

ATO-BRW600-405 Infrared Temperature Thermometer

● Product Overview

ATO-BRW600-405 infrared thermometer uses infrared detectors to measure and convert infrared radiation energy into electrical signals, and then converts to temperature according to the basic law of radiation and displays the temperature signal through the display instrument , It is mainly composed of optical system, photodetector, signal amplifier and signal processing.

The ATO-BRW600-405 infrared thermometer can be used to measure the temperature in areas where the temperature is too high or too low, high voltage, and high-speed running machinery, and the measurer does not have to be close to these specific environments, and the product has a fast response and high sensitivity. Because it is non-contact measurement, the measurement process will not change the temperature of the measured object, so the measurement result is true and reliable.

●Product features

- No need to touch the measured target
- Convenient measurement of targets that are difficult to access or move
- Fast response speed and high accuracy
- Can meet the requirements of various working conditions
- Simple installation, various temperature measurement ranges are optional

●Scope of application

- Electrical equipment
- Modern medical field
- Food industry
- Chemical Industry
- Construction industry
- Machining control field

●Technical index

Temperature measurement range (°C)	Deg.] C ~ 100 0, 200 is 0 deg.] C ~, ~ 0. 5 00 deg.] C customizable
Output signal:	(4 ~20) mA , RS485 can be customized
Signal cable specifications:	2Wire 4Wire
Supply voltage:	24VDC
Temperature measurement accuracy:	±2% or ±2.5°C of the measured value (ambient temperature: 23±5°C)
Spectral range:	8-14 um
Ambient temperature:	(0 ~+70) ° C
Storage temperature;	(-20 ~+80) ° C

Response time:	300ms (95%)
D:S :	10:1
Protection level:	IP65
material:	304

●Electrical interface

Direct outlet: Red: positive power supply (+Vcc)

Black: output (Iout)

Red: Positive power supply (+Vcc)

Black: GND

Green: RS485A

White: RS485B

●Appearance



●Installation instructions

FST600-400 infrared thermometer with stainless steel shell with M18*1 thread, can be used for direct installation or can be installed by using a mounting bracket, the adjustable mounting bracket can make the adjustment of the measuring head more convenient, when adjusting the measured The target and the measuring head need to ensure that the optical path is not blocked.

MODBUS communication protocol

1. Basic settings of communication protocol

Transmission method: MODBUS-RTU mode

Communication parameters : default baud

rate 9600bps (optional 4800bps , 9600bps , 14400bps , 19200bps , 28800bps , 38400bps , 57600bps , can be configured according to user requirements), 1 start bit, 8 data bits, no check, 1 stop Bit

Slave address: The factory default is 123 , which can be configured according to user requirements; the universal slave address is 200 (note: if forming a multi-machine communication network, other slave addresses cannot be set to 200)

2, keep the register list:

parameter	MODBUS holding register address (16 bits)
Real-time temperature value (float)	0000H, float standard: A, B, C, D
Slave address (Address)	002FH, unsigned integer representation D efault:123
Baud Rate (Baud Rate)	0030H, the default slave address is 9600 , it is saved as 96 when saving , other analogy (all divided by 100)

Note: 1. Other addresses are not allowed to visit.

2. Pressure, float representation IEEE754, single format, 32 bit

s e[8] f[23]

s e7 e6 e5 e4 e3 e2 e1 e0 f22 f21 f20 f19 f18 f17 f16 f15 f14 f12 f11 f10 f9 f8 f7 f6 f5 f4 f3 f2 f1 f0

Splitting into 4 bytes for Modbus encoding

A: [s e7 e6 e5 e4 e3 e2 e1]

B: [e0 f22 f21 f20 f19 f18 f17 f16]

C: [f15 f14 f12 f11 f10 f9 f8]

D: [f7 f6 f5 f4 f3 f2 f1 f0]

Most masters do use the A, B, C, D representation.

3. Modbus RTU instruction

Supported MODBUS function codes: 0x03 , 0x06

03H function code example: read the temperature data of the temperature sensor whose address is 123

★ Host query command :

Slave Address	7BH	Slave address
Function	03H	Fncion code
Starting Address Hi	00H	The upper 8 bits of the start register address
Starting Address Lo	00H	The lower 8 bits of the start register address
No. of Registers Hi	00H	The upper 8 bits of the number of registers

No. of Registers Lo	02H	The lower 8 bits of the number of registers
CRC Check Lo	CFH	The lower 8 bits of the CRC check code
CRC Check Hi	91H	8 bits higher CRC check code

★Slave response:

Slave Address	7B H	Slave address
Function	0 3 H	Function code
Byte Count	04H	4 bytes in length
Data Hi	42 H	Temperature value
Data Lo	B9H	Temperature value
Data Hi	1EH	Temperature value
Data Lo	33H	Temperature value
CRC Check Lo	ADH	The lower 8 bits of the CRC check code
CRC Check Hi	DCH	8 bits higher CRC check code

06H function code example: modify the baud rate (this example is modified to 57600bps)

★ Host query command :

Slave Address	7BH	Slave address
Function	06H	Function code
Starting Address Hi	00H	Baud rate holding register address is 000BH
Starting Address Lo	4EH	Baud rate holding register address is 000BH
Data Hi	02H	When the baud rate is 57600bps , the value of the register is 0240H
Data Lo	40H	When the baud rate is 57600bps , the value of the register is 0240H
CRC Check Lo	E2H	The lower 8 bits of the CRC check code

CRC Check Hi	D7H	8 bits higher CRC check code
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★Slave response:

Slave Address	7BH	Slave address
Function	06H	Function code
Starting Address Hi	00H	Baud rate holding register address is 000BH
Starting Address Lo	4EH	Baud rate holding register address is 000BH
Data Hi	02H	When the baud rate is 57600bps , the value of the register is 0240H
Data Lo	40H	When the baud rate is 57600bps , the value of the register is 0240H
CRC Check Lo	E2H	The lower 8 bits of the CRC check code
CRC Check Hi	D7H	8 bits higher CRC check code

06H function code example: modify the slave address (this example is modified to71)

★ Host query command :

Slave Address	7BH	Slave address
Function	06H	Function code
Starting Address Hi	00H	The upper 8 bits of the register start address
Starting Address Lo	4DH	Lower 8 bits of register start address
Data Hi	00H	When the slave address is 1 , the value of the register is 0001H
Data Lo	01H	When the slave address is 1 , the value of the register is 0001H
CRC Check Lo	C9H	The lower 8 bits of the CRC check code
CRC Check Hi	84H	8 bits higher CRC check code

★Slave response:

Slave Address	7BH	Slave address
Function	06H	Function code
Starting Address Hi	00H	The upper 8 bits of the register start address
Starting Address Lo	4DH	Lower 8 bits of register start address
Data Hi	00H	When the slave address is 1 , the value of the register is 0001H
Data Lo	01H	When the slave address is 1 , the value of the register is 0001H
CRC Check Lo	C9H	The lower 8 bits of the CRC check code
CRC Check Hi	84H	8 bits higher CRC check code