

KH105 Multi Channel Indicator Manual (V4.0)

Notice

- Dear Customer: Thanks for your using Kehao products. Please read the instruction carefully before using the meter.
- Please check whether the appearance of your meter is ok when you open your meter package. Then check whether item no. is same as what you order. Please contact us to change your meter immediately if there are above problems.
- Please shall know the connections and operations of your meter first before you test and install the meter.
- Please use your meter in its required operating conditions. Please do not open the meter arbitrarily in order to avoid danger in normal case. Please contact our technical team to open the meter under the instruction and approval of our technical team if the meter has error.
- Please test your meter one time every year. If the error of your meter is beyond of its range, which is usually because of moisture, dust and corrosive gas. You can clean and make dry the inner part of your meter. Please contact our technical team if the meter has still errors.
- The meter adopts high-lightness LED display. Please see below table for the display segment with its character.

0	1	2	3	4	5	6	7	8	9	A	b	C	d	E	F	G	H	i	J	K	L	M	n	o	P	q	r	S	t	u	v	w	x	y	Z
0	1	2	3	4	5	6	7	8	9	A	b	C	d	E	F	G	H	i	J	K	L	M	n	o	P	q	r	S	t	u	v	w	x	y	Z

- This series recorder is being improved and updated gradually. Please contact our technical teams or see the meter as approval if there is some difference between the meter and instruction.

1. General Introduction

1.1. Main Feature

- ◇ Application : Petroleum, metallurgy, food, medical, environment protection, storage, heat dealing, electrical motor etc.
- ◇ Good man-machine screen, easy to use and play, convenient operation.
- ◇ Modular construction, configuration flexibly,. Easy to be updated.
- ◇ Adopts SMT technology: its design is more concise and advanced.
- ◇ T.C./RTD adopts non-linear modification, high-accuracy, good stability.
- ◇ Standard MODBUS communication protocol: can network easily with other industrial control equipment to achieve networking application.

1.2. Technology Index

•Input Signal

T.C : K, S, E, J, T, B, N

RTD : Cu50, Pt100, Cu100

Linear voltage : 0-5V, 1-5V

Linear current : 0-10mA, 4-20mA (connect with 500Ω or 250Ω precision resistor when order)

•Measure range

K (-50 ~ 1300℃), S (-50 ~ 1700℃), T (-200 ~ 350℃), E (0 ~ 800℃),

J (0 ~ 1000℃), B (300 ~ 1800℃), N (0 ~ 1300℃)

Cu50 (-50 ~ 150°C) 、 Pt100 (-200 ~ 600°C)

- Linear input: -999 - 9999(customized)
- Measure precision: 0.2 grade (when RTD, linear voltage, linear current and T.C input adopting freezing point compensate the cold-joint)
0.2%FS±2.0°C (when T.C input and compensates cold-joint by internal components of the recorder)
- Respond time: ≤1 s per channel (when the filter parameter FiL=0)
- Output type:
Relay contract switch output: minimum capacity: 220VAC/0.8A
One channel transmission output: 4-20m A, any channel can be specified optionally.
- Alarm function: four limits alarm per channel: high limit, higher limit, low limit, lower limit. The output position can be set optionally. Maximum output channels no.: 8
- Power : 85 - 240VAC, -15%, +10% / 50 - 60Hz
- Power consumption ≤5W
- Ambient temperature : 0 - 50°C
- Ambient humidity : < 85%RH
- Protection Class: IP40

1.3、 Order Code

160X80MM Size: Multi-channel indicator

KH105 | A | B | C | D | E | F | G | H | I | J |

A. Panel Size

D: 160X80mm (LXW)

B. Channel No.

01: one channel

02: two channels

.....

15: sixteen channels

16: Sixteen channels

C. Alarm Output No.

N: None

1. One alarm output

2. Two alarms output

.....

8. Eight alarm output

D. Alarm Output Type

N: No

R1A: relay contact output module, NO (capacity: 30VDC/0.8A, 220VAC/0.8A)

R1B: relay contact output module, NC ((capacity: 30VDC/0.8A, 220VAC/0.8A)

E. Communication or Printing Output

N: None

S1: RS485 communication interface

S2: RS232 communication interface

P: RS232 printing interface, supporting Weihuang A5 mini printer (if you match mini-printer by yourself, please advise the model no.)

