4B FLEX-NET SYSTEM
I²oT
IT MAKES SENSE

4B Components Limited

IE-NODE (Industrial Ethernet Node)

Remote Sensor Monitoring for PLC's & Automation Systems

Key Features

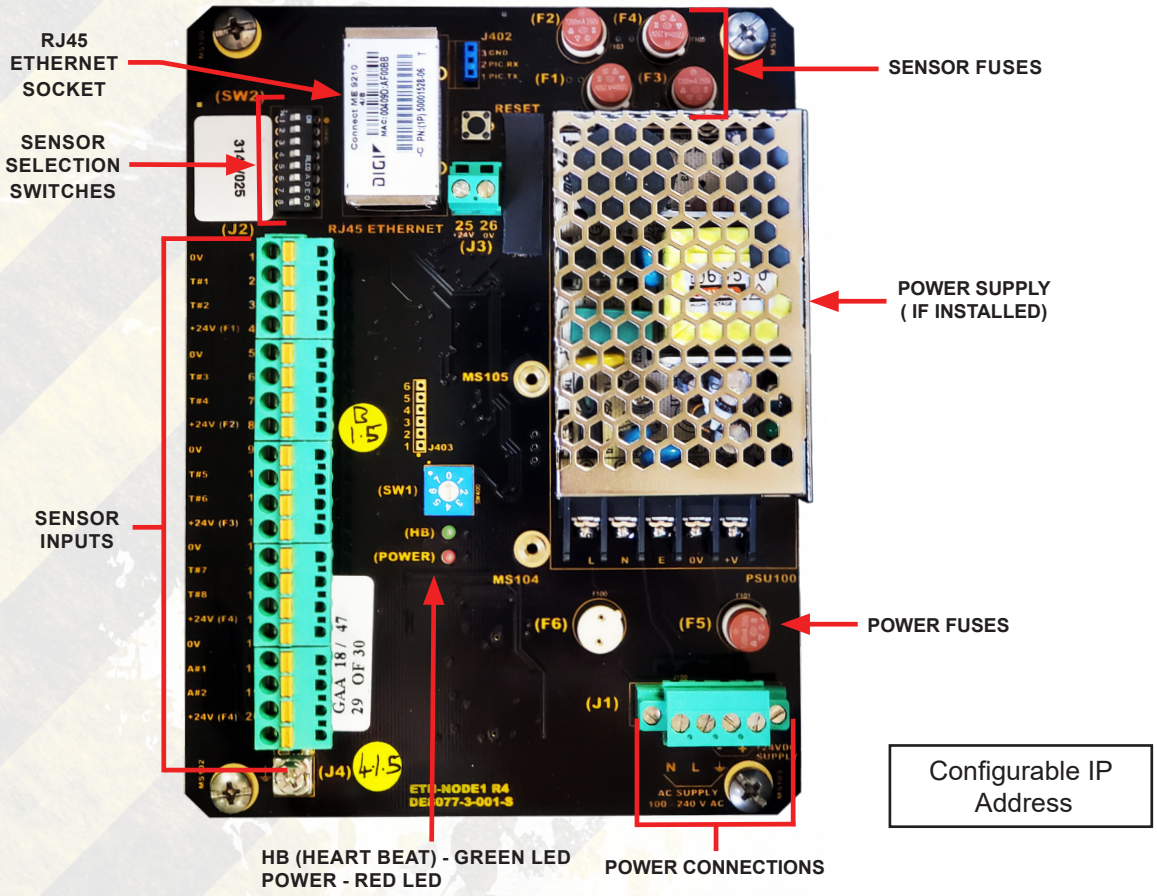
- Sensor Interface for PLC's & Automation Systems
- Supports PROFINET, EtherNet/IP and Modbus TCP/IP protocols
- Up to 16 Total Sensor Inputs with Available Expansion Boards
- Configurator Software for Easy Network Set Up and Visual Overview of All Devices

