3500/92 Communication Gateway

Datasheet

Bently Nevada Machinery Condition Monitoring

141542 Rev. L

Description

The 3500/92 Communication Gateway module provides extensive communication capabilities of all rack monitored values and statuses for integration with process control and other automation systems using both Ethernet TCP/IP and serial (RS232/RS422/RS485) communications capabilities. It also permits Ethernet communications with 3500 Rack Configuration Software and Data Acquisition Software.

Supported protocols include:

- Modicon Modbus protocol (via serial communications)
- Modbus/TCP protocol (a variant of serial Modbus used for TCP/IP Ethernet communications)
- Proprietary Bently Nevada protocol (for communication with 3500 Rack Configuration and Data Acquisition Software packages)

The Ethernet connection to the 3500/92 is an RJ45 connection for 10BASE-T star configuration Ethernet networks.

The 3500/92 supports the communication interfaces, communication protocols, and other features from the original 3500/90 with the exception of the primary value Modbus registers. The 3500/92 now has a Configurable Modbus Register Utility, which can provide the same functionality originally addressed by the primary value Modbus registers.

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Specifications

Inputs

Power Consumption	5.0 watts typical with ModbusRS232/ RS422 I/O Module 5.6 watts typical with Modbus RS485 I/O Module
Data Types	Collects data from other modules in the rack, such as current measured values with time stamp, module statuses, and current alarm statuses, via a high speed internal network. Exact data types returned depend on module type and channel configuration. Update Time: The data collection rate depends on rack configuration but will not exceed 1 second for all modules in the 3500 rack.

Outputs

OK LED	Indicates when the 3500/92 is operating properly.
TX/RX LED	Indicates when the 3500/92 is communicating with other modules in the 3500 rack.

Protocols

BNC Host Protocol	Communication with 3500 Configuration Software and 3500 Data Acquisition and Display Software over Ethernet TCP/IP.
Modbus	Based on AEG Modicon PI-MBUS-300 Reference Manual. Uses Remote Terminal Unit (RTU) transmission mode.
Ethernet	
Communication Link	Ethernet, 10Mbps, and conforms to IEEE802.3
Protocol	Ethernet TCP/IP frame and Modbus/TCP
Connection	RJ-45 (telephone jack style) for 10BASE-T Ethernet cabling

Environmental Limits

Main and I/O Module	
Operating Temperature	-30 °C to +65 °C (-22 °F to +149 °F)
Storage Temperature	-40 °C to +85 °C (-40 °F to +185 °F)
Humidity	95%, non-condensing

Physical

Main Board	
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	0.82 kg (1.8 lb.)

I/O Modules	
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	0.44 kg (0.96 lb.)

Rack Space Requirements

Monitor Module	1 full-height front slot
I/O Modules	1 full-height rear slot

Compliance and Certifications (Approvals Pending)

FCC

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

EMC

European Community Directive:

EMC Directive 2014/30/EU

Standards:

EN 61000-6-2; Immunity for Industrial Environments
EN 61000-6-4; Emissions for Industrial Environments

Electrical Safety

European Community Directive:

LV Directive 2014/35/EU

Standards:

EN 61010-1

RoHS

European Community Directive:

RoHS Directive 2011/65/EU

Cyber Security

Designed to meet IEC 62443

Maritime

DNV GL rules for classification – Ships, offshore units, and high speed and light craft

ABS Rules for Condition of Classification, Part 1

- Steel Vessels Rules
- Offshore Units and Structures

Functional Safety

SIL 2

Hazardous Area Approvals

For the detailed listing of country and product specific approvals, refer to the *Approvals Quick Reference Guide* (108M1756) available from Bently.com.

cNRTLus

Class I, Zone 2: AEx/Ex nA nC ic IIC T4 Gc;
Class I, Zone 2: AEx/Ex ec nC ic IIC T4 Gc;
Class I, Division 2, Groups A, B, C, and D;

T4 @ Ta= -20˚C to +65˚C (-4˚F to +149˚F)
When installed per drawing 149243 or 149244.