F. Feed Output(Auxiliary Power Supply for Sensors)

N. None

U1: isolated 5V DC voltage output, power supply module of the external transducers & sensors and used for other circle. Max current is 100mA

U2: isolated 12V DC voltage output, power supply module of the external transducers & sensors and used for other circle. Max current is 100mA

U3: isolated 24V DC voltage output, power supply module of the external transducers & sensors and used for other circle. Max current is 100mA

H. Power Supply

N: AC220V,50HZ

A: AC110V,60HZ

I. Desktop

N: No

Y: Yes(Please advise functions needed with electric drawing)

J. Customized

N: No

Y: YES (Please advise specification)

72x72mm Multi Chanel Indicator

KH105 | A | B | C | D | E | F | G | H |

A. Panel Size

F: 72x72mm (LXW)

B. Channel No.

01: one channel

02: two channels

03: three channels

04. Four channels

C. Relay Alarm Output No.

N: None.

1: One alarm output

2: Two alarm output

D. Relay Alarm Output Type

N: None.

R1A: Relay module, NO (capacity: 30VDC/0.8A, 220VAC/0.8A)

R1B: Relay module, NC ((capacity: 30VDC/0.8A, 220VAC/0.8A)

R2A: big capacity replay contact output module, normal open (30VDC/3A, 220VAC/3A)

R2B: big capacity replay contact output module, normal close (30VDC/3A, 220VAC/3A)

E. Communication or Print Output

N: None

S1: photoelectric RS485 communication interface

S2: photoelectric RS232 communication interface

P: RS232 printing interface

F. Feed Output (Auxiliary power supply for sensors).

U1: isolated 5VDC output, power supply module of the external transducers & sensors and used for other circle. Max current is 100mA

U2: isolated 12VDC output, power supply module of the external transducers & sensors and used for other

circle. Max current is 100mA

U3: isolated 24V DC output, power supply module of the external transducers & sensors and used for other circle. Max current is 100mA. Max current is 100mA

G. Power Supply

N: AC220V,50HZ

A: AC110V,60HZ

B:DC24V

H. Desktop

N: No

Y: Yes (Please advice functions needed with electric drawing)

I. Customized

N: No

Y: YES (Please advise specification)

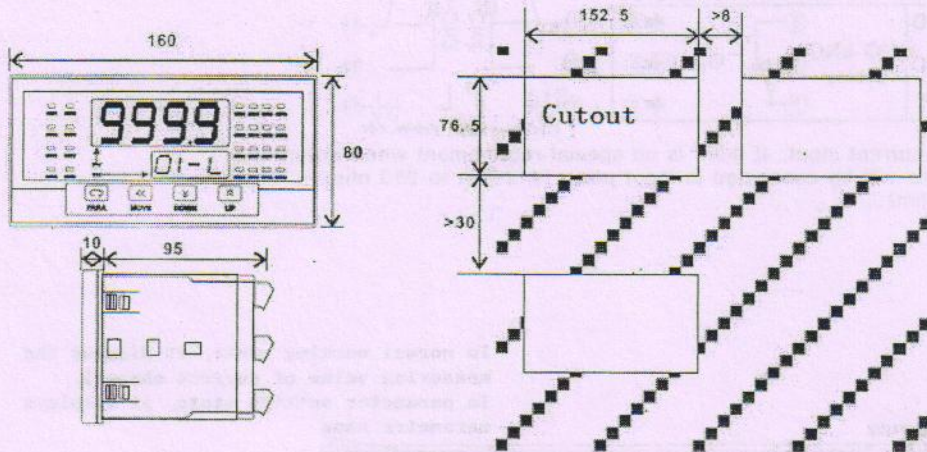
0:240VAC

24V:24VDC

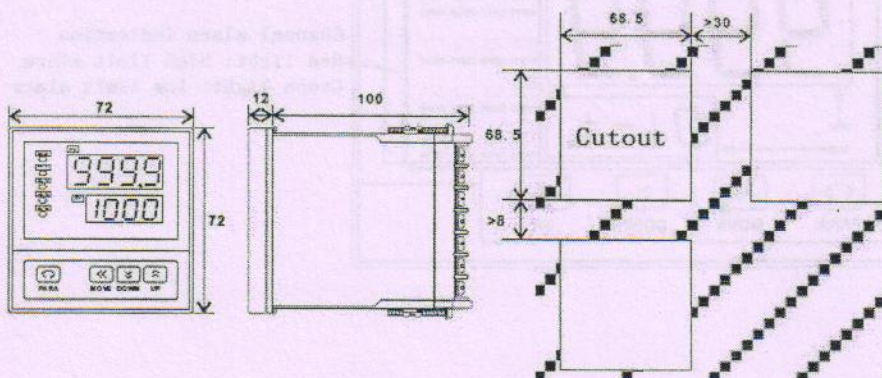
3. Installation

3.1. Installation Dimension(mm) (unit: mm)

Size: 160X80mm



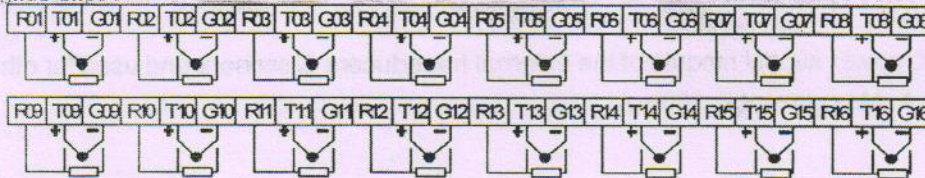
Size: 72X72mm



3.2. Connection

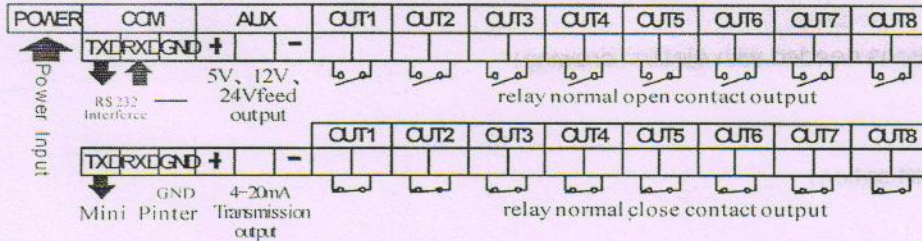
Size: 160x80mm

Signal Input

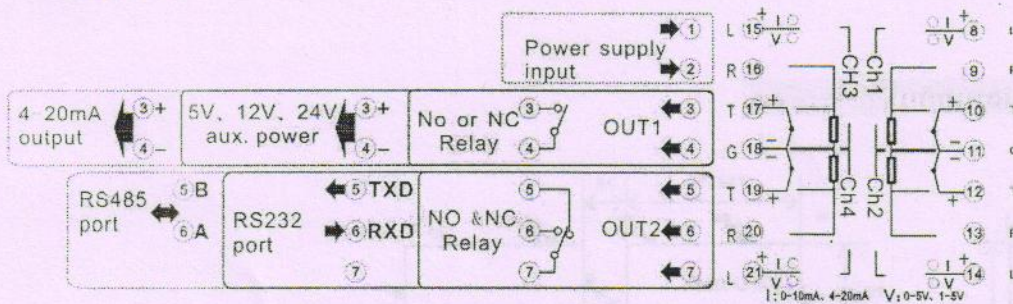


Note:

1. T.C. and 0-5V, 0-10mA, 4-20mA linear input: Txx as the positive terminal input, Gxx as the negative input; Three linear RTD: Gxx as the public terminal, Rxx and Txx as the other input terminals ("xx" means from "01" to "16")
2. Current input: if there is no special instruction, the sampling resistance should be connected in input terminal in daily usage. (4-20mA A-250 ohms 0-10mA A-500 ohms).



Size: 72x72mm



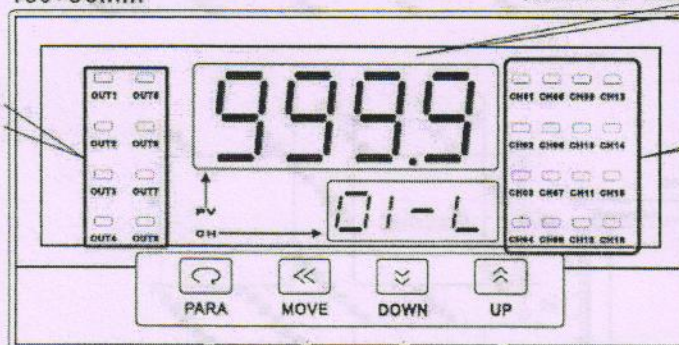
Note: When it is current input, if there is no special requirement when order, a shunt resistance will be connected in input port. (4-20mA to 250 ohm 0-10mA to 500ohm).

