2-channel switch values digital transducer manual
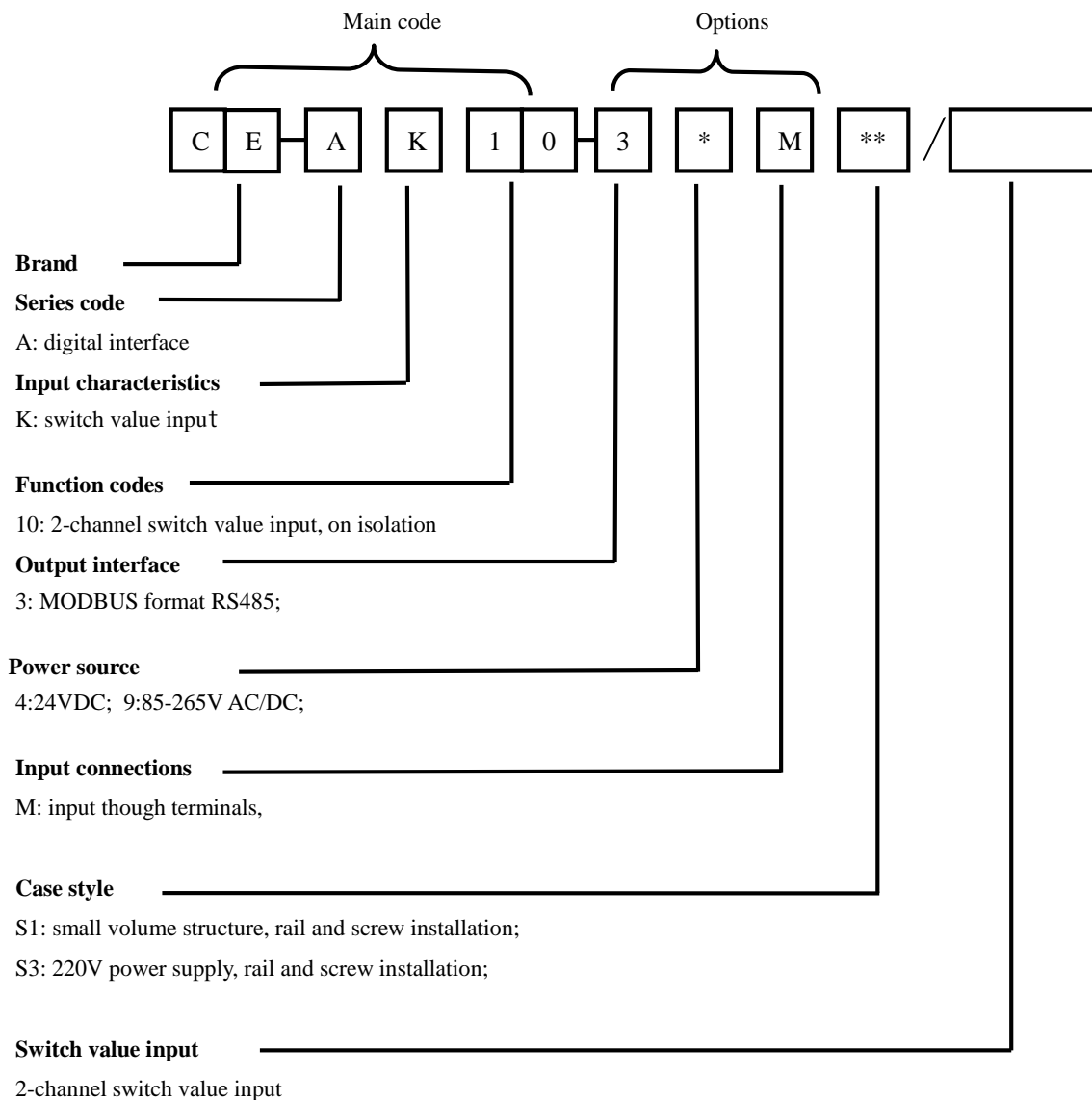
CE-AK10-3*MS*

1 Overview

This product is a low-cost transducer of switch input measurement, measuring switch status of passive dry contact type. It is widely used in various industrial measurement and control system, the switch status signal of the measured is transmitted to the corresponding host through the RS485 bus interface, it is available to directly connect a variety of PLC and other equipment with the standard MODBUS protocol.

2 Part Number

CE-A product selection is as follows, in order to make your selected products accurate application, please read carefully.

Main code   Options

| C | E | A | K | 1 | 0 | 3 | * | M | ** | / | |

Brand

Series code

A: digital interface

Input characteristics

K: switch value input

Function codes

10: 2-channel switch value input, on isolation

Output interface

3: MODBUS format RS485;

Power source

4:24VDC; 9:85-265V AC/DC;

Input connections

M: input though terminals,

Case style

S1: small volume structure, rail and screw installation;

S3: 220V power supply, rail and screw installation;

Switch value input

2-channel switch value input

3 Technical Specifications

- ² Input - Passive contacts (Dry contacts);
- ² Withstand voltage of the passive contacts —— ≥24VDC;
- ² Output data —— Values of 2 channels of switching signal input. ("1" means "on", "0" means "off".);

²   Output interface ——RS-485 bus. 1200m, ±15KV ESD protection;

²   Baudrate —— 1200, 2400, 4800, 9600, 19.2k bps;

²   Refreshing period —— 250 mS;

²   Quiescent power consumption —— <750 mW (+24V);

²   Power supply —— +24V or 220V optional;

²   Operating temperature —— -20℃～+60℃;

²   Installation method ----- rail or screw installation.

