



# CAN Bus Static Inclinometer Protocol Manual

V3.0

## Protocol

CAN contains 8 bytes, where the data byte is not enough is followed by a 0. The first byte 0x40 is sent to indicate a write command, and the first byte 0x40 is returned to indicate a write success. The ID is the number of the CAN communication node.

### 1) Modify node number:

(ID=0x01 ~ 0x7F), the default node number (ID) is 0x05

	CAN-ID	1st	2nd	3rd	4th	5th	6th	7th	8th
Send	0x600+0x05	0x40	0x10	0x10	0x00	ID	0x00	0x00	0x00
Answer	0x580+0×ID	0x40	0x10	0x10	0x00	ID	0x00	0x00	0x00

Note: If the controller sends CAN-ID=0x600+0x05(default), send data: 40 10 10 00 10 00 00 00,

The sensor returns CAN-ID=0x580+0x10 and returns data: 40 10 10 00 10 00 00 00,

Then the CAN-ID is 0x590(0x580+0x10), indicating that the ID is successfully modified. In this case, you need to change the CAN-ID to 0x590 before sending other names.

### 2) Set CAN baud rate:

	CAN-ID	1st	2nd	3rd	4th	5th	6th	7th	8th
Send	0x600+0x05	0x40	0x20	0x10	0x00	Baud	0x00	0x00	0x00
Answer									

Note: The fifth byte (Baud) is 0x01, 0x02, 0x03, 0x04. Where 0x01 means set baud rate 500K bps, 0x02 means set baud rate 250K bps, 0x03 means set baud rate 125K bps, 0x04 means set baud rate 100K bps, 0x05 indicates that the baud rate is set to 50K bps, 0x06 indicates that the baud rate is set to 25K bps. The default baud rate is 125K bps. After the baud rate is changed, the sensor needs to be powered on again to successfully change the baud rate. The higher the baud rate, the shorter the communication distance. The communication distance can reach more than 1000m at 25Kbps.

### 3) Set relative \ absolute zero

	CAN-ID	1st	2nd	3rd	4th	5th	6th	7th	8th
Send	0x600+0x05	0x40	0x05	0x10	0x00	Type	0x00	0x00	0x00
Answer	0x580+0×05	0x40	0x05	0x10	0x00	0x00	0x00	0x00	0x00

Note: The 5th byte Type is 0x00, 0x01. 0x00 means set to absolute zero, 0x01 means set to relative zero. After setting zero, you need to enter the save command before setting successfully. (Default is absolute zero)

## 4) Set relative \ absolute zero

	CAN-ID	1st	2nd	3rd	4th	5th	6th	7th	8th
Send	0x600+0x05	0x40	0x0d	0x10	0x00	0x00	0x00	0x00	0x00
Answer	0x580+0x05	0x40	0x05	0x10	0x00	Type	0x00	0x00	0x00

Note: The 5th byte Type is 0x00, 0x01. 0x00 is represented as absolute zero, and 0x01 is represented as relative zero.

## 5) Save

	CAN-ID	1st	2nd	3rd	4th	5th	6th	7th	8th
Send	0x600+0x05	0x40	0x0a	0x10	0x00	0x00	0x00	0x00	0x00
Answer	0x580+0x05	0x40	0x0a	0x10	0x00	0x00	0x00	0x00	0x00

Note: For some parameters modified, you need to send the save command to take effect

## 6) Read X and Y axis angles

	CAN-ID	1st	2nd	3rd	4th	5th	6th	7th	8th
Send	0x600+0x05	0x40	0x04	0x10	0x00	0x00	0x00	0x00	0x00
Answer	0x580+0x05	SX	XX	xx	xx	SY	YY	yy	yy

Note: The read Angle command needs to work in answer mode.

SX and SY are the symbol bits and hundreds bits of the X and Y axes, 00 is positive and 10 is negative;

SX XX and SY YY are the integer bits of the Angle of X axis and Y axis respectively; For example: SX XX is 01 00 represents positive 100° , SX XX is 11 00 represents negative 100° ;

xx xx and yy yy are the decimal places of the Angle of X axis and Y axis, respectively.

For example, if the returned data is 585 01 23 4560 10 12 3450, the X-axis Angle is +123.4560 degrees and the Y-axis is -12.3450 degrees.

