

CE KCM-LCD 16 channels digital indicator instrument manual

1. Features:

KCM-LCD 16 series universal input temperature circuit measuring instrument, support thermal resistance, thermocouple signal input; Support 4-20mA analog signal. The instrument adopts LCD 256*128 liquid crystal, which can display the measured value of 16 channels at most, and supports RS485 communication compatible with Modbus-RTU protocol.

- 1、 High accuracy: $\pm 0.5\%F \cdot S \pm 1.0$
 - 2、 Input Sensor Types A: K E J T Pt100 Cu50
 - 3、 Input Sensor Types B: 4-20mA
- The input type (Type A, Type b) is fixed, cannot be switched
- 4、 Temperature measurement range:
 - K (-30~1300℃) E (-30~800℃) J (-30~1000℃) T(-30.0~900.0℃)
 - Pt100(-200~600℃) Cu50(-100~150℃) 4-20mA (-1999~9999℃)
 - 5、 Input channels: 1-16 input channels optional
 - 6、 Relay contact: 250 V AC, 3 A (Resistive load)
 - 7、 Dimensions:
 - HxWxD (Unit: mm) 160x80x85 Panel cutout 152x76
 - 8、 Power supply:
 - AC 220V $\pm 10\%$ 50HZ Power, consumption less than 5W
 - 9、 Use this controller within the following allowable range:
 - Allowable ambient temperature: 0 to 50 °C
 - Allowable ambient humidity: 35 to 85 % RH.

2. Parts Description:

1. Input channels: 1-16 input channels optional
2. Measured values: Each channel
3. AL1 /AL2 alarm indicator:

when the indicator is "■" represents alarm, when the indicator is "□" represents alarm cancellation.

4. The function keys: Press the key SET 3S to enter into the main Parameters; After adjusting the parameters, press SET to save until exit

5. ↵ Return key:

Normal display state: Press ↵ to display instruction manual QR CODE,

Parameter state :Press ↵ to abandon saving the parameter and Return to the previous menu

6. Digital operation key:

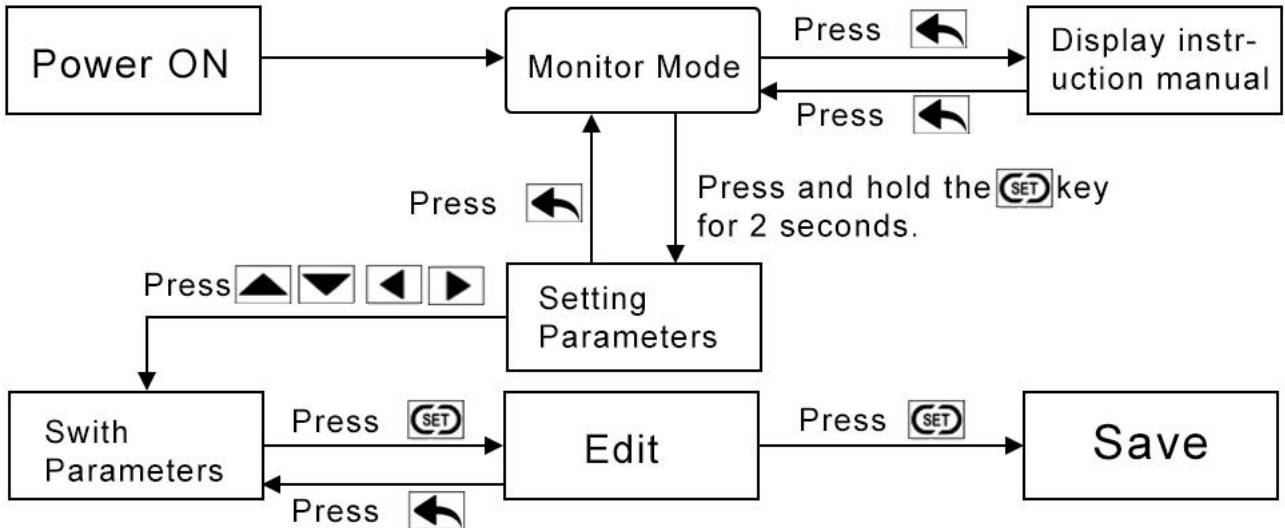
▲、▼ increase or decrease the parameter;

◀、▶ used to turn pages, or Move the modified cursor position left and right



3. Basic Setting Level:

- 1、 Under normal use: Liquid crystal panel display all the Measured value and alarm status of 16 channels
- 2、 Enter Adjust parameter: Press SET 3S to enter into the main Parameters, Press ▼▲ to switch the menu, ◀▶to enter into the next page or the previous page, Press ↵ to exit menu
- 3、 Adjusting the parameter: Press SET to enter Parameters, then press ▼▲◀▶ to adjust the Parameters, After adjusting, Press SET to save and exit the modified state; Press ↵ to abandon saving the parameter and exit the modified state.

