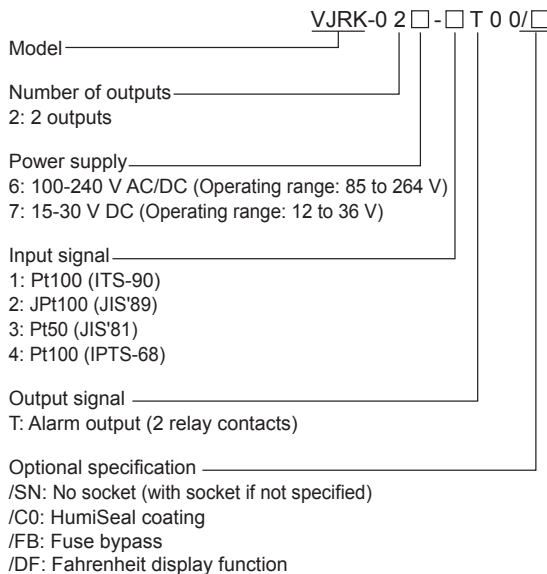## ■ Overview

This plug-in type Limit Alarm for RTD input receives RTD signal.

• Each parameter setting can be changed using a PC (VJ77 PC-based Parameters Setting Tool) or the Handy Terminal (JHT200).
• For the Fahrenheit display, specify the option "/DF".

■ Model and Suffix Codes

VJRK-0 2□-□ T 0 0/□

Model

Number of outputs
2: 2 outputs

Power supply
6: 100-240 V AC/DC (Operating range: 85 to 264 V)
7: 15-30 V DC (Operating range: 12 to 36 V)

Input signal
1: Pt100 (ITS-90)
2: JPt100 (JIS'89)
3: Pt50 (JIS'81)
4: Pt100 (IPTS-68)

Output signal
T: Alarm output (2 relay contacts)

Optional specification
/SN: No socket (with socket if not specified)
/C0: HumiSeal coating
/FB: Fuse bypass
/DF: Fahrenheit display function

(Note 1) "/C0" option: Polyurethane coating. The "/C0" (Humiseal coating) option does not guaranteed the coating effect though it is expected that the corrosion resistance for electric circuit is reinforced. And it is not able to submit coating test data.
(Note 2) "/FB" option: The primary power supply fuse is deleted, short circuit and ship it.

■ Ordering Information

Specify the model and suffix codes at the time of order.

If the input range and burnout are specified with the order, the specified values will be assigned before shipment.

For other setting items, the initial values shown below are to be assigned.

• Model and suffix codes: e.g. VJRK-026-1T00
• Input range (required item): 0 to 100°C
• Burnout (required item): UP

■ Factory Default Settings

The initial values (factory-set values) are as follows.

• Input range: 0 to 100°C

• Burnout: UP
• Direction of alarm action: High-limit alarm (alarm 1), low-limit alarm (alarm 2)
• Direction of relay action: Energized under alarm condition (alarm 1 and alarm 2).
• Alarm setting: The value equivalent to 100% of input range (alarm 1), the value equivalent to 0% of input range (alarm 2)
• Hysteresis: The value equivalent to 3% of input range (alarm 1 and alarm 2)
• Alarm ON delay: 0 second (alarm 1 and alarm 2)
• Alarm OFF delay: 0 second (alarm 1 and alarm 2)
• Software filter: OFF

■ Input Specifications

Input type: RTD
JIS C 1604, IEC 60751(ITS-90)PT100
JIS C 1604:1989, DIN(IPTS-68) Pt100
JIS C 1604:1989, JPt100
JIS C 1604:1981, Pt50 JIS C 1604
Measuring unit:°C, K, °F[*1]
*1: When specify the option code "/DF".
Input range:

Input type (RTD)	Guaranteed range(°C)
JIS C 1604, IEC 60751(ITS-90)PT100	-200 to 850
JIS C 1604:1989, DIN(IPTS-68) Pt100	-200 to 660
JIS C 1604:1989, JPt100	-200 to 510
JIS C 1604:1981, Pt50	-200 to 649

Measuring span: 10°C or more
Input resistance: 1 MΩ (during power on), 4 kΩ (during power off)
Allowable leadwire resistance: [Input span (°C) x 0.4 Ω] or 10 Ω per leadwire, equal or less than whichever is smaller. (Make the resistance of each wire the same.)
However, when used with BARD-700, this value can be added to the BARD internal resistance.
Detective current: Approx. 0.2 mA
Maximum allowable voltage: ±4 V DC
Software filter: OFF, Low, Middle, High (default value: OFF)
When Low, Middle, or High is selected, a first-order filter equivalent to 100 ms, 300 ms, or 1 s is inserted in the input.

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■ Output Specifications

Signal type: Relay contact

Output signal: NO contact output (contact turns on when energized), 2 points

Contact rating: 120 V AC/1 A, 220 V AC/0.5 A (resistance load)
30 V DC/1 A, 120 V DC/0.1 A (resistance load)

Direction of alarm action: High-limit alarm or low-limit alarm

Direction of relay action: Energized or de-energized under normal condition

Alarm setting range: 0 to 100% of input range
  Setting resolution: 0.1%

Hysteresis setting range: 0 to 100% of input range
  Setting resolution: 0.1%

Alarm ON delay: Condition monitoring time from the establishment of alarm conditions to its output.
  (For example, when an alarm ON delay is set to 1 second, alarm output is generated if alarm status continues for 1 second or more after the input value exceeds the alarm setpoint.)
  Setting range: 0 to 999 seconds
  Setting resolution: 1 second (However, about 0.2 second is to be added to the set time to prevent wrong operation.)

Alarm OFF delay: Condition monitoring time from the establishment of return-to-normal conditions to its output.
  (For example, when an alarm OFF delay is set to 2 seconds, alarm output is released if normal condition continues for 2 seconds or more after the input value has returned to normal from the alarm status.)
  Setting range: 0 to 999 seconds
  Setting resolution: 1 second (However, about 0.2 second is to be added to the set time to prevent wrong operation.)

Indication of alarm action: The alarm indicator lamp (LED) on the front panel lights up if an alarm occurs. (2 lamps)

■ Items Available to Be Set

The following items can be set using a PC (VJ77 PC-based Parameters Setting Tool) or the Handy Terminal (JHT200):

  Input type, input range, burnout, address number, baud rate parity, data length, stop bit, protocol, direction of alarm action, direction of relay action, alarm setting, hysteresis, alarm ON delay and alarm OFF delay, software filter

■ Standard Performance

Accuracy rating: ±0.1 % of span or ±0.1 °C of span, whichever is greater. (for Pt50, ±0.1 % or ±0.2 °C, whichever is greater.)

Burnout: UP, DOWN or OFF
  Burnout time: Within 60 seconds

Effects of leadwire resistance change: ±0.2°C or less for a change of 10 Ω/leadwire

Effect of power supply voltage fluctuations: accuracy range or less for the fluctuations within the allowable range of each power supply voltage specification

Effect of ambient temperature change: ±0.15% of span or less for a temperature change of 10°C

Response speed: 450 ms (Time to alarm output when the input change is 10 to 90% and alarm setpoint is 50%. When the alarm delay setting and hysteresis are minimum.)
  If the software filter is on, add the following to the value above: Low: 100 ms, Middle: 300 ms, High: 1 s.

■ Environment Standard

RoHS Directive: EN 50581

■ Power Supply and Isolation

Power supply rated voltage: 100-240 V AC/DC ∿ 50/60 Hz or 15-30 V DC ⎓

Power supply input voltage: 100-240 V AC/DC (–15, +10%) 50/60 Hz or 15-30 V DC (±20%)

Power consumption: 24 V DC 1.9 W, 110 V DC 1.9 W 100 V AC 4.1 VA, 200 V AC 5.1 VA

Insulation resistance: 100 MΩ/500 V DC between input, output 1, output 2, power supply and grounding terminals mutually.