Powered by HazardMon.com

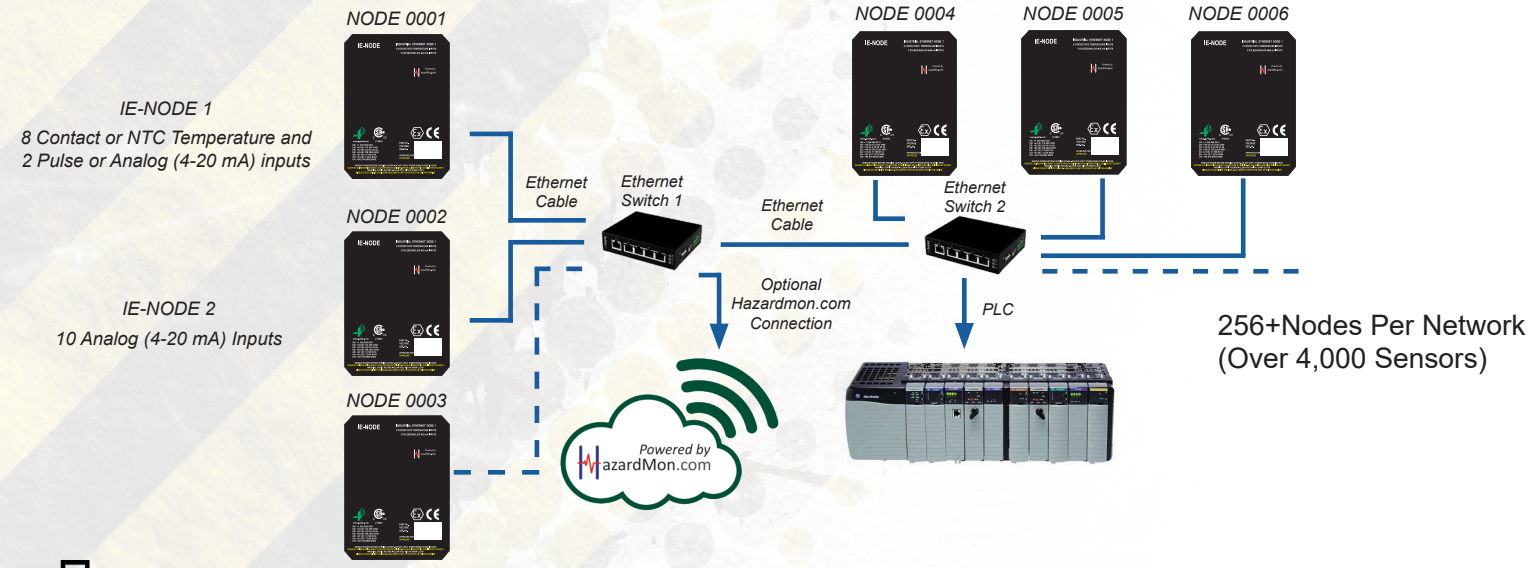
C US

CE & ATEX Versions Available

BETTER BY DESIGN



NETWORK DIAGRAM



SENSOR EXPANSION BOARDS (OPTIONAL)

Two expansion boards are available for the IE-NODE to expand total sensor inputs from 10 to 16.

1. The ETH-NODE-AUXI-6NTC expansion board allows for the support of up to 6 additional NTC temperature sensors or 6 contact sensors, or any combination of 6.
2. The ETH-NODE-AUXI-6AN expansion board allows for up to 6 additional 4-20 mA (current loop) sensors.

Both boards add the capability to allow for an RS485 Modbus RTU connection to be made to access all sensor information.

NTC Expansion Board

APPLICATION

The Industrial Ethernet Node (IE-NODE) is a remote monitoring interface designed to provide sensor data to PLC's or other automation and control systems.

The IE-NODE is available in two versions, both with a total of 10 sensor inputs. Version 1 has 8 contact or NTC temperature inputs, and 2 pulse or 4-20 mA (current loop) inputs. Version 2 has 10 inputs for 4-20 mA (current loop) sensors.

Both units can be expanded to 16 sensor inputs with the installation of optional expansion boards.