4. Panel Description

In normal working state, it display the measuring value of current channel.
In parameter setting state, it displays parameter name

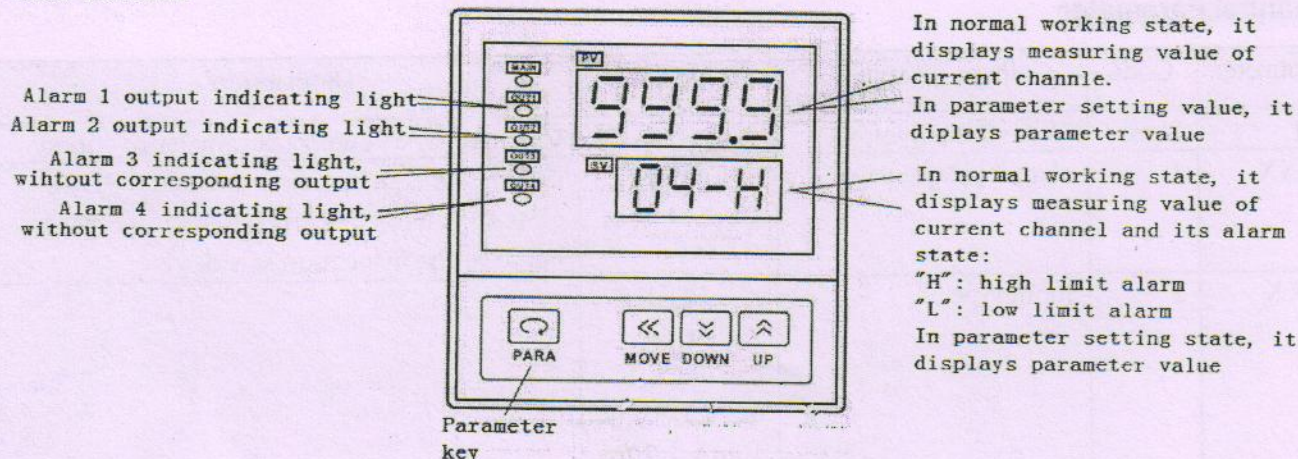
160*80mm

Alarm output indication, means reply output with operation



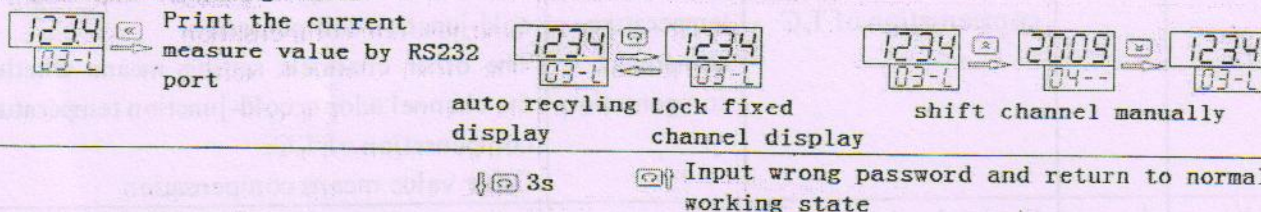
Channel alarm indication
Red light: high limit alarm
Green light: low limit alarm

