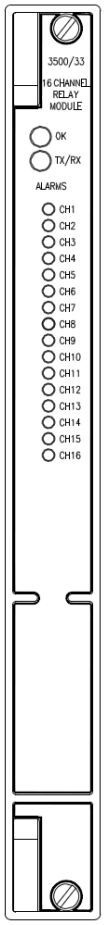
3500/33 16-Channel Relay Module

Bently Nevada* Asset Condition Monitoring



Description

The 16-Channel Relay Module is a full-height module that provides 16 relay outputs. Any number of 16-Channel Relay Modules can be placed in any of the slots to the right of the Rack Interface Module. Each output of the 16-Channel Relay Module can be independently programmed to perform needed voting logic.

Each relay utilized on the 16-Channel Relay Module includes "Alarm Drive Logic".

Programming for the Alarm Drive Logic uses AND and OR logic, and can use alarming inputs (Alert and Danger statuses), Not- OK, or individual PPLs from any monitor channel or any combination of monitor channels in the rack. Users program this Alarm Drive using the 3500 Rack Configuration Software to meet the specific needs of the application.

Note: Triple Modular Redundant (TMR) applications must use the 3500/34 TMR Relay Module. Consult the specification and ordering Information for the 3500/34 for details.

Specifications

Inputs

Power Consumption:

5.8 watts typical.

Outputs

OK LED:

Illuminated when module is functioning properly.

TX/RX LED:

Transmit and Receive. Flashes to indicate proper communications between this module and other modules within the rack.

CH ALARM LED:

Illuminated to indicate that the Relay Channel is in an alarm state.

Relays

Type:

Single-pole, double-throw (SPDT) relays.

Environmental Sealing

Epoxy-sealed.

Arc Suppressor

250 Vrms, installed as standard.

Contact Life

100,000 cycles @ 5 A, 24 Vdc or 240 Vac.

Operation

Four groups of four channels are switch selectable for Normally De-energized or Normally Energized.

Environmental Limits

Operating Temperature:

-30 °C to +65 °C

(-22 °F to +150 °F).

Storage Temperature:

-40 °C to +85 °C

(-40 °F to +185 °F).

Humidity:

95%, non-condensing.

Compliance and Certifications

EMC

Standards:

EN 61000-6-2 Immunity for Industrial Environments
EN 55011/CISPR 11 ISM Equipment
EN 61000-6-4 Emissions for Industrial Environments

European Community Directives:

(Through 4/19/2016):
EMC Directive 2004/108/EC
(From 4/20/2016):
EMC Directive 2014/30/EU

Electrical Safety

Standards:

EN 61010-1

European Community Directives:

LV Directive 2014/35/EU

For further certification and approvals information please visit the following website:

www.GEmeasurement.com

Hazardous Area Approvals

For a detailed listing of country and product specific approvals, refer to the *Approvals Quick Reference Guide* (document 108M1756) located at the following website: www.GEmeasurement.com.

Note: When used with Internal Barrier I/O Module, refer to specification sheet 141495-01 for approvals information.

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www.GEmeasurement.com

Contact Ratings for Standard Systems

Standard Relays

Min switched current

100mA @ 12 Vdc

DC specifications (Resistive load)

Max Switched Current:

5A

Max switched power:

70W @ 24Vdc

10W @ 48Vdc

9W @ 60Vdc

Max Switched Voltage:

60 Vdc

AC specifications (Resistive load)

Max Switched Current:

5A

Max switched power:

150VA

Max Switched Voltage:

30Vrms

Contact Ratings For Functional Safety Systems and Hazardous Area Systems:

Standard Relays

Min switched current

100mA @ 12 Vdc

DC specifications (Resistive load)

Max Switched Current:

5A

Max Switched Voltage:

30 Vdc

AC specifications (Resistive load)

Max Switched Current:

5A

Max Switched Voltage:

30Vac

Physical

Main Module:

Dimensions (Height x Width x Depth):

241 mm x 24.4 mm x 242 mm

(9.50 in. x 0.96 in. x 9.52 in.).

Weight:

0.7 kg (1.6 lb.)

I/O Module:

Dimensions (Height x Width x Depth):

241 mm x 24.4 mm x 99.1 mm

(9.50 in. x 0.96 in. x 3.90 in.).

Weight:

0.4 kg (1.0 lb.).

Rack Space Requirements

Main Module:

1 full-height front slot.

I/O Modules:

1 full-height rear slot.