The IE-NODE operates by reading its sensor inputs and sending processed data when requested by another system (e.g. PLC). The units are equipped with an RJ45 Ethernet socket and supports PROFINET, EtherNet/IP and Modbus TCP/IP protocols for easy integration with Siemens, Allen-Bradley Rockwell, Delta V, Modicon and other PLC's or automation devices.

The IE-NODE's network configurator software provides a visual view of all devices on the network. It allows for easy identification of each unit on the network and allows for network settings to be changed as needed.

PARTS NUMBERS & ACCESSORIES

- ETH-NODE1V46C — IE-NODE 1 (120 to 240 VAC / 24 VDC)
- ETH-NODE1V4C — IE-NODE 1 (24 VDC)
- ETH-NODE2V46C — IE-NODE 2 (120 to 240 VAC / 24 VDC)
- ETH-NODE2V4C — IE-NODE 2 (24 VDC)
- ETH-NODE-AUXI-6NTC — NTC Expansion Board (6 NTC Input)
- ETH-NODE-AUXI-6AN — Analog Expansion Board (6 4-20mA Inputs)

4B IE-Node is Compatible with a Wide Range of Sensors. Below is a list of 4B Sensors available from stock. If you have another brand of sensor that you would prefer to use please contact the 4B Tech Team (309) 698-5611

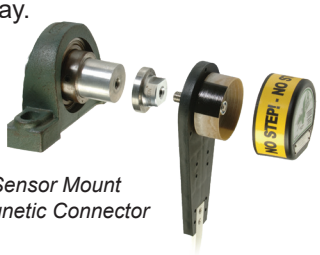
IE-NODE SENSORS

Class II Div. 1 Groups E, F and G Approved (USA & Canada)

1 Belt Speed -

The P800 is an inductive proximity sensor with a solid state relay and the MilliSpeed provides a 4-20 mA output. It can sense a ferrous metal target on a rotating shaft from up to 1/2" away.

Speed Sensor (P8004V10C or MIL8001V4C)



Whirligig® Shaft Sensor Mount with Mag-Con™ Magnetic Connector

2 Bearing Temperature -

The ADB series are designed to allow the depth of the probe to be adjustable depending on the size of the bearing, and attach using the existing grease zerk threads.

ADB (ADB20V3C/D3 or ADBMIL1V4C/D2)

4B Tech Team professional testing equipment available for purchase -

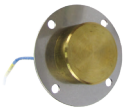
SpeedMaster

ADB & Lug Tester

3 Belt Misalignment -

Touchswitch (TS2V4C)

The Touchswitch has a force activated contact signal. When contact from the belt occurs an alarm is generated.



Rub Block - Round (KIT-RUB-5 or KIT-RUB-9)

Rub Block - Rectangular (KIT-RUB-1 or KIT-RUB-8)

Rub blocks process temperature information. When the belt rubs against the brass block, heat from friction generates an alarm.

4 Plug Indication -

Binswitch Elite (BSE1V10C)

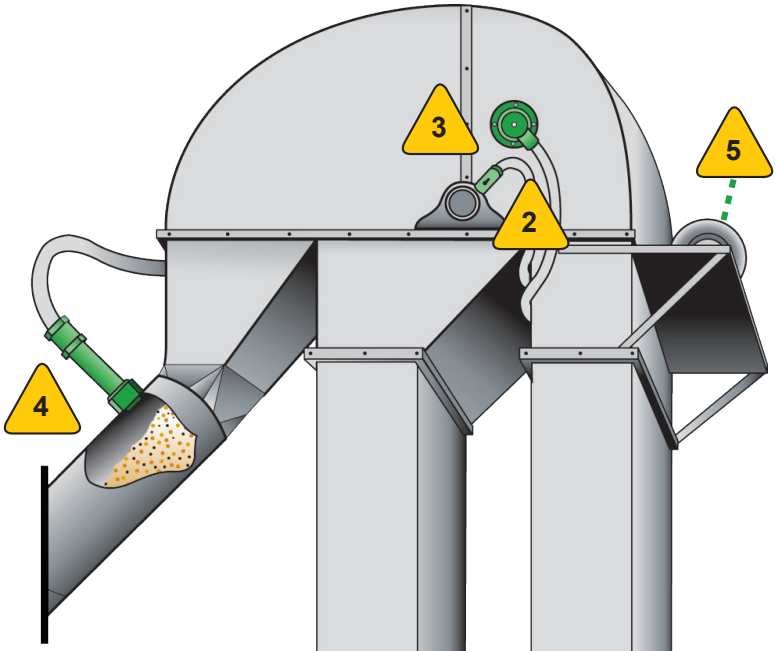
The Binswitch Elite is a capacitance point plug/level indicator with automatic material build up compensation for bulk granular solids or liquids.

5 Surface Temperature -

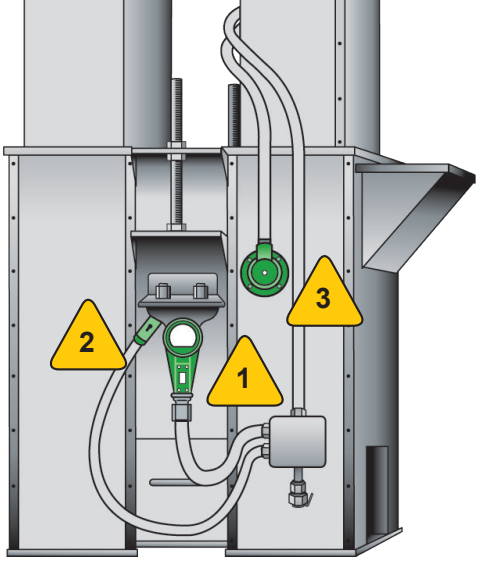
Lug Sensor (KIT-LUG-ADB20 or KIT-LUG-MIL)

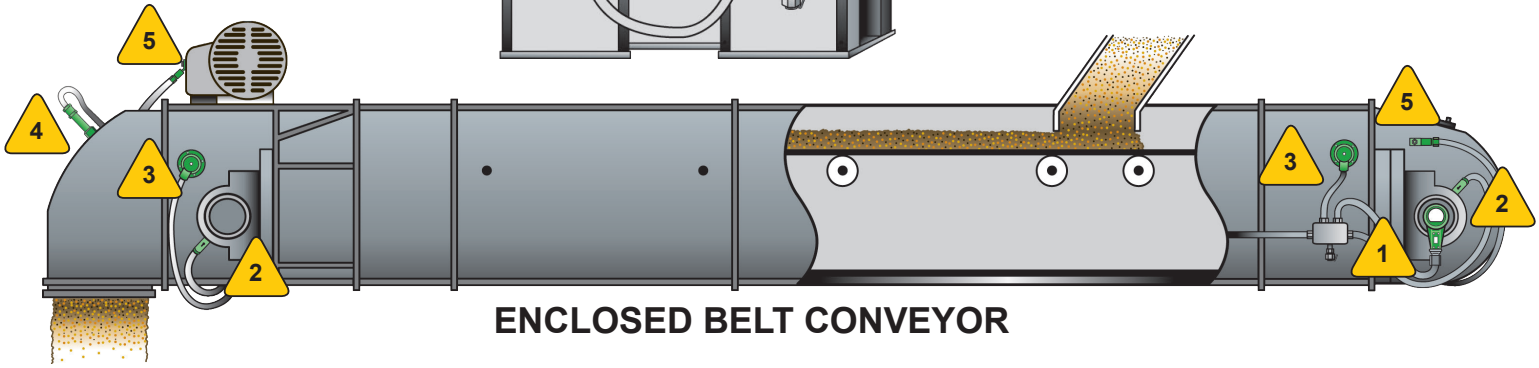
The lug sensor mounts to the conveyor housing to detect the heat generated by a pulley misalignment. It can also be used to detect overheating motors and gearboxes.

TYPICAL SENSOR LOCATIONS



BUCKET ELEVATOR





ENCLOSED BELT CONVEYOR

EASY ORDER KITS

Easy order kits for the most common monitoring system configurations are shown below.

