# Bently Nevada 3500 Series Service Manual

3500/61-01-02

## 1. Description

3500/61-01-02

## 3. Product Information

3500/61-01-02 | Bently Nevada | Temperature Monitors

Manufacturer : Bently Nevada

Product No. : 3500/61-01-02

Product type : Temperature Monitors with Recorder Outputs

Made in U.S.A

I/O Module Type : 01 = RTD/TC Non-isolated I/O Module Internal Terminations

Agency Approval Option : 0 2 = ATEX/ IECEx/ CSA (Class 1, Zone 2)

Specifications

Inputs

Signal Accepts from 1 to 6 RTD or TC transducer signals.

Input Impedance

10 MΩ for each lead input.

Power Consumption

3500/60 Nominal consumption of 7 watts.

3500/61 Nominal consumption of 9 watts.

Tranducers

TCs

Type E -100 °C to +1000 °C, (-148 °F to +1832 °F).

Type J -18 °C to +760 °C, (+0 °F to +1400 °F).

Type K -18 °C to +1370 °C, (+0 °F to +2498 °F)

.Type T -160 °C to +400 °C, (-256 °F to +752 °F).

When using any of the isolated thermocouple I/O modules (-03 or -04 I/O ordering option) with Type E thermocouples, the available full-scale range will be reduced if the 3500 system is operated in an ambient temperature above +35C. The reduced range will be -60C to +1000C (-76F to +1832F). Rack configuration software will allow the user to configure a channel down to -100C but the system will not function properly in this scenario and therefore should not be configured to operate with these settings.

RTDs

100Ω 3-wire & 4-wire platinum RTD (alpha = 0.00385): -200° C to +850° C (-328 °F to +1562 °F). With external barriers: -50 °C to +850 °C (-122 °F to +1562 °F).

100Ω 3-wire & 4-wire platinum RTD (alpha = 0.00392): -200 °C to +700 °C (-328 °F to +1292 °F). With external barriers: -50 °C to +260 °C (-122 °F to + 1292 °F).

120Ω 3-wire & 4-wire nickel RTD: -80 °C to +260 °C (-112 °F to +500 °F). With external barriers: -50 °C to +260 °C (-122 °F to + 500 °F).

10Ω 3-wire & 4-wire copper RTD: -100 °C to +260 °C, (-148 °F to +500 °F). With external barriers: -50 °C to +260 °C (-122 °F to +500 °F).

Platinum RTD's with 0.00385 alphas are the worldwide industrial standard and are recommended for all applications

I/O Modules

Isolated I/O Module System Isolation: 500Vdc

Channel to Channel Isolation: 250 Vdc

Isolation is only required for fault scenarios and these voltages will not be present on the I/O module inputs when a wiring or field fault occurs.

Outputs

Front Panel LEDs

OK LED: Indicates when the Temperature Monitor is operating properly.

TX/RX LED:  Indicates then the Temperature Monitor is communicating with other modules in the 3500 rack.

Bypass LED: Indicates when the Temperature Monitor is in Bypass Mode.

RTD Current Source Value:

925 ±15 µA @ 25° C per transducer (single

supply for the 4-wire RTD and two supplies for

the 3-wire).

Recorder:

+4 to +20 mA. Values are proportional to

monitor full-scale. Individual recorder values

are provided for each channel. Monitor

operation is unaffected by short circuits on

recorder outputs.

Voltage Compliance (current output): 0 to +12 Vdc range across load. Load resistance is 0 to 600 Ω.

Resolution:  0.3662 µA per bit ±0.15% error at room temperature ±0.4% error over temperature range.

Accuracy

Internal Termination NonIsolated±3 °C at 25 °C (±5.4 °F at 77 °F).

Bulkhead Rack±3 °C at 25 °C (±5.4 °F at 77 °F).

Standard Rack ±3 °C at 25 °C (±5.4 °F at 77 °F).

External Termination Non-Isolated

Bulkhead Rack ±3 °C at 25 °C (±5.4 °F at 77 °F).

Standard Rack ±1 °C at 25 °C (±1.8 °F at 77 °F).

Internal Termination Isolated

Bulkhead Rack ±2 °C at 25 °C

(±3.6 °F at 77 °F).

±3 °C at 25 °C

±5.4 °F at 77 °F).

Standard Rack

±3 °C at 25 °C

±5.4 °F at 77 °F).

External Termination Isolated

Bulkhead Rack

±1 °C at 25 °C

(±1.8 °F at 77 °F).

Standard Rack

°C at 25 °C

(±1.8 °F at 77 °F)

10 Ω Copper RTDs

Resolution 1°C or 1 °F

Accuracy ±3 °C at 25 °C

Environmental Limits

Operating

Temprature

-30°C to +65°C (-22°F to +150

°F) when used with

Internal/External Termination

I/O Modules

0°C to +65 °C (32 °F to +150 °F)

when used with Internal Barrier

I/O Modules (Internal

Termination)

Storage

Temperature

-40°C to +85°C (-40°F to

+185°F)

Physical

Monitor Module

Dimensions

(Height x Width x

Depth)

241.3 mm x 24.4 mm x

241.8 mm

(9.50 in x 0.96 in x 9.52 in)

Weight 0.91 kg (2.0 lb)

I/O Modules

Dimensions

(Height x Width x

Depth)

241.3 mm x 24.4 mm x 99.1

mm

(9.50 in x 0.96 in x 3.90 in)

Weight 0.45 kg (1.0 lb)

I/O Modules (internal barrier)

Dimensions

(Height x Width x

Depth)

241.3 mm x 24.4 mm x 163.1

mm

(9.50 in x 0.96 in x 6.42 in)

Weight 0.46 kg (1.01 lb)

Rack Space Requirements

Monitor

Module

1 full-height front slot

I/O Modules 1 full-height rear slot