4 Case Style (marked in the figure Unit: mm)

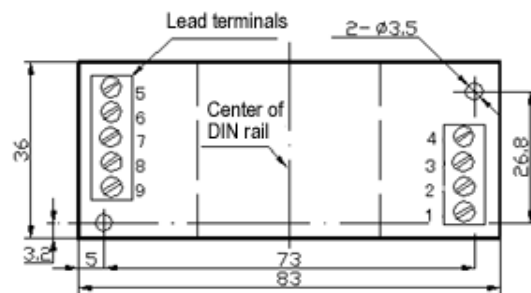Figure 4.1 CE-AK10-3*MS1 type product shape

Figure 4.2 CE-AK10-3*MS1 product installation diagram
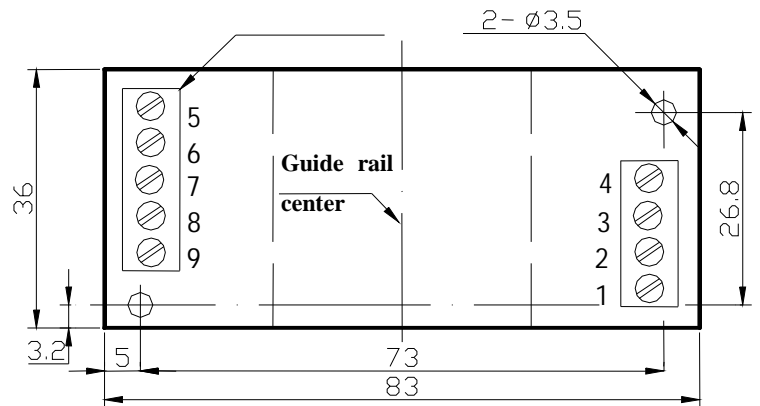

Figure 4.3 CE-AK10-3*MS3 type product shape

Figure 4.4 CE-AK10-3*MS3 product installation diagram

5 Terminal definition and connection diagrams

Wiring diagram of DC power supply of MS1 case product is shown in Figure 5.1, and VSS is the ground of RS485
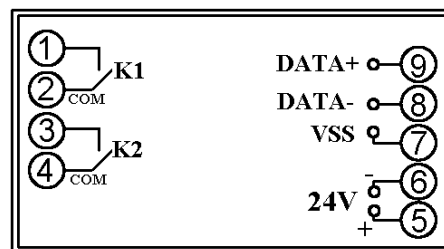

Figure 5.1 CE-AK10-34MS3 Wiring reference diagram

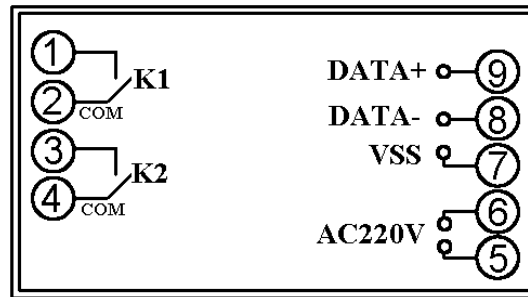Wiring diagram of AC power supply of MS3 case product is shown in Figure 5.2, and VSS is the ground of RS485

Figure 5.2 CE-AK10-39MS3 Wiring reference diagram

6 Communication protocol

It is supposed that the all following ID address is 01 and the baudrate code is 06(9600bps).

6.1 The command "To read the data of all switching value inputs":

A: Send command

Address of the slave equipment	Function code	Address of the first register		Quantity of registers		CRC-L	CRC-H
0x01	0x03	0x00	0x10	0x00	0x01	0x85	0xCF

Note: The values data will be stored in the first register 0000H.

B: Return data

Address of the slave equipment	Function code	Data count	Data		CRC-L	CRC-H
0x01	0x03	0x02	0x00	Values data	Check code	Check code

Note: "Values data" mean 8 bits of switching values. The most significant bit is the datum of switching value input 8 and LSB is the datum of switching value input 1.

6.2 The command "To read the data of transducer's name and configuration"

A: Definition table of transducer's name, address and baud rate register

Address of register (Hex)	Content of registers	Quantity of registers	Status of registers	Range of data
0x0020	Address and baudrate	1	Read/write	Address(0-256) Baudrate(03-07)
0x0021	Transducer's name	2	Read only	Configured by product type (4 bytes)

B: Send command:

Address of the slave equipment	Function code	Address of the first register		Quantity of registers		CRC-L	CRC-H
0x01	0x03	0x00	0x20	0x00	0x03	0x04	0x01

C: Return data

Address of the slave equipment	Function code	Data count	Data			CRC-L	CRC-H
0x01	0x03	0x06	Address core	Baudrate core	Model's name (4bytes)	Check code	Check code

6.3 The command "To modify the address and baudrate":

A: Send command: (Change the address from 01 to 02; set new baudrate to 9600 bps <code 06>)

Address of the slave equipment	Functio n code	Address of the first register		Quantity of registers		Data bytes count	Data written to register		CRC-L	CRC-H
0x01	0x10	0x00	0x20	0x0 0	0x01	0x02	0x02	0x06	0x20	0x52

Note: The data of new address and baudrate will be stored in the first register 0020H, the high order byte is address data and the low order byte is baudrate code. Codes for baudrate setting: 03-1200bps, 04-2400bps, 05-4800bps , 06-9600 bps, 07- 19200 bps.

B:Return data

Address of the slave equipment	Function code	Address of the first register		Quantity of registers		CRC-L	CRC-H
0x01	0x10	0x00	0x20	0x00	0x01	0x00	0x03