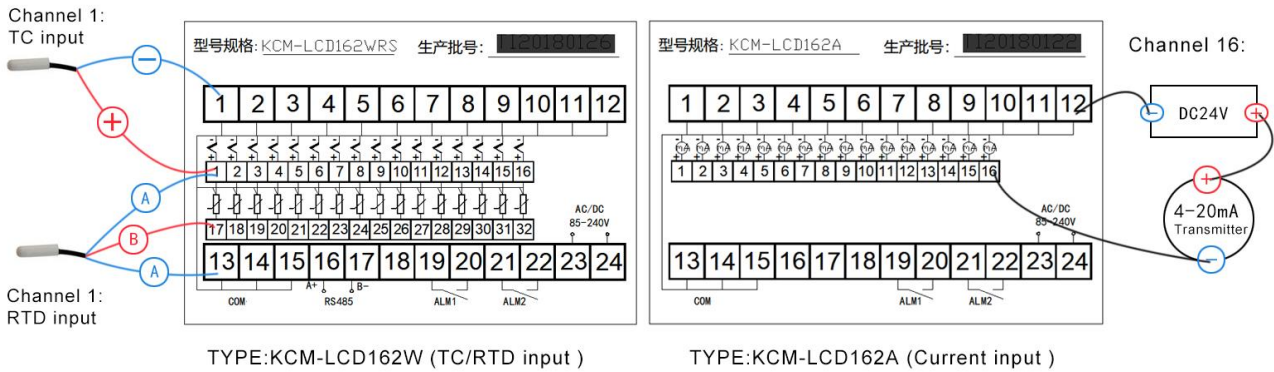


4. Parameters:

ID	CODE	Name	Setting range	Manual	Factory value
0	LOCK	Password lock	0~50	LC=18, Parameter can be set	18
1	Sn	Input type	—	A:CU50、Pt2、K、E、J、T B:4-20mA(input type is fixed by factory)	—
2	ADDR	Address	0~255	Communication address	1
3	BAUD	Baud rate	0~3	0: 1200; 1: 2400; 2: 4800; 3: 9600	3
4	AL1	Alarm1 set value	PSL~PSH	Measured value > AL1 Process high alarm on	—
5	HY1	CH1 Difference gap	0.1~50	Measured value < AL1-HY1 AL1 cancel	
6	AL2	Alarm2 set value		Measured value < AL2, Process low alarm on	—
7	HY2	CH2 Difference gap		Measured value > AL2+HY2 AL2 cancel	
8	SC1	Ch1 PV bias	-20~20	The value set in the PV bias is added to the actual input value to correct the input value.	0
23	SC16	Ch16 PV bias	-20~20		—
24	DP1	Ch1 Decimal point	0~3		1
				Decimal position Input Sensor Types A: 0-1 Input Sensor Types B: 0-3	

39	DP16	Ch16 decimal point	0~3	Decimal position	1
40	PSH1	CH1 Range Limit		Input: 4-20mA, Range High Limit	-1999
41	PSL1	CH1 Range Low	—	Input: 4-20mA, Range Low Limit	9999
70	PSH16	CH16 Range Limit		Input: 4-20mA, Range High Limit	-1999
71	PSL16	CH16 Range Low	—	Input: 4-20mA, Range Low Limit	9999
72	CH	Channel count	1-16	How many channels to be measured	16
73	C F	Measured value (PV) unit select	C F	C: Celsius F: Fahrenheit	C

5. Terminal configuration:



6. Host communication based on MODBUS-RTU protocol [OPTIONAL]

The master controls communication between master and slave. A typical message consists of a request (query message) sent from the master followed by an answer (response message) from the slave. When master begins data transmission, a set of data is sent to the slave in a fixed sequence. When it is received, the slave decodes it, takes the necessary action, and returns data to the master.

6.1 Communication Mode:

Data bit length	Stop bits	Parity bit	Communication time interval
8-bit (Binary)	1,2	NONE	300ms

6.2 Message length of each function (Unit: byte):

Function code (Hexadecimal)	Function	Query message		Response message	
		Min	Max	Min	Max
03H	Read holding registers	8	8	7	7
06H	Preset single register	8	8	8	8

6.3 Message format

Slave address	The slave address is a number from 1 to 255 manually set at the front key panel of the
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	controller.
Function code	Refer to 2. Message length of each function
Data	The data to execute the function specified by the function code is sent to the slave and corresponding data returned to the master from the slave.
CRC-16	CRC-16: Cyclic Redundancy Check)

6.4 Read holding registers [03H]

The query message specifies the starting register address and quantity of registers to be read.

Slave address	Function code	Register address	Quantity	CRC16
	03H		The value range from 1H to 10H	
Example: The contents of the holding register 1001H are the read out from slave address 1. Query message: 01 03 10 01 00 01 D1 0A Response message: 01 03 02 00 FD 79 C5 Explain: 00FD=253,is processed as 25.3				

6.5 Preset single register [06H]

The query message specifies data to be written into the designated holding register. Only R/W holding registers can be specified. The controller EEPROM had a life span of data written to the EEPROM less than 1000,000 times

Slave address	Function code	Register address	Write data	CRC16
Example: Data is written into the holding register 0004H of slave address 1. Query message: 01 06 00 04 FF 38 88 29 Response message: 01 06 00 04 FF 38 88 29 When input set value(SV) is -20.0,-20.0 is processed as -200,-200=0000H-00C8H=FF38H				

6.6 No response

The slave ignores the query message and does not respond when:

- The slave address in the query message does not coincide with any slave address settings.
- The CRC code of the master does not coincide with that of the slave.
- Transmission error such as overrun, framing, parity and etc., is found in the query message.
- Set the Response Timeout >200ms and Delay between polls>200ms.

6.7 Register address list:

Symbol	Decimal point	Real Register	Holding Register
Measured value(PV)	YES	1001H~1010H	44098~44113
The controller parameters (<i>Refer to 4. Parameters</i>)			
LOCK	NO	0000H	40001
SN	NO	0001H	40002
.....			
PSL16	YES	0047H	40072
C F	NO	0048H	40073

Refer to this link for more information on MODBUS-RTU Communication Protocol:

<http://www.kcmeter.com/servicesread.asp?id=4>

Or scan QR code for more information:



7 KC-TF Data logger (to be used with KCM-LCD16)

7.1. Features:

This Data Logger's data could be queried, saved, printed and exported in Excel/TXT format through USB interface.

And it comes with data management software for easy data download to computers through USB interface. With the software, you could analyze data in form of tables and graphs.

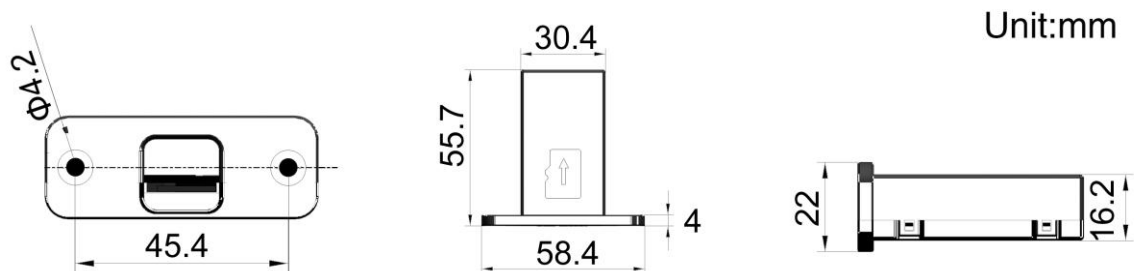
7.2.Specification:

Data storage options: TF / Micro SD Card(formatting the volume using FAT instead of NTFS.)

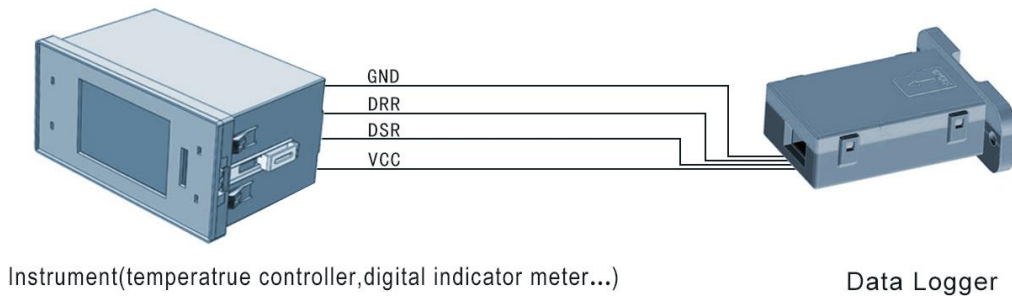
Record interval: 1s~1hour adjustable

Record capacity: A 1GB Micro SD Card can hold more than 15,768,000 points of data

7.3.Dimensions:



7.4. Wiring diagram:



7.5. Operation:

1. Wiring: Connect the data logger to the instrument. Refer to 4. wiring diagram
2. Power On: when turn on the instrument ,the data logger will work.
3. Start recording: when insert a TF card into the logger data, the data logger will start recording
4. Set the interval time: 1S~3600S.
Refer to the manual of the instrument for the parameter of the " Interval".
5. Set the system time:
Press and hold the ▲key and ▼key for 1 second on the instrument, the monitor screen of the instrument will be went to the “set system time mode”.
For setting parameters such as year, moth, day... refer to the instrument 's parameter setting.

Parameter list on the instrument for the time system:

T5-1

ID	Name	Data range	Factory set value
1	Year	2000~2099	20xx
2	Month	00~12	—
3	Day	00~31	—
4	Hour	00~23	—
5	Minute	00~59	—

7.6. Red lamp/Green lamp on the logger lights recognition to the logger state:

1. Normal mode:
The green lamp lights at all times, the red lamp flashes(fast) when logger writes the data.
2. Communication failed:
At intervals there is green lamp lights(flash).
3. Be interfered by other signals:
At intervals there is green lamp and red lamp light(flash)
4. TF card is abnormal:
At intervals there is red lamp lights(flash).