For additional kits and options visit: www.go4b.com

BUCKET ELEVATOR
KIT-ETH-BE1

Industrial Ethernet Node (ETH-NODE1V4C)
Qty. 1 – Industrial Ethernet Node with 8 contact or NTC inputs and 2 pulse or 4-20 mA inputs

1 ***Belt Speed - Milli-Speed (MIL8001V4C)***
Qty. 1 - one sensor located on either side of the boot shaft.

2 ***Bearing Temperature - ADB Sensor (ADB20V3C/D3)***
Qty. 4 - One sensor for the bearings at each end of the head and boot shafts.

3 ***Belt Misalignment - Touchswitch (TS2V4C)***
Qty. 4 - Sensors work in pairs, one for each side of the belt on the head and boot sections.

OPTIONAL SENSORS

4 ***Plug Indication - Binswitch Elite (BSE1V10C)***
Qty. 1 - One located near the top of the spouting by the discharge.

5 ***Surface Temperature - Lug Sensor (KIT-LUG-ADB20)***
Qty. 2 - Monitor for overheating motors and/or gearboxes.

4B TECH TEAM SERVICE

- *Help In selecting Equipment*
- *On Site Start-Up / Commissioning*
- *On Site Annual Product Testing*
- *24 Hour Tech Support*

BELT CONVEYOR
KIT-ETH-BC1

Industrial Ethernet Node (ETH-NODE1V4C)
Qty. 1 – Industrial Ethernet Node with 8 contact or NTC inputs and 2 pulse or 4-20 mA inputs.

6 NTC Expansion Board (ETH-NODE-AUXI-6NTC)
Qty. 1 – Industrial Ethernet Node Expansion board with 6 additional contact or NTC inputs.

1 ***Belt Speed - Milli-Speed (MIL8001V4C)***
Qty. 1 - one sensor located on either side of the boot shaft.

2 ***Bearing Temperature - ADB Sensor (ADB20V3C/D3)***
Qty. 4 - One sensor for the bearings at each end of the drive and tail shafts.

3 ***Belt Misalignment - Touchswitch (TS2V4C)***
Qty. 4 - Sensors work in pairs, one for each side of the belt on the drive and tail sections.

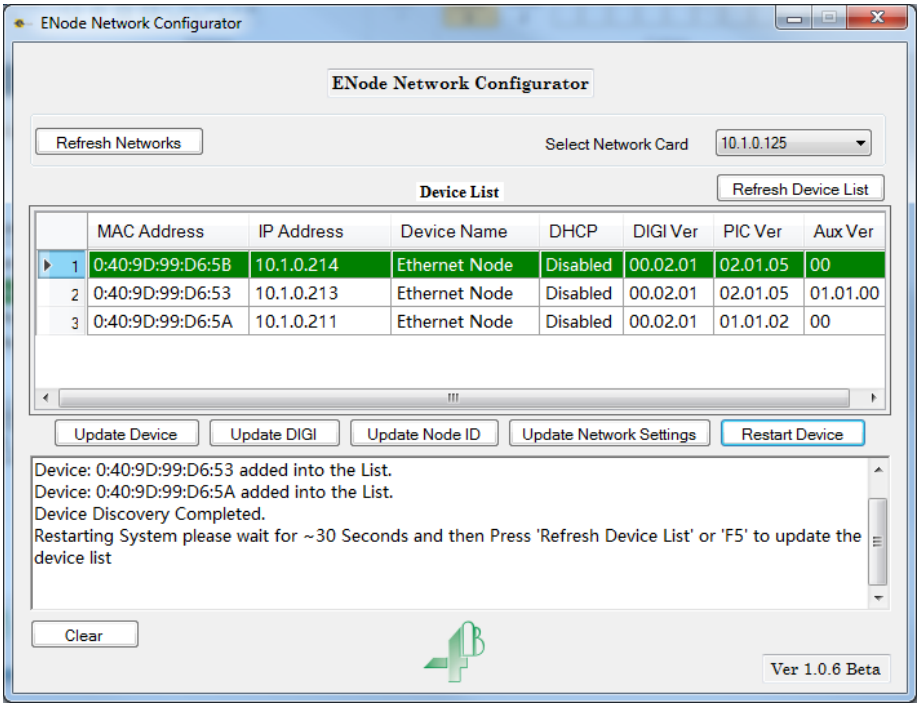
5 ***Tail Pulley Misalignment - Lug Sensor (KIT-LUG-ADB20)***
Qty. 2 - One for each side of the housing on the tail section to monitor for pulley misalignment.