Size: 72x72mm

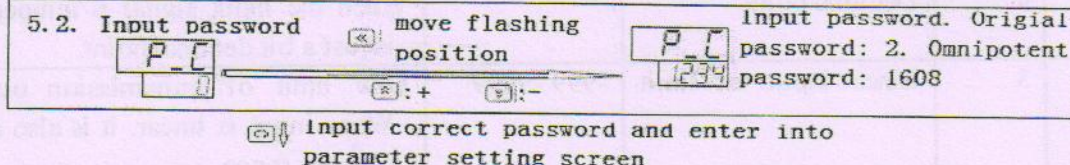


5. Operation

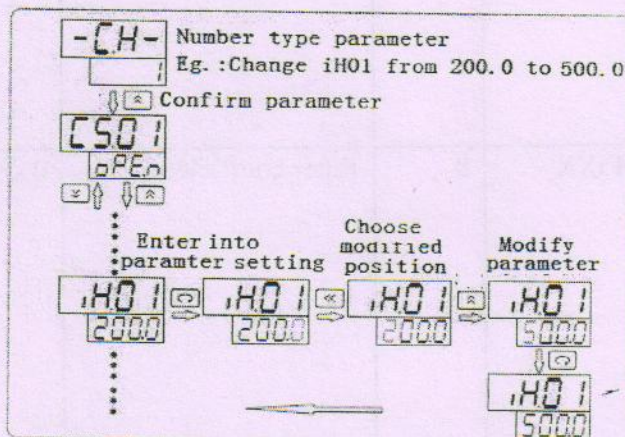
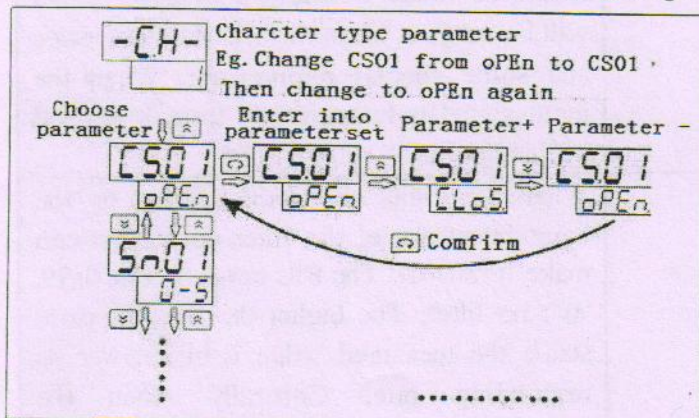
5.1. In normal working state



5.2. Input password



There are two parameter types: channel parameter and public parameter. The channel parameter means parameters used individually for each channel, which is made of 4 characters. The previous characters mean parameter type, the back two characters means channel no. Fox example: "SnXX" means XX channel input type. The public parameter means public parameter for all channels. There are two kinds of parameter setting: character parameter setting and value parameter setting.



6. Parameter Description

Channel Parameter

Parameter	Code	Para. meaning	Value range	Description
CH	None	Current channel no	1-16	Channel no. of current parameter modified
CSXX	1	channel state	oPEn(open), CLoS(close)	Channel is in open or close state. Please close the channel if it is not used in order to improve the inspection speed.
SnXX	2	Input type	K,S,B,T,E,J, N,Pt1b, Cu50, Cu1b, 0-5V,1-5V,0- 10mA,4-20m A	
CCXX	3	Cold junction temperature compensation of T.C	Null: none diod: internal temperature component compensation	This parameter is only valid for channel with T.C input as first channel and adopting cold-junction compensation. The other channels setting means whether the channel adopts cold-junction temperature compensation of T.C. Other value means compensation
PnXX	4	Decimal point		When the input signal is temperature, there is just a bit decimal point.
iLXX	5	Linear input: low limit	-999 -9999	Low limit of transmission output range. When input is linear, it is also as low limit of input range.
iHXX	6	Linear input: high limit	-999-9999	High limit of transmission output range. When input is linear, it is also as high limit of input range.
Auxx	7	Adjust correction value(offset)	-99.9-999.9	It is used to modify the static error of measured value. Generally it is set as "0". It will be set just when there is the static error and some special requirement. When the input signal is temperature, there is a fixed decimal point.
FiXX	8	Filter coefficient	0 - 99	When the digits are changing lead by the input interference, the filter coefficient can make it normal. The FiL range can be 0-99. "0": no filter. The higher the filter is, more stable the measured value is but slower its responding rate. Generally when the measurement is quite interfered, please increase Fil value gradually so that the

