi
01H	06H	00H	05H	00H	01H	58H	0BH

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

SLAVE Address	FUNCTION	Starting Address Hi	Starting Address Lo	Preset DATA Hi	Preset DATA Lo	CRC Lo	CRC Hi
01H	06H	02H	00H	00H	01H	58H	0BH

■ Communication Table

User Level

Name	Address	Range	Explain	Initial	R/W	Note
Count Pu	0000h 0001h	-199999~999999	Present Value		R/W	

Input Group

Name	Address	Range	Explain	Initial	R/W	Note
InputYP	0002h	0~4	Input Type 0:UP 1:DOWN 2:AB.P-2 3:IDV 4:CMD	0	R/W	
PuLYP	0003h	0~1	PV Display Type 0:CNT 1:METER	0	R/W	
PPr	0004h 0005h	1~999999	Output Pulse per Rotation	1	R/W	
ELUnit	0006h	0~3	Unit of Length 0:M 1:CM 2:YARD 3:FOOT	0	R/W	
dIRnE	0007h 0008h	0.0001~9.99999	Axis Diameter setting	1	R/W	
CntSF	0009h 000Ah	0.0001~9.99999	Counting Constant setting	1	R/W	
ELdP	000Bh	0~3	Decimal Point of Display 0:0 1:0.1 2:0.00 3:0.000	0	R/W	
oFLnd	000Ch	0~1	Process after Overflow 0:OVFL 1:RCYCL	0	R/W	
ECIEY	000Dh	0~1	ECI Function Key Enable 0:YES 1:NO	1	R/W	
PCode	000Eh	0000~9999	Pass Code	1000	R/W	

RS485 Group

Name	Address	Range	Explain	Initial	R/W	Note
AddrES	000Fh	1~247	Station address	1	R/W	
bAUD	0010h	0~5	Baud rate 0:1200 1:2400 2:4800 3:9600 4:19200 5:38400	3	R/W	
PrIEY	0011h	0~3	Parity check 0:N-8-1 1:N-8-2 2:O-8-1 3:E-8-1	1	R/W	

INIT Group

Name	Address	Range	Explain	Initial	R/W	Note
init	0012h	0000~9999	Meter Initialization	0	R/W	7170