OPTIONAL SENSORS

4 ***Plug Indication - Binswitch Elite (BSE1V10C)***
Qty. 1 - One located near the top of the drive section by the discharge.

5 ***Surface Temperature - Lug Sensor (KIT-LUG-ADB20)***
Qty. 2 - Monitor for overheating motors and/or gearboxes.

CONFIGURATION SOFTWARE



The IE-NODE network configurator software provides you with a visual view of all devices on the network. It allows for easy identification for each unit on the network, and allows you to change network settings as needed.

Alternatively, the network settings can be configured through the IE-Node built-in web server.

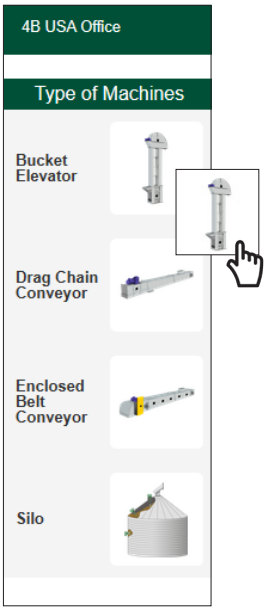
SYSTEM CONFIGURATION SETTINGS

4B Components Ltd. provides free add-on instructions for Allen Bradley PLC's, ControlLogix® and CompactLogix® allowing easily implemented control logic that supports the functionality of the IE-NODE. 4B also has sample code and a GDSML file for easy integration into Siemens SIMATIC S7 PLC's.

