

CT-3723 3 channels RTD-PT1000 temperature acquisition module

1 Module features

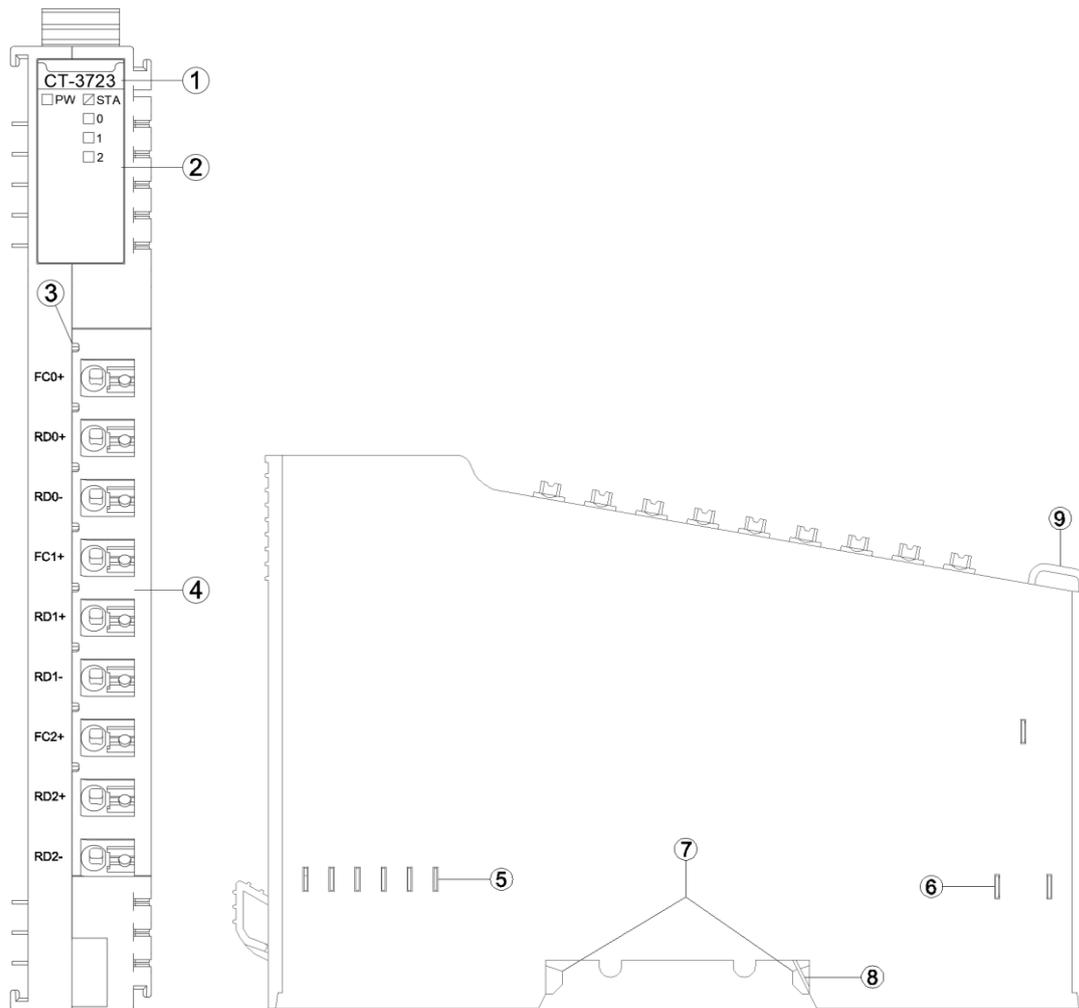
- ◆ The module supports 3-channel RTD thermal resistance (PT1000) temperature acquisition
- ◆ The module could be connected to a 2-wire or 3-wire PT1000 temperature sensor
- ◆ The internal bus of the module and field input adopts magnetic isolation
- ◆ The module carries with 3 analog input channel LED indicator
- ◆ 15-bits ADC resolution

2 Technical Parameters

| General parameters | |
|---------------------------|--|
| Power | Max.35mA@5.0Vdc |
| Isolation | I/O to internal bus: magnetic isolation (2.5KVrms) |
| Field Power | Not used |
| Wiring | Max.1.0mm ² (AWG 17) |
| Mounting Type | 35mmDIN-Rail |
| Size | 115*14*75mm |
| Weight | 65g |
| Environment Specification | |
| Operational Temperature | -40~85°C |
| Operational Humidity | 5%~95% RH (No Condensation) |
| Ingress Protection Rating | IP20 |
| Input Parameter | |
| Channel Number | 3 Channels |
| LED Indicator | 3 Green LED |
| Resolution | 15 bits |
| Sensor Type | PT1000 |
| Measurement Range | -240~880°C |
| Measurement Accuracy | 0.5°C |
| Conversion Rate | 400ms/3 channels |
| | |

| | |
|---------------------|--|
| Diagnostic function | 32766: The sensor is not connected or disconnected -32766: Short Circuited 32765: Chip failure 32767: Overflow -32768: Underflow |
|---------------------|--|

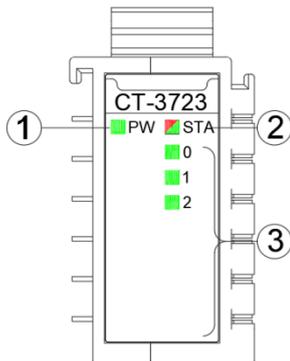
3 Hardware Interface



- ① Module Type
- ② State indicator
- ③ N/A
- ④ Wiring Terminal and identification
- ⑤ Internal Bus
- ⑥ Field Power

- ⑦ Buckle
- ⑧ Grounding Spring Sheet
- ⑨ Fixed Wiring Harness

3.1 LED indicator definition



- ① Power LED indicator (green)
- ② Module State LED indicator (red/green)
- ③ Output channel LED indicator (green)

| PW POWER STATE (GREEN) | Definition |
|------------------------------|---|
| ON | Internal bus Power Normal |
| OFF | Internal bus Power Failure |
| STA MODULE STATE (RED/GREEN) | Definition |
| Green slow flash (2.5Hz) | Module internal bus is not started |
| Red slow flash (2.5Hz) | Module internal bus offline |
| ON (GREEN) | Operation normal |
| Flash(2.5Hz) (RED/GREEN) | Upgrading mode |
| Flash(10Hz) (RED/GREEN) | Firmware Update |
| Double Flash (RED) | Module Exception, has been soft-restarted |
| 0-2 Channel Indicator | Definition |
| ON | The input signal exceeds 1% of the range |
| OFF | Invalid input signal |

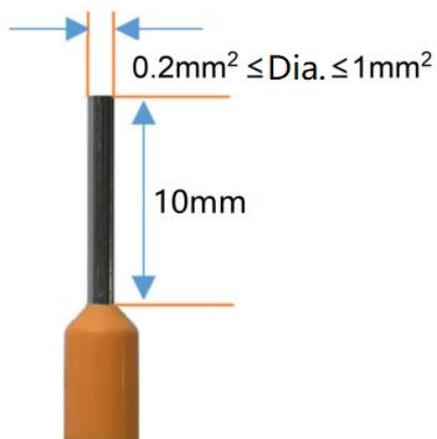
3.2 Terminal definition

| Terminal Number | Definition | Description |
|-----------------|------------|------------------|
| 1 | FC0+ | Signal Input CH0 |
| 2 | RD0+ | |
| 3 | RD0- | |
| 4 | FC1+ | Signal Input CH1 |
| 5 | RD1+ | |
| 6 | RD1- | |
| 7 | FC2+ | Signal Input CH2 |
| 8 | RD2+ | |
| 9 | RD2- | |

