

Hazardous Location Instrumentation

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**HAZARDOUS LOCATION
INSTRUMENTATION**

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or referred to within this publication are the property of their respective trademark holders.*

Explosive Environment Equipment Policy

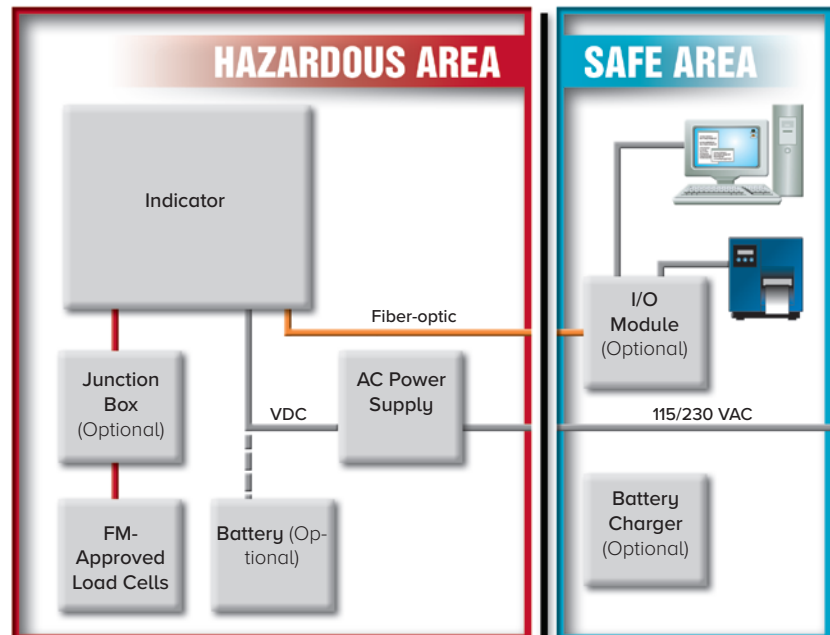


Caution: The equipment contained within this Explosive Environment section requires greater attention to specification and installation guidelines. Improper specification, installation or service of these products can result in loss of equipment or serious injury.

Rice Lake Weighing Systems has assembled the very best intrinsically safe and explosion-proof equipment. In order to properly specify, install and service this equipment, it is necessary that our distributors understand and appreciate the possible risks involved.

Persons involved in selection and installation of intrinsically safe equipment should have knowledge of but not limited to the following:

- Explosive environment designations: Class, Division and Group
- Standards and codes applicable to hazardous environment equipment
- Equipment liability
- Theory of intrinsically safe, explosion-proof and purged systems
- Equipment specification guidelines
- Proper installation procedures
- Service precautions
- NFPA 70, "National Electrical Code (NEC) Handbook"
- NFPA 496, "Classification of Gases, Vapors, and Dusts for Electrical Equipment in Hazardous (Classified) Locations"
- ANSI/UL 913, "Standard for Intrinsically Safe Apparatus and Associated Apparatus for use in Class I, II and III, Division 1 Hazardous Locations"
- ANSI/ISA RP 12.6, "Installation of Intrinsically Safe Instrument Systems for Hazardous (Classified) Locations"
- FM Approval Standard 3610, "Approval Standard, Intrinsically Safe Apparatus and Associated Apparatus for use in Class I, II and III, Division 1 Hazardous Locations"
- FM Approval Standard 3615, "Approval Standards, Explosion Proof Electrical Equipment"
- "Electrical Installations in Hazardous Locations"



Plant Safety Engineers and Certified Electricians should always be involved in the specification and installation of any explosive environment equipment.

Please see Hazardous Area Classification on page 573 for assistance in selecting hazardous area control equipment for your application requirements.

Hazardous Area Classification

For PDF version visit www.ricelake.com



For assistance in selecting hazardous area control equipment for your application requirements, please complete this form and submit, along with a description of the application, to:

Rice Lake Weighing Systems

Attn: Hazardous Environment
230 West Coleman Street
Rice Lake, WI 54868
Telephone: 715-234-9171 • Fax: 715-234-6967

| | | |
|--|-----------------------------------|-------------------------------|
| RLWS File #: _____ | Date: _____ | For Rice Lake Office Use Only |
| Sales Order #: _____ | Checked By: _____ | |
| Equipment PN#(s) & Serial Number(s): _____ | | |
| Factory Mutual Not Applicable _____ | (International Orders Only) _____ | |

HAZARDOUS LOCATION INSTRUMENTATION

RICE LAKE CUSTOMER INFORMATION:

Rice Lake Customer Name: _____ Customer Number: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone: (_____) _____ Fax: (_____) _____

Contact Name: _____
(Printed name) (Signature) (Date)

Authorized Signature: _____
(Printed name) (Signature) (Date)

END USER INFORMATION:

End User Company Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone: (_____) _____ Fax: (_____) _____

Contact Name: _____
(Printed name) (Signature) (Date)

Authorized Signature: _____
(Printed name) (Signature) (Date)

Title: _____

(The following information is to be defined and completed by the END USER'S plant safety engineer or other authorized party)

Hazardous Area Classification: Class _____, Division _____, Group _____, Temperature Class _____

Zone _____, Group _____, Temperature Class _____

Specific Hazard/Material (please print): _____

Defining Individual: _____
(Printed name) (Signature) (Date)

Defining Authority (Title): _____

Please retain a copy of this completed form for your records.

Explosive Environment Solutions



Caution: The equipment contained within this Explosive Environment section requires greater attention to specification and installation guidelines. Improper specification, installation or service of these products can result in loss of equipment or serious injury.

EXPLOSION PROOF SYSTEM

What is an explosion-proof indicator?

It is simply a digital weight indicator enclosed in a special case. The purpose of an explosion-proof indicator is not, as the name suggests, to protect the indicator. Instead, the case prevents any explosion WITHIN the case from causing subsequent fire or explosion in the surrounding atmosphere.

For example, in a grain elevator application, combustible dusts (Class II hazardous atmosphere) may be present. A spark in a non-explosion-proof indicator could ignite an elevator-wide explosion. However, with an explosion-proof indicator, the spark (or even an explosion) is contained within the case. The hazardous atmosphere cannot be ignited, and the elevator is protected.

ADVANTAGES

- Explosion containment
- Requires low maintenance
- No electronics
- No moving parts

DISADVANTAGES

- Cannot indicate failure of containment capability
- Cost of protection per cubic foot increases with enclosure size
- Promotes condensation
- Cumbersome, limited access
- Causes harmful heat buildup
- Limited sizes
- Bulky designs
- Excessive weight

PURGE SYSTEM

Purged systems are ideal for hazardous environments and use positive pressure to prevent particles, gases and fibers from entering the controller enclosure. As an added safeguard, a differential pressure switch automatically cuts off power when the pressure falls below the acceptable level. Type X, Y and Z purging hardware is available that meets National Fire Protection Association (NFPA) article 496 guidelines.

The three configurations are as follows:

Type X Pressurizing: Reduces the classification within the protected enclosure from Division 1 to Safe.

Type Y Pressurizing: Reduces the classification within the protected enclosure from Division 1 to Division 2.

Type Z Pressurizing: Reduces the classification within the protected enclosure from Division 2 to Safe.

ADVANTAGES

- Reduces heat buildup
- Inhibits metal corrosion
- Requires low maintenance
- Increases equipment longevity
- Allows fast access to equipment
- Reduces moisture and dust buildup
- Reduces classification within enclosure
- Continuous system status indication
- Protects enclosures up to 450 cubic feet
- Allows use of any enclosure shape
- Cost of protection per cubic foot decreases with enclosure size

DISADVANTAGES

- Contains moving parts
- Requires instrument air supply
- Some systems contain electronics
- Some systems require electrical power

INTRINSICALLY SAFE BARRIER SYSTEM

Intrinsically safe load cells and safety barriers take the explosion proof principle a step further. Intrinsic safety ensures the indicator's electrical wiring and components are, by design, incapable of releasing enough energy to ignite flammable or combustible atmospheric mixtures in their most easily ignitable concentrations. In short, an intrinsically safe device eliminates the conditions for an explosion, no matter what the circumstances.

ADVANTAGES

- Limits energy to device
- Requires low maintenance
- No moving parts
- Ideal for sensors

DISADVANTAGES

- One barrier is required for each conductor
- Project cost increases with number of conductors
- Offers no protection against heat, moisture and dust
- Requires protection or installation in nonclassified area
- 24 VDC, 50 mA maximum power and signal strength limit

Hazardous Atmospheres

(for reference only)

Hazardous atmospheres are divided into three general classes and two divisions:

CLASS I:

Flammable gases or vapors

CLASS II:

Combustible dusts

CLASS III:

Ignitable fibers or flyings

DIVISION 1:

Hazard exists under normal conditions

DIVISION 2:

Hazardous material is handled, processed or stored. Hazard is not normally present, but may be released due to accident or equipment malfunction.