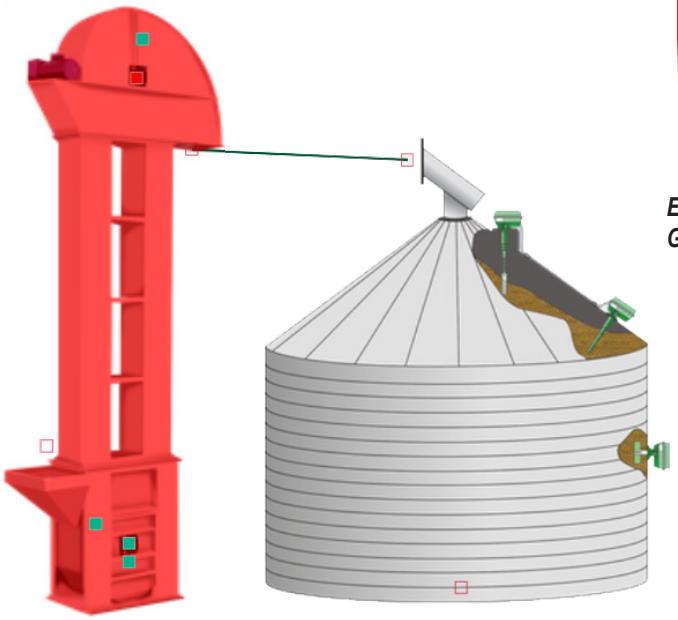
Scope: Bucket_Elevator Show: All Tags

Name	Value	Force Mask	Style	Data Type
ENodeData[1].ETH_ENODE_1.Temperature[0]	{...}	{...}		NTC_Inputs
ENodeData[1].ETH_ENODE_1.Temperature[1]	{...}	{...}		NTC_Inputs
ENodeData[1].ETH_ENODE_1.Temperature[1].Temperat...	69.2		Float	REAL
ENodeData[1].ETH_ENODE_1.Temperature[1].ShortCircuit	0		Decimal	BOOL
ENodeData[1].ETH_ENODE_1.Temperature[1].OpenCirc...	0		Decimal	BOOL
ENodeData[1].ETH_ENODE_1.Temperature[2]	{...}	{...}		NTC_Inputs
ENodeData[1].ETH_ENODE_1.Temperature[2].Temperat...	69.3		Float	REAL
ENodeData[1].ETH_ENODE_1.Temperature[2].ShortCircuit	0		Decimal	BOOL
ENodeData[1].ETH_ENODE_1.Temperature[2].OpenCirc...	0		Decimal	BOOL
ENodeData[1].ETH_ENODE_1.Temperature[3]	{...}	{...}		NTC_Inputs
ENodeData[1].ETH_ENODE_1.Temperature[3].Temperat...	70.1		Float	REAL
ENodeData[1].ETH_ENODE_1.Temperature[3].ShortCircuit	0		Decimal	BOOL
ENodeData[1].ETH_ENODE_1.Temperature[3].OpenCirc...	0		Decimal	BOOL
ENodeData[1].ETH_ENODE_1.Temperature[4]	{...}	{...}		NTC_Inputs
ENodeData[1].ETH_ENODE_1.Temperature[4].Temperat...	72.2		Float	REAL
ENodeData[1].ETH_ENODE_1.Temperature[4].ShortCircuit	0		Decimal	BOOL
ENodeData[1].ETH_ENODE_1.Temperature[4].OpenCirc...	0		Decimal	BOOL

BUILD YOUR OWN DISPLAY!



Drag and Drop Your Equipment!



Receiving Leg — Silo 2

User Defined Labels

Example of Graphical Display

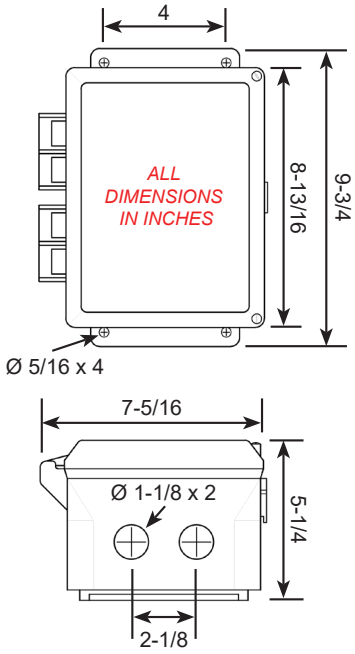
The IE-NODE has in-built network support for Hazardmon.com service connectivity. HazardMon is a secure cloud based hazard monitoring solution providing status notifications and data logging for bucket elevators and conveyors. Live system status, graphs and historical data can be viewed on any web-enabled device (smartphone, tablet PC, desktop or laptop computer).

To review all of the available features, and to see how the system works for yourself register for a free demo account at: www.hazardmon.com.

IE-NODE SPECIFICATIONS

IE-NODE Versions 1 & 2

Supply Voltage	120 to 240 VAC / 24 VDC (ETH-NODE1V46C or ETH-NODE2V46C) 24 VDC (ETH-NODE1V4C or ETH-NODE2V4C)
Power Dissipation	12 Watts Maximum
Sensor Supply	24 VDC @ 800 mA (Across Fuse 1 - Fuse 4)
Power Terminals	14 AWG / 4 mm^2
Signal Terminals	16 AWG / 2.5 mm^2
PLC Communications	PROFINET, EtherNet/IP and Modbus TCP/IP
Height	9.7 in. (246 mm)
Width	7.4 in. (188 mm)
Depth	4 in. (102 mm)
Fixing Centers	8.75 x 4 in. (222 x 102 mm)
Cable Entry	2 Holes - 1-1/8 in. (28 mm) Diameter - 3/4 in. Conduit
Weight	2.5 lbs / 1.1 kg
Protection	IP66
Approvals	CSA Class II Div 2 Groups F and G T130°C Tamb -20°C to +50°C ATEX & CE (Versions Available)



Rockwell Automation

SIEMENS

For more information and a quote for your monitoring application, contact 4B today!

www.go4b.com/usa

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