				instantaneous change of the measured value can be less than 2-5 digits.
1AXX	9	Alarm 1 value	-999 - 9999	Alarm value of Alarm 1
2AXX	10	Alarm 2 value	-999 - 9999	Alarm value of Alarm 2
3AXX	11	Alarm 3 value	-999 - 9999	Alarm value of Alarm 3
4AXX	12	Alarm 4 value	-999 - 9999	Alarm value of Alarm 4
HyXX	13	Hysteresis	0 -2000	Hysteresis is the buffer of the on-off control and alarm output, avoiding on-off adjustment off frequently or the alarm generation frequently or releasing lead by the fluctuations of the measuring input value. When temperature input, decimal point is fixed in ten bit.
1MXX	14	Alarm 1:alarm mode	LA,HA,-LA,-HA	Alarm mod: LA: Low limit alarm. When the alarm output is used with other alarms. The HA:-
2MXX	15	Alarm2:alarm mode		
3MXX	16	Alarm 3:alarm mode		
4MXX	17	Alarm 4:alarm mode		
1OXX	18	Alarm 1:output position	nuLL, OUT1, OUT2,OUT3,OUT4,OUT5,OUT6,OUT7,OUT8	Mean HA output position of channel XX. nuLL : none output. All output is invalid when T.C or RTD input.
2OXX	19	Alarm 2:output position		
3OXX	20	Alarm 3:output position		
4OXX	21	Alarm 4:output position		
unXX	22	Unit	0-53	0; 1; others means different unit. When the meter is with printing function, the unit can be printed. Please see table1.
K XX	23	Slope Coefficient	-0.999-2.000	To adjust the measure value slope. The measure display value of the meter is equal with no-adjusted measure value x K.
C1XX	24	Little signal cut	-999- 999	When C1 is no zero value and the measure value is lower than C1, C2 will replace the measure value. Eg.: C101=5, C201=0, when CH1 measure value is lower than 5, 0 will replace it.
C2XX	25	Cut replacement	-999-999	
E1XX		Operator parameter 1		The engineer can set the parameters modified by operator. Eg.: E101=1A, E102=Au, other operator parameter=nuLL,so the operator 1 just can modify the two parameters 1A and Au in CH1.
E2XX		Operator parameter 1		
E3XX		Operator parameter 1		
E4XX		Operator parameter 1		
E5XX		Operator parameter 1		

Pubic Parameter:

Parameter	Parameter meaning	Value range	Description
Addr	Address	1-255	The meter address when communication. The address should be different when multi-recorder communication
bAud	Baudrate	2400,4800,9600,1920b(19200)	Communication rate. The baud rate must be same as PC when there is multi-meter communication.
P-C1	Operator password	0-9999	To enter into operator menu to operate parameter, original password: "1"
P-C2	Engineer password	0-9999	To enter into engineer menu to operate parameter, original password: "2"
dSt	Display interval time	1-2400s	Display interval time among each channel
Pr_t	Fixed time	0 – 9999	The interval time of fixed time printing. Unit is second. When Pr-t is "0", fixed time printing is not running.
oFF	Input Error Action	0-8	When the recorder is in short-circuiting, open-circuit and over-range, it displays "OPEN". And according to "Err. Act." parameter, please operate as follows: 0: when the alarm output is completely invalid, the measured value is max. (32751) 1: when the alarm outputs are all invalid, the measured value keep same. 2. When the alarm outputs are all invalid, the measured value is maximum (-20000) 3. when alarm output is valid, the measured value is maximum (32751) 4. When alarm output is valid, the measured value keeps same. 5. When alarm output is valid, the measuring value is minimum(-20000) 6. When input is default and the alarm output is invalid, the measured value is maximum (32751) 7. When input is default and the alarm output is invalid, the measured value keeps same. 8. When input is default and the alarm output is invalid, the measured value is minimum(-20000)
trCH	Transmission output channel	1-16	Channel no. with 4-20mA transmission output. Eg.: trCH=2, it means transmission output channel is CH2.

GHEC	Parity check	Null, EvEn, Odd	Null: communication without even-odd check EvEn: Communicaiton even check Odd: Communicaiton odd check
yEAr	year	0 – 99	System real time. Please check and modify it in first time.
Mon	month	1 – 12	
dAtE	date	1 – 31	
Hour	hour	0 – 23	
Min	minute	0 – 59	
SEC	second	0 – 59	

7、Function Introduction

6.1 Printing Function

1. RS232 interface is used between meter and mini printer. Thus, the print and communication function cannot be used in a meter at the same time.
2. Please keep the baud rate of the recorder same with one of the mini-printer.(normally as 9600b/s).
3. If start fixed time print function, Please set the parameter "Pr-t" as "0".

6.2 Communication Function

The meter adopts the standard "MODBUS" protocol. "03H": the function code for reading the measured value. If the meter want to read the sixteen channels data of address "1", the master should make a command "0103 00 00 00 10 44 06"(hexadecimal) to the meter.