Withstand voltage: 2000 V AC/minute between input, (output 1, output 2), power supply and grounding terminals mutually.
  1000 V AC/minute between output 1 and output 2 terminals.

■ Environmental Conditions

Operating temperature range: -10 to 55°C (side-by-side mounting: -10 to 45 °C*)
  *   If the previous model (style S3.xx earlier) is installed together, the ambient temperature is 0 to 40°C.

Operating humidity range: 5 to 90% RH (no condensation)

Operating conditions: Avoid installation in such environments as corrosive gas like sulfide hydrogen, dust, sea breeze and direct sunlight.
  Installation altitude: 2000 m or less above sea level.

Magnetic field: 400 A/m or less

Continuous vibration at 5 to 9 Hz: Half amplitude of 3 mm or less, 1oct/min for 90 minutes each in the three axis directions

Continuous vibration at 9 to 150 Hz: 9.8 m/s^2 or less, 1oct/min for 90 minutes each in the three axis directions

Shock: 98 m/s^2 or less, 11 ms, 3-axis 3 times each in 6 directions

Altitude: 2000 m or less above sea level

Warm-up time: 30 minutes or more after the power is turned on

■ Trasport and Storage Conditions

Temperature: -25 to 70ºC
Temperature change rate: 20ºC/h or less
Humidity: 5 to 95% RH (no condensation allowed)

■ Mounting and Dimensions

Construction: Compact plug-in type
Material: Modified polyphenylene oxide resin (casing)
Mounting method: Wall or DIN rail mounting, or
mounting using VJ mounting base
Connection method: M3 screw terminal
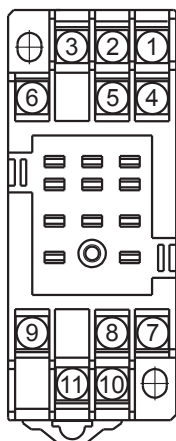External dimensions: 29.5 (W) × 76 (H) × 124.5(D) mm
(including a socket)
Weight: Main unit: 100 g or less,
Socket: 50 g or less

■ Standard Accessories
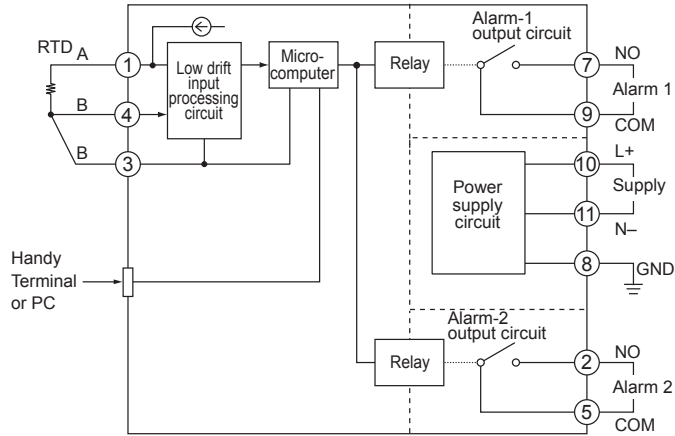
Tag number label: 1 sheet
Range label: 1 sheet

■ Terminal Arrangement

Terminal No.	Signal	
1	Input	(A)
2	Alarm 2	(NO)
3	Input	(B)
4	Input	(B)
5	Alarm 2	(COM)
6	N.C.	
7	Alarm 1	(NO)
8	Ground	(GND)
9	Alarm 1	(COM)
10	Supply	(L+)
11	Supply	(N–)

■ Block Diagram

Note: Make the wiring resistance of the input terminals 1 and 3 the same.

■ External Dimensions

Unit: mm