## 7) Set output mode

	CAN-ID	1st	2nd	3rd	4th	5th	6th	7th	8th
Send	0x600+0x05	0x40	0x0c	0x10	0x00	mode	0x00	0x00	0x00
Answer	0x580+0x05	0x40	0x0c	0x10	0x00	mode	0x00	0x00	0x00

Note: The mode of the fifth byte is 0x00 and 0x01. Where 0x00 represents the answer mode and 0x01:5Hz Data Rate

0x02:10Hz Data Rate, 0x03:20Hz Data Rate

0x04:25Hz Data Rate, 0x05:50Hz Data Rate

0x06:100Hz Data Rate (default)

Sending other names should be recommended in answer mode (automatic mode is to continuously output the current Angle of the axis, it is easier to see other command return values in answer mode). 5Hz Data Rate means that the data is automatically output 5 times per second, and so on.

## 8) Select Automatic output data

	CAN-ID	1st	2nd	3rd	4th	5th	6th	7th	8th
Send									
Responder	0x580+0x05	SX	XX	xx	xx	SY	YY	yy	yy

Note: The output Angle format is the same as the response mode reading X and Y axis angles.

## 9) Set the CAN-ID address

	CAN-ID	1st	2nd	3rd	4th	5th	6th	7th	8th
Send	0x600+0x05	0x40	0x70	0x10	0x00	XX	0x00	0x00	0x00
Answer									

Note: XX is 00, 01. 00 represents the standard ID (11 bit) type and 01 represents the extended ID (27 bit) type. The default is standard.

## 10) Set the standard CAN-ID address

	CAN-ID	1st	2nd	3rd	4th	5th	6th	7th	8th
Send	0x600+0x05	0x40	0x71	0x10	0x00	XH	XL	0x00	0x00
Answer									

Note: The standard CAN-ID defaults to 0X580+05 and the maximum cannot exceed 7FF. The modification here is 580 in 0X580+05, and 05 can be modified by modifying the node number previously. Re-power on CAN-ID after modification to become 0x XHXL+0x05.

For example, if the message 605 40 71 10 00 01 23 00 00 is sent, the CAN-ID becomes 123+5=128 after the power is powered on again.

## 11) Set the extended CAN-ID address

To set the extended CAN-ID address, you need to send the address in two segments, first the high 16 address and then the low 16 bit address. When you power on the device again, the CAN-ID changes to the new address

(The received CAN-ID does not need to be added with the node number). The maximum cannot exceed 7FFFFFFF. The default value is 0x18fa0216.

### I Set the extended CAN-ID high 16-bit address

	CAN-ID	1st	2nd	3rd	4th	5th	6th	7th	8th
Send	0x600+0x05	0x40	0x72	0x10	0x00	XH	XL	0x00	0x00



## CAN Static Bus Inclinometer

Answer

Note: Extended CAN-ID high 16-bit addresses cannot be greater than 7FF.

**ii Set the extended CAN-ID low 16-bit address**

	CAN-ID	1st	2nd	3rd	4th	5th	6th	7th	8th
Send	0x600+0x05	0x40	0x73	0x10	0x00	XH	XL	0x00	0x00
Answer									

Note: Extended CAN-ID lower 16-bit addresses cannot be greater than FFFF.

For example: send 605 40 72 10 00 01 23 00 00, 605 40 73 10 00 45 67 00 00, twice respectively,

Then the CAN-ID is 01234567 after the power is powered on.

**12) Reading the temperature**

	CAN-ID	1st	2nd	3rd	4th	5th	6th	7th	8th
Send	0x600+0x05	0x40	0x23	0x10	0x00	0x00	0x00	0x00	0x00
Answer	0x585+0x05	Xsign	XH	XL	XL	Ysign	YH	YL	YL

Note: The first digit of Xsign and Ysign is the symbol bit of X axis and Y axis respectively, 00 is positive and 10 is negative; XH and YH are the integer bits of X axis and Y axis temperature respectively;

XL and YL are the decimal places of the temperature of the X and Y axes, respectively.

For example, if the returned data is 585 00 36 1253 00 35 2052, the X-axis temperature is 36.1253 degrees and the Y-axis temperature is 35.2052 degrees.

# **CAN bus static tilt sensor**

## **Protocol Manual**

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