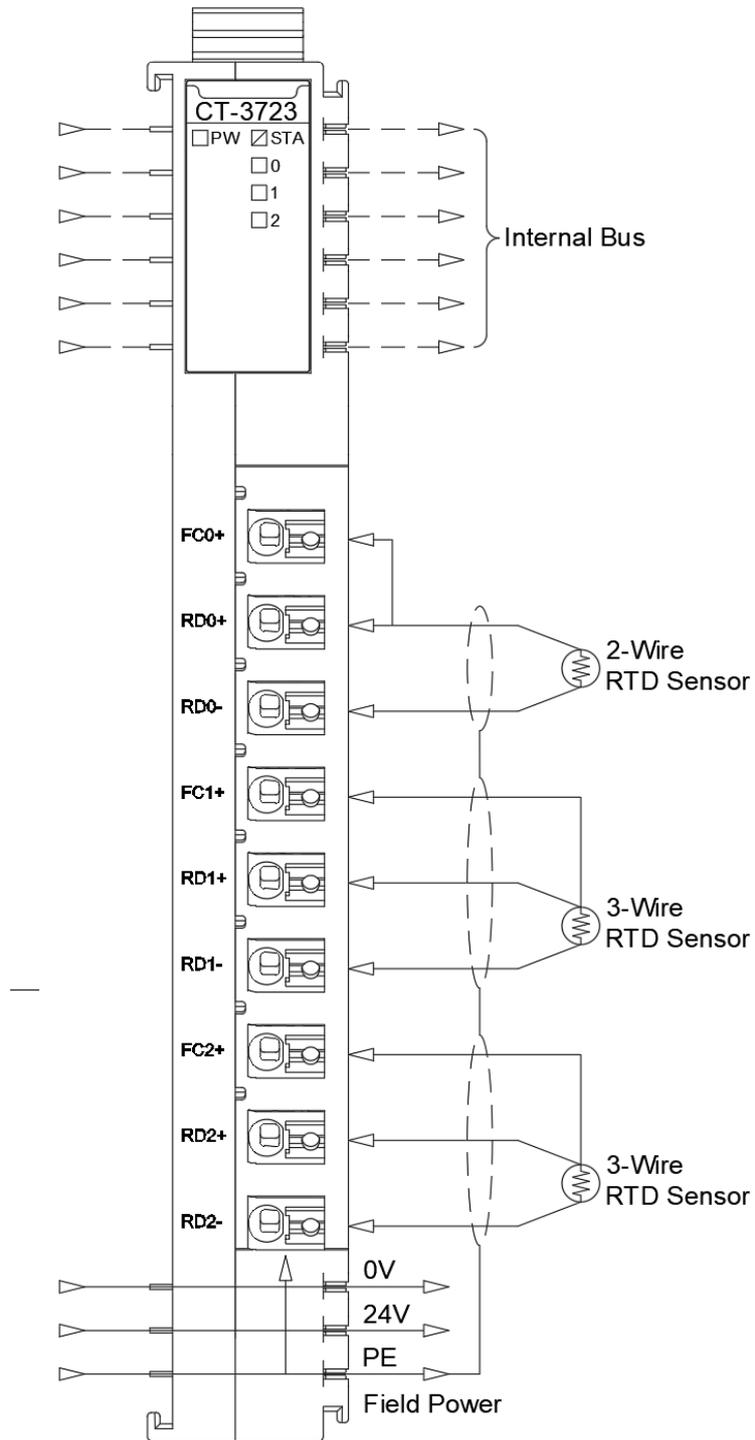
It is recommended to use cables with cores greater than 0.2mm² and smaller than 1mm².

When connecting cables (terminals)with cores, need to check and connect them according to the corresponding node serial number.

The cold-pressed terminal parameters are as follows:



4 Wiring



5 Process data definition

| Input Data | | | | | | | | |
|------------|--------------------------|-------|-------|-------|-------|-------|-------|-------|
| Bit No | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 |
| Byte 0 | Analog Input Data (CH 0) | | | | | | | |
| Byte 1 | | | | | | | | |
| Byte 2 | Analog Input Data (CH 1) | | | | | | | |
| Byte 3 | | | | | | | | |
| Byte 4 | Analog Input Data (CH 2) | | | | | | | |
| Byte 5 | | | | | | | | |

Data description:

Analog Input Data (CH0-2): Analog channel input data values

| Process Data Definition | | | |
|-------------------------|---------|------|-------------------------|
| Temperature | Decimal | Hex | Location |
| >880.0 | 32767 | 7FFF | Overflow |
| 880.0 | 8800 | 2260 | Exceeds the upper limit |
| . | . | . | |
| . | . | . | |
| 850.1 | 8501 | 2135 | |
| 850.0 | 8500 | 2134 | Rated range |
| . | . | . | |
| . | . | . | |
| -200.0 | -2000 | F830 | |
| -200.1 | -2001 | F82F | Exceeds the lower limit |
| . | . | . | |
| . | . | . | |
| -240.0 | -2400 | F6A0 | |
| <-240.0 | -32768 | 8000 | Underflow |

6 Configuration parameters definition

| Configuration Parameter | | | | | | | | |
|-------------------------|-------------------------|-------|-----------------------|-----------------------|-----------------------|------------------|-------|-------------------|
| Bit No | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 |
| Byte 0 | Reserved | | Channel Enable (CH 2) | Channel Enable (CH 1) | Channel Enable (CH 0) | Temperature Unit | | 16Bit Data Format |
| Byte 1 | Filter frequency (CH 0) | | | | | | | |
| Byte 2 | Filter frequency (CH 1) | | | | | | | |
| Byte 3 | Filter frequency (CH 2) | | | | | | | |
| Byte 4 -Byte 8 | Reserved | | | | | | | |

Data description:

16Bit Data Format: Sequence of 16-bit data byte transmission (Default: 0)

0: A_B

1: B_A

Temperature Unit: Temperature unit. Celsius, Fahrenheit, Kelvin is optional. (Default: 0)

0: °C

1: °F

2: K-

Channel Enable(CH 0~CH 5): Channel enable, disable and enable are optional. (Default: 1)

0: Disable

1: Enable

Filter frequency(CH 0~CH5): Filter frequency,1-31 can be set (Defaul:10)

A Dimension drawing

