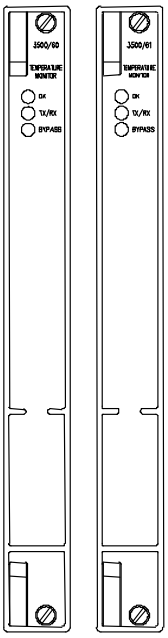
3500/60 & /61 Temperature Monitors

Bently Nevada* Asset Condition Monitoring



Description

The 3500/60 & 61 modules provide six channels of temperature monitoring and accept both Resistance Temperature Detector (RTD) and Thermocouple (TC) temperature inputs. The modules condition these inputs and compare them against user-programmable alarm setpoints. The 3500/60 and 3500/61 provide identical functionality except that the 3500/61 provides recorder outputs for each of its six channels while the 3500/60 does not.

The user programs the modules to perform either RTD or TC temperature measurements using the 3500 Rack Configuration Software. Different I/O modules are available in RTD/TC non-isolated or TC isolated versions. The user can configure the RTD/TC non-isolated version to accept either TC or RTD, or a mixture of TC and RTD inputs. The TC isolated version provides 250 Vdc of channel-to-channel isolation to protect against external interference.

When used in a Triple Modular Redundant (TMR) configuration, temperature monitors must be installed adjacent to each other in groups of three. When used in this configuration, the system employs two types of voting to ensure accurate operation and to avoid single-point failures.

C US

OCP 0004

Specifications

Inputs

Signal

Accepts from 1 to 6 RTD or TC transducer signals.

Input Impedance

Greater than 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: 0 °C to +760 °C,

(+32 °F to +1400 °F).

Type K: 0 °C to +1370 °C,

(+32 °F to +2498 °F).

Type T: -160 °C to +400 °C,

(-256 °F to +752 °F).

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 +850 °C

(-122 °F to +1562 °F).

120Ω 3-wire & 4-wire nickel RTD:

-80 °C to +260 °C

(-112 °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 +850 °C

(-122 °F to +1562 °F).

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

****** Lower OK limit with external barriers is -50°C.

I/O Modules

Isolated TC I/O modules have 250 Vdc of isolation between channels.

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

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 lbs.).

Internal Barrier I/O Module

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 lbs.).

Rack Space Requirements

Monitor Module

1 full-height front slot.

I/O Modules

1 full-height rear slot.

Ordering Considerations

General

If the 3500/60 or 3500/61 is added to an existing 3500 System the following firmware and software versions (or later) are required:

3500/20 Module Firmware – Revision G

3500/01 Software – Version 2.00

3500/02 Software – Version 2.00

3500/03 Software – Version 1.10

Note: External Termination Blocks cannot be used with Internal Termination I/O modules.

When ordering I/O Modules with External Terminations the External Termination Blocks and Cables must be ordered separately.

Internal Barrier I/O Module

Consult the 3500 Internal Barrier specification sheet (part number 141495-01) if the Internal Barrier Option is selected.

Ordering Information

No Recorder Outputs

3500/60-AXX-BXX

A: I/O Module Type

- **0 1** RTD/TC Non-isolated with Internal Terminations
- **0 2** RTD/TC Non-isolated with External Terminations
- **0 3** TC Isolated with Internal Terminations
- **0 4** TC Isolated with External Terminations
- **0 5** RTD/TC Non-isolated with Internal Barriers and Internal Terminations

B: Agency Approval Option

- **0 0** None
- **0 1** CSA/NRTL/C (Class 1, Div 2)
- **0 2** ATEX/CSA (Class 1, Zone 2)

Note: Agency Approval Option B 02 is only available with Ordering Options A 01, A 03, and A 05.

Recorder Outputs

3500/61-AXX-BXX

A: I/O Module Type

- **0 1** RTD/TC Non-isolated with Internal Terminations

0 2 RTD/TC Non-isolated with External Terminations
0 3 TC Isolated with Internal Terminations
0 4 TC Isolated with External Terminations
0 5 RTD/TC Non-isolated with Internal Barriers and Internal Terminations

B: Agency Approval Option
0 0 None
0 1 CSA/NRTL/C (Class 1, Div 2)
0 2 ATEX/CSA (Class 1, Zone 2)

Note: Agency Approval Option B 02 is only available with Ordering Options A 01, A 03, and A 05.

External Termination Blocks

133908-01

RTD/TC Non-Isolated External Termination Block (Terminal Strip connectors).

133916-01

RTD/TC Non-Isolated External Termination Block (Euro Style connectors).

133924-01

TC Isolated External Termination Block (Terminal Strip connectors).

133932-01

TC Isolated External Termination Block (Euro Style connectors).

133892-01

3300/61 Recorder Output External Termination Block (Terminal Strip connectors).

133900-01

3300/61 Recorder Output External Termination Block (Euro Style connectors).

Cables

3500/60 and 3500/61 Transducer (XDCR) Signal to External Termination (ET) Block Cable

134544-AXXXX-BXX

A: Cable Length
0 0 0 5 5 feet (1.5 metres)
0 0 0 7 7 feet (2.1 metres)
0 0 1 0 10 feet (3.0 metres)
0 0 2 5 25 feet (7.5 metres)
0 0 5 0 50 feet (15 metres)
0 1 0 0 100 feet (30.5 metres)

B: Assembly Instructions
0 1 Not assembled
0 2 Assembled

3500/61 Recorder Output to External Termination (ET) Block Cable

134543- AXX – BXX

A: Cable Length
0 0 0 5 5 feet (1.5 metres)
0 0 0 7 7 feet (2.1 metres)
0 0 1 0 10 feet (3.0 metres)
0 0 2 5 25 feet (7.5 metres)
0 0 5 0 50 feet (15 metres)
0 1 0 0 100 feet (30.5 metres)

B: Assembly Instructions
0 1 Not assembled
0 2 Assembled

Spares

Shared components

133908-01

RTD/TC Non-Isolated External Termination Block (Terminal Strip connectors).

133916-01

RTD/TC Non-Isolated External Termination Block (Euro Style connectors).

133924-01

TC Isolated External Termination Block (Terminal Strip connectors).

133932-01

TC Isolated External Termination Block (Euro Style connectors).

00580442

Connector Header, Internal Termination, 9-position, Green.

00580443

Connector Header, Internal Termination, 12-position, Green.

00502133

Connector Header, Internal Termination, 12-position, Blue.

00580444

Connector Header, Internal Termination, 15-position, Green.

04425545

Grounding Wrist Strap (single use).

04400037

IC Removal Tool.

134542-01

3500/60 & 3500/61 Manual.

3500/60-Specific

133811-01

3500/60 Monitor (Replaced by PN 163179-01).

135344-01

Firmware IC.

133819-01

3500/60 RTD/TC Non-Isolated I/O Module Internal Terminations.

133827-01

3500/60 RTD/TC Non-Isolated I/O Module External Terminations.

133835-01

3500/60 TC Isolated I/O Module Internal Terminations.

133843-01

3500/60 TC Isolated I/O Module External Terminations.

136711-01

3500/60 RTD/TC I/O Module with Internal Barriers and Internal Terminations. (Not-Isolated)

3500/61-Specific

133811-02

3500/61 Monitor (Replaced by PN 163179-02).

135343-01

Firmware IC

133819-02

3500/61 RTD/TC Non-Isolated I/O Module Internal Terminations.

133827-02

3500/61 RTD/TC Non-Isolated I/O Module External Terminations.

133835-02

3500/61 TC Isolated I/O Module Internal Terminations.

133843-02

3500/61 TC Isolated I/O Module External Terminations.

133892-01

3500/61 Recorder Output External Termination Block (Terminal Strip connectors).

133900-01

3500/61 Recorder Output External Termination Block (Euro Style connectors).

136711-02

3500/61 RTD/TC I/O Module with Internal Barriers and Internal Terminations. (Not-Isolated)