Ordering Considerations

- The 3500/33 requires 3500 Rack Configuration software, version 3.3 or later
- The 3500/33 requires 3500 Data Acquisition software, version 2.40 or later
- The 3500/33 requires 3500 Data Display software, version 1.40 or later
- When used with a 3500/93 LCD Display module, the 3500/93 will require firmware revision P or later.
- When used with a 3500/94 VGA Display module, the 3500/94 will require firmware revision C or later.

Application Advisory

1. 3500 monitors ordered with the multiple approvals option (-02) are certified to Zone 2 standards (including ATEX and North American Zones). The Zone 2 standards specify increased spacing requirements at higher voltages, and the 3500/33 relays do not meet these spacing requirements. For this reason, 3500/33 relays ordered with the multiple approvals option have historically been limited to a lower voltage than those ordered with the other approvals options. Using higher voltages would violate the hazardous area certificates associated with the multiple approvals option. (The North American Division 2 standards associated with the CSA-only approvals option (-01) have been de-rated to 30Vrms to comply with 61010-1 type test requirements.)

2. If the 3500/33 is part of a functional safety (SIL) system, the functional safety certificate requires the restricted voltage. Higher voltages are not allowed for functional safety (SIL) systems.

3. It is possible to connect field wiring to the 3500/33 relays such that conductors are exposed to potential human contact. This could present a shock hazard at high voltages. Customers should only use the 3500/33 relays at voltages up to 30 Vrms. Appropriate safety precautions should be taken with respect to the shock hazard.

Ordering Information

For a detailed listing of country and product specific approvals, refer to the *Approvals Quick Reference Guide* (document 108M1756) located at the following website: www.GEmeasurement.com.

3500 16-Channel Relay Module

3500/33 -AXX-BXX

A: Output Module

- **0 1** 16-Channel Relay Output Module
- **0 2** 16-Channel Failsafe Relay Output Module

B: Agency Approval Option

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

Spares

149986-01

Spare 16-Channel Relay Control Module

149992-01

Spare 16-Channel Relay Output Module

149992-02

Spare 16-Channel Failsafe Relay Output Module

04425545

Grounding Wrist Strap (single use)

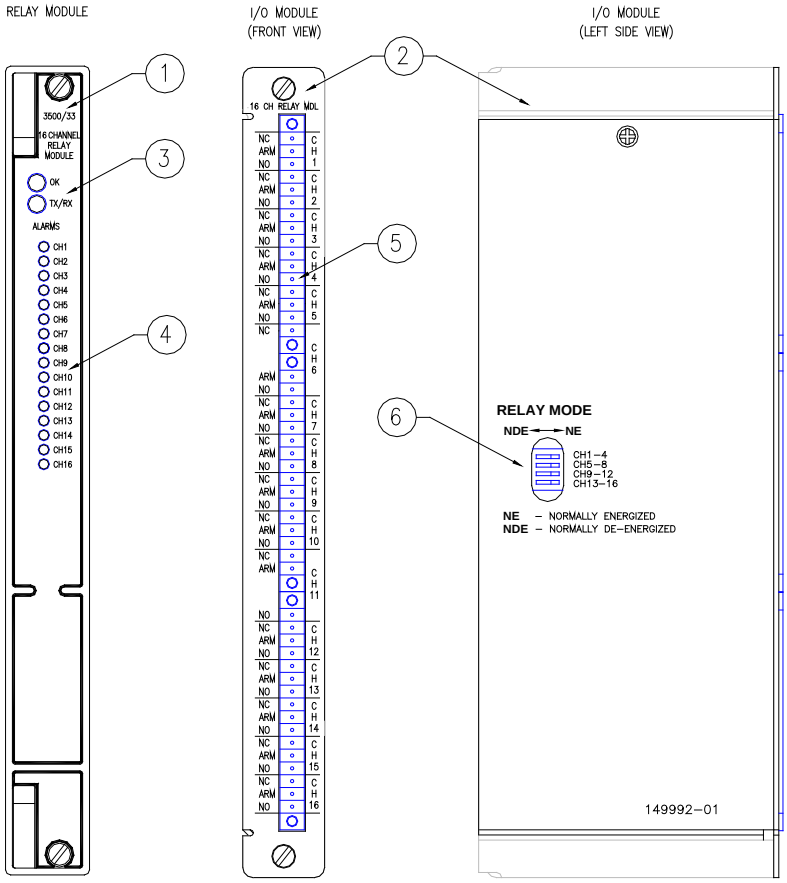
162291-01

16-Channel Relay Module Manual

00580453

Connector Header, Internal Termination, 16-position, Green

Graphs and Figures



1. Relay module
2. I/O module
3. Status LEDs
4. Relay channel LEDs
5. Relay contacts
6. Relay mode selection switch

Figure 1: Front and rear view of the 16-Channel Relay Module

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