CLASS I:

Flammable gases or vapors

CLASS I, GROUP A:

- Acetylene

CLASS I, GROUP B:

- Acrolein (inhibited)
- Arsine
- Outadiene
- Ethylene oxide
- Hydrogen
- Manufactured gases containing more than 30% hydrogen by volume
- Propylene oxide
- Propylnitrate

CLASS I, GROUP C:

- Acetaldehyde
- Allyl alcohol
- N-butylaldehyde
- Carbon monoxide
- Crotonaldehyde
- Cyclopropane
- Diethyl ether
- Diethylamine
- Epichlorohydrin
- Ethylene
- Ethylenimine
- Ethyl mercaptan
- Ethyl sulfide
- Morpholine
- 2-nitropropane
- Tetrahydrofuran
- Unsymmetrical dimethyl hydrazine
- (UMDH 1, 1-dimethyl hydrazine)

CLASS I, GROUP D:

- Acetic acid
- Acetone
- Acrylonitrile
- Ammonia
- Benzene
- Butane
- 1-butanol (butyl alcohol)
- 2-butanol (secondary butyl alcohol)
- N-butyl acetate
- Isobutyl acetate
- Di-isobutylene
- Ethane
- Ethanol (ethyl alcohol)
- Ethyl acetate
- Ethyl acrylate (inhibited)
- Ethylene diamine (anhydrous)
- Ethylene dichloride
- Ethylene glycol monomethyl ether
- Gasoline
- Heptanes
- Hexanes
- Isoprene
- Isopropyl ether
- Mesityl oxide
- Methane (natural gas)
- Methanol (methyl alcohol)
- 3-methyl 1-butanol (isoamyl alcohol)
- Methyl ethyl ketone
- 2-methyl 1-propanol (isobutyl alcohol)
- 2-methyl 2-propanol (tertiary butyl alcohol)
- Petroleum naphtha
- Pyridine
- Octanes
- Pentanes
- 1-pentanol (amyl alcohol)
- Propane
- 1-propanol (propyl alcohol)
- 2-propanol (isopropyl alcohol)
- Propylene
- Styrene
- Toluene
- Vinyl acetate
- Vinyl chloride
- Xylenes

CLASS II:

Combustible Dusts

CLASS II, GROUP E

Atmospheres containing:

- Aluminum, magnesium or their commercial alloys
- Metals of similarly hazardous characteristics with a resistivity of 100 ohm per centimeter

CLASS II, GROUP F

Atmospheres containing:

- Carbon black, charcoal, coal or coke dusts containing more than 8 percent total volatile material
- Dusts sensitized by other materials, presenting an explosion hazard and having a resistivity greater than 100 ohm per centimeter and equal to or less than 100 megohm per centimeter

CLASS II, GROUP G

Atmospheres containing:

- Flour
- Starch
- Grain
- Combustible plastics or chemical dusts having resistivity greater than 1 megohm per centimeter

CLASS III:

Ignitable Fibers or Flyings

Atmospheres containing:

- Rayon
- Cotton
- Other textiles

Combustible fiber manufacturing and processing plants such as:

- Cotton gins
- Cottonseed mills
- Flax processing plants
- Clothing manufacturing plants
- Sawmills
- Other woodworking locations.

Easily ignitable fibers including:

- Rayon
- Cotton (including cotton linters and cotton wastes)
- Sisal or henequen
- Istle
- Jute
- Hemp
- Tow
- Cocoa
- Oakum
- Baled waste kapok
- Spanish moss
- Excelsior
- Sawdust
- Wood chips

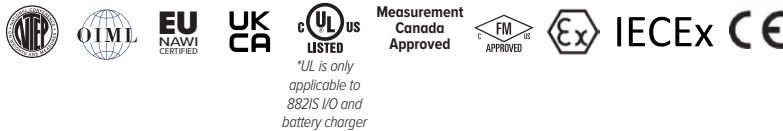
882IS/882IS Plus

Intrinsically Safe Digital Weight Indicator

HAZARDOUS LOCATION
INSTRUMENTATION



Approvals



Standard Features

- LCD display with white LED backlight
- T4 temperature rating
- Battery life display icon
- Numeric keypad (882IS Plus)
- Duplex fiber -optic interface
- Power ON/OFF; battery save mode
- Configurable local/remote mode
- I/O module option: one serial port, optional analog output, optional fieldbus cards, Ethernet TCP/IP
- Time & date (requires I/O module)
- Setpoint functionality using secondary 920i indicator
- FM Entity Approved for use in hazardous locations per Rice Lake Weighing Systems control drawing file number 180948

Rice Lake Weighing Systems warrants that all Rice Lake Weighing Systems intrinsically safe (IS) equipment and systems installed by a qualified electrician will operate per written specifications as confirmed by the distributor/OEM and accepted by Rice Lake Weighing Systems. All systems and components are warranted against defects in materials and workmanship for one year. All Rice Lake Weighing Systems intrinsically safe equipment carries a Factory Mutual approval and is documented on various control drawings. Each device is manufactured by Rice Lake Weighing Systems factory authorized personnel. To preserve the warranty and Factory Mutual approval, all repairs or replacement of circuit boards or components housed within the enclosures must be performed by Rice Lake Weighing Systems factory authorized personnel.



CAUTION! The equipment contained within this Explosive Environment section requires greater attention to specification and installation guidelines. Improper specification, installation or service of these products can result in loss of equipment or serious injury.

Specifications

Power:

Input: 5.8 to 7.9 VDC, 100 to 175 mA

Power Consumption:

0.25 W

Battery (optional):

60 hours with 4 × 350 ohm load cells
80 to 100 hours with 1 × 350 ohm load cell
8 to 10 hour charging time

Load Cell Excitation:

3.0 VDC at 87.5 ohm, 4.6 VDC at 700 ohm

Load Cell Current:

34 mA 4 × 350 ohm load cells or 8 × 700 ohm load cells

Load Cell Cabling:

Four- and six- wire with remote sensing (recommended)

Analog Signal Input Range:

-0.5 mV/V to 4.0 mV/V

Analog Signal Sensitivity:

0.2 μV/graduation minimum
1.5 μV/graduation recommended

Resolution:

Internal: 1,000,000 counts

Display: 10,000

The maximum number of allowed graduations will vary by application

Conversion Rate:

60 updates/second

Annunciators:

Center of Zero, Gross, Net, Motion, lb, kg, oz, g

Motion Band:

Configurable to ± 1 or ± 3 graduations,
1 second delay (or Off)

Display Increments:

1, 2, 5

Display:

Seven-digit, seven-segment LCD display 121 × 24 dot matrix messaging area with white LED backlight

Keys/Buttons:

Flat membrane panel, tactile feel

882IS: Zero, Gross/Net, Tare, Print, Units Conv, Start, Stop, On/Off

882IS Plus: Zero, Gross/Net, Tare, Print, Units Conv, Start, Stop, Full numeric keypad, On/Off

Temperature:

14 °F to 104 °F (-10 °C to 40 °C)

Rating/Material:

IP66 enclosure

Stainless steel

Weight:

6.1 lb (2.8 kg)

Warranty:

One-year limited

Intrinsic Safety:

FM/cFM

Class I,II,III, Division 1, Groups ABCDEFG T4

Class I, Zone 0 AEx/Ex ia IIC T4 Ga

Zone 21 AEx/Ex ib IIC T135°C Db

Ta = -10 °C to 40 °C (14 °F to 104 °F)

ATEX/IECEx

II 1 G Ex ia IIC T4 Ga

II 2 D Ex ib IIC T135°C Db

Approvals:

NTEP CC 19-015

Measurement Canada AM-6124C

OIML R76/2006-A-NL1-21.11

EU Test Certificate T11166

CE Marked

UKCA

cULus Listed*

FM Entity

EX-ATEX

IECEx

*cULus is only applicable to 882IS I/O and battery charger

882IS/882IS Plus

Intrinsically Safe Digital Weight Indicator

Part Number/Price

| Part # | Description | Price |
|-------------------|--|------------|
| 882IS | | |
| 195091 | 882IS 7.5VDC with standard tilt stand | \$1,525.00 |
| 185288† | 882IS with battery and charger (North American plug) | \$2,455.00 |
| 194231†† | 882IS with battery and charger (EU plug) | \$2,455.00 |
| 196273††† | 882IS with battery and charger (AU plug) | \$2,455.00 |
| 185290 | 882IS with power supply with 10 ft cable | \$2,685.00 |
| 194235 | 882IS indicator with power supply and metric thread adapter | \$2,685.00 |
| 882IS Plus | | |
| 195092 | 882IS Plus 7.5VDC with standard tilt stand | \$1,525.00 |
| 185291† | 882IS Plus with battery and charger (North American plug) | \$2,455.00 |
| 194233 | 882IS Plus with battery and charger (EU plug) | \$2,455.00 |
| 196274††† | 882IS Plus with battery and charger (AU plug) | \$2,455.00 |
| 185293 | 882IS Plus with power supply | \$2,685.00 |
| 194236 | 882IS Plus indicator with power supply and metric thread adapter | \$2,685.00 |



† US plug (NA) - Type B



†† Euro Plug - Type E



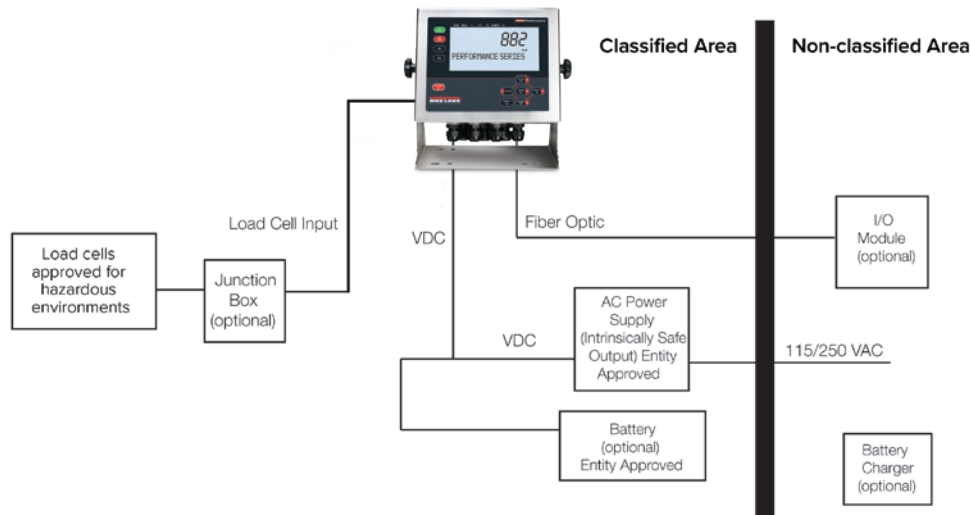
††† BS1363 (UK) - Type G



†††† AS 3112 (Australian) - Type I

Options/Accessories

| Part # | Description | Price |
|--------|--|------------|
| 180831 | Battery option, IS6V2 | \$685.00 |
| 194191 | Battery charger, IS6V2, 100-240 VAC NEMA 5-15 (North American plug) | \$275.00 |
| 194189 | Battery charger, IS6V2 100-240 VAC (EU plug) | \$275.00 |
| 194192 | Battery charger, IS6V2 100-240 VAC (UK plug) | \$275.00 |
| 197591 | Battery charger, IS6V2 100-240 VAC (Australian plug) | \$275.00 |
| 180837 | Power supply, 882IS mb-EPS-100-240-X2, dual output 6.8 VDC 200mA | \$1,055.00 |
| 195109 | Power supply, 882IS mb-EPS-100-240-X2, dual output 6.8 VDC 200mA, 1/2 in NPT-M20 | \$1,095.00 |
| 179668 | Cable, M12 power 22 in hazardous location (for battery version) | \$76.00 |
| 179669 | Cable, M12 power 10 ft hazardous location | \$149.00 |
| 179670 | Cable, M12 power 50 ft hazardous location | \$185.00 |
| 179671 | Cable, M12 power 100 ft hazardous location | \$360.00 |
| 190979 | Lockout device for M12 cable | \$24.00 |
| 163751 | Tilt stand, 882IS | \$41.00 |
| 179678 | Tilt stand, 882IS battery option | \$45.00 |
| 177850 | Panel mount option, gasketed non-NEMA seal | \$215.00 |
| 206735 | Battery tester, 882IS | \$375.00 |



Complete Control Drawings available at www.ricelake.com

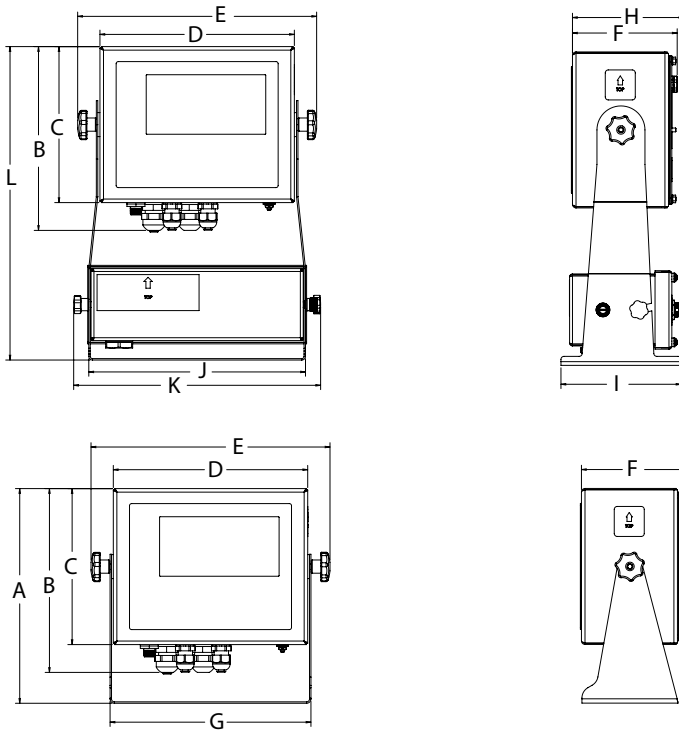
882IS/882IS Plus

Intrinsically Safe Digital Weight Indicator

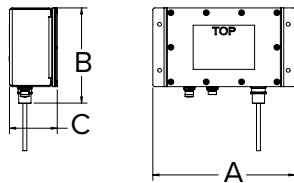
Dimensions

| 882IS/882IS Plus | | | |
|--------------------------------------|------------------|---|-------------------|
| Without Battery | | | |
| A | 8.94 in (227 mm) | E | 9.96 in (253 mm) |
| B | 7.66 in (195 mm) | F | 4.36 in (111 mm) |
| C | 6.50 in (165 mm) | G | 8.37 in (213 mm) |
| D | 8.10 in (206 mm) | | |
| With Optional Battery and Tilt Stand | | | |
| H | 4.64 in (118 mm) | K | 10.29 in (261 mm) |
| I | 5.00 in (127 mm) | L | 13.06 in (332 mm) |
| J | 9.03 in (229 mm) | | |

HAZARDOUS LOCATION INSTRUMENTATION



| 882IS/882IS Plus | | | |
|-----------------------|------------------|---|-----------------|
| Optional Power Supply | | | |
| A | 9.25 in (235 mm) | C | 3.11 in (79 mm) |
| B | 6.20 in (158 mm) | | |



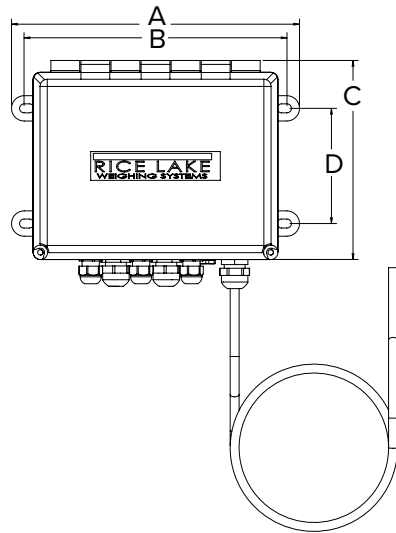
Optional I/O Module

| Part # | Description | Price |
|--|---|------------|
| 177709 | Module, 882 Smart I/O interface | \$975.00 |
| 196166 | Module, 882 Smart I/O (EU power cord) | \$975.00 |
| 196769 | Option, fiber/RS232 6x6 FRP enclosure, fiber-optic 232 converter, external power supply | \$545.00 |
| 196770 | Option, fiber/RS422 6x6 FRP enclosure, fiber-optic RS422 converter, external power supply | \$545.00 |
| 78026 | Cable, plastic optical 100 ft. includes polishing kit | \$175.00 |
| 78027 | Cable, plastic optical 200 ft. includes polishing kit | \$328.00 |
| 197384 | Kit, polishing POF cable | \$63.00 |
| Option Cards | | |
| 190528 | Single analog output (0-10 VDC, 0-20 mA, 4-20 mA) | \$425.00 |
| 190530 | 882 option, Ethernet/IP | \$620.00 |
| 190531 | 882 option, DeviceNet | \$620.00 |
| 190532 | 882 option, ProfiNet | \$620.00 |
| 190534 | 882 option, Profibus | \$620.00 |
| 190533 | 882 option, Modbus TCP | \$620.00 |
| 190535 | 882 option, EtherCAT | \$620.00 |
| Remote Indicator for Setpoint Functionality | | |
| 203343 | 920i universal indicator, 115 VAC, no A/D, with 882IS iRite software for setpoints | \$2,265.00 |
| 203344 | 920i wall mount indicator, 115 VAC, no A/D, with 882IS iRite software for setpoints - required fiber converts (PN 196769 and PN 196770) | \$2,895.00 |

HAZARDOUS LOCATION INSTRUMENTATION

Dimensions

| 882IS/882IS Plus | | | |
|---------------------|-------------------|---|------------------|
| Optional I/O Module | | | |
| A | 10.00 in (254 mm) | C | 6.91 in (176 mm) |
| B | 9.13 in (232 mm) | D | 4.00 in (102 mm) |



INTRINSICALLY SAFE

EL232 XPCD

Explosion Proof Remote Serial Display



HAZARDOUS LOCATION INSTRUMENTATION

NOTE: Custom enclosures as requested. All explosion-proof devices are now built-to-order, so please coordinate purchase of these items with one of our application specialists.

Part Number/Price

| Part # | Description | Est. Weight | Price |
|--------|--|-------------|------------|
| 20904 | EL232 XPCD explosion proof remote serial display | 60 lb | \$7,675.00 |

Dimensions

| EL232 XPCD | | | |
|------------|---------------------|---|--------------------------------------|
| A | 10.50 in (266.7 mm) | E | 10.50 in (266.7 mm) |
| B | 9.50 in (241.3 mm) | F | 7.50 in (190.5 mm) |
| C | 5.81 in (147.7 mm) | G | 11.75 in (298.5 mm) (glass diameter) |
| D | 11.75 in (298.5 mm) | H | 7/16 in (11 mm) dia holes |



CAUTION! The equipment contained within this Explosive Environment section requires greater attention to specification and installation guidelines. Improper specification, installation or service of these products can result in loss of equipment or serious injury.

Standard Features

- 20 mA current loop or RS-232 input
- Compatible with most Rice Lake indicators
- NEMA Type 4, 7CD, 9EFG enclosure

Specifications

Input Voltage:

115 VAC, 60 Hz

NEC Classifications:

Class I, Division 1, Groups C & D; Class II, Division 1, Groups E, F & G and Class III hazardous environments

Baud Rate:

1200, 2400, 4800 and 9600

Interfaces:

20 mA current loop and RS-232
Please consult factory for model numbers and interface requirements

Display:

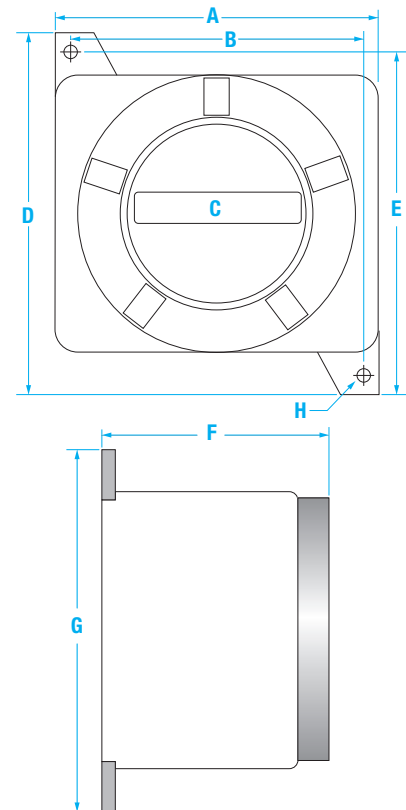
High-intensity, red LED, 0.8 in (20.3 mm) high digits

Weight:

Approximately 60 lb (27.2 kg)

Warranty:

One-year limited



Intrinsic Safety Barriers



Standard Features

- Each system features excitation, sense and signal barriers
- Available in an enclosure for external mounting or in a chassis mount version
- R Stahl® or equivalent barriers that are approved by Factory Mutual (FM)

Specifications

Part #31201:

+ Excitation 9001/01-158-390-101

Voltage Range:

+12 VDC

Internal Resistance:

55 ohm

Open Circuit Voltage:

15.7 VDC

Short Circuit Current:

390 mA

Classifications:

FM approved, UL listed,
CSA certified, SA, CE marked

Part #31202:

± Excitation 9002/10-187-270-001

Voltage Range:

±6 VDC

Internal Resistance:

46 ohm

Open Circuit Voltage:

18.7 VDC

Short Circuit Current:

278.8 mA

Classifications:

FM approved, UL listed,
CSA certified, SA, CE marked

Part #31540:

+ Excitation 9001/01-083-442-10

Voltage Range:

+6 VDC

Internal Resistance:

48 ohm

Open Circuit Voltage:

8.4 VDC

Short Circuit Current:

442 mA

Classifications:

FM approved, UL listed,
CSA certified, SA, CE marked

Part #70724:

+ Sense 9001/01-086-020-101

Voltage Range:

+6 VDC

Internal Resistance:

470 ohm

Open Circuit Voltage:

8.6 VDC

Short Circuit Current:

18.3 mA

Classifications:

FM approved, UL listed,
CSA certified, SA, CE marked

Part #30263:

± Signal 9002/77-093-040-001

Voltage Range:

±6 VDC

Internal Resistance:

482 ohm

Open Circuit Voltage:

9.6 VDC

Short Circuit Current:

40.9 mA

Classifications:

FM approved, UL listed,
CSA certified, SA, CE marked

Part #31542:

RS-232 9002/22-093-300-001

Voltage Range:

±6 VDC

Internal Resistance:

75.8 ohm

Open Circuit Voltage:

9.6 VDC

Short Circuit Current:

297.5 mA

Classifications:

FM approved, UL listed,
CSA certified, SA, CE marked

Part #30264:

± Sense 9002/10-187-020-001

Voltage Range:

±6 VDC

Internal Resistance:

482 ohm

Open Circuit Voltage:

18.7 VDC

Short Circuit Current:

22 mA

Classifications:

FM approved, UL listed,
CSA certified, SA, CE marked

Part #30266:

- Excitation 9001/00-086-390-101

Voltage Range:

-0.6 VDC

Internal Resistance:

30 ohm

Open Circuit Voltage:

8.6 VDC

Short Circuit Current:

377.6 mA

Classifications:

FM approved

Part #69491:

- Excitation 9001/02-016-150-111

Voltage Range:

±0.7 VDC

Internal Resistance:

12.8 ohm

Open Circuit Voltage:

1.64 VDC

Short Circuit Current:

127.4 mA

Classifications:

FM approved, UL listed,
CSA certified, SA, CE marked

Part #69492:

+ Sense 9001/01-168-020-101

Voltage Range:

±12 VDC

Internal Resistance:

898 ohm

Open Circuit Voltage:

16.8 VDC

Short Circuit Current:

18.7 mA

Classifications:

FM approved, UL listed,
CSA certified, SA, CE marked

Part #69493:

- Sense 9001/02-016-015-101

Voltage Range:

+0.7 VDC

Internal Resistance:

127 ohm

Open Circuit Voltage:

1.64 VDC

Short Circuit Current:

13.7 mA

Classifications:

FM approved, UL listed,
CSA certified, SA, CE marked

Part #72521:

- Excitation 9001/01-199-390-101

Voltage Range:

+16 VDC

Internal Resistance:

67 ohm

Open Circuit Voltage:

-19.9 VDC

Short Circuit Current:

382.7 mA

Classifications:

FM approved, CSA-certified,
CE marked

Part #30265:

+ Excitation 9001/01-086-390-101

Voltage Range:

+6 VDC

Internal Resistance:

30 ohm

Open Circuit Voltage:

8.6 VDC

Short Circuit Current:

377.6 mA

Classifications:

FM approved

HAZARDOUS LOCATION
INSTRUMENTATION

Intrinsic Safety Barriers

Part Number/Price

| Part # | Description | Est. Weight | Price |
|--|--|-------------|------------|
| Barrier Kit #1: (For models with +5 and -5 Volt excitation (10 volt)) | | | |
| 31202 | 9002/10-187-270-001, ± excitation barrier | 1 lb | \$475.00 |
| 30264 | 9002/10-187-020-001, ± sense barrier | 1 lb | \$495.00 |
| 30263 | 9002/77-093-040-001, ± signal barrier | 1 lb | \$495.00 |
| 109663 | DIN rail mounted kit #1 (includes 31202, 30264, 30263) | 2 lb | \$1,610.00 |
| Barrier Kit #2: (For models with + 10 Volt excitation) | | | |
| 31201 | 9001/01-158-390-101, + excitation barrier | 1 lb | \$415.00 |
| 69491 | 9001/02-016-150-111, - excitation barrier | 1 lb | \$370.00 |
| 69492 | 9001/01-168-020-101, + sense barrier | 1 lb | \$345.00 |
| 69493 | 9001/002-016-015-101, - sense barrier | 1 lb | \$395.00 |
| 30263 | 9002/77-093-040-001, ± signal barrier | 1 lb | \$495.00 |
| Barrier Kit #3: (For models with + 5 Volt excitation) | | | |
| 31540 | 9001/01-083-442-101, + excitation barrier | 1 lb | \$310.00 |
| 69491 | 9001/02-016-150-111, - excitation barrier | 1 lb | \$370.00 |
| 30263 | 9002/77-093-040-001, ± signal barrier | 1 lb | \$495.00 |
| If sense leads are required, use the following: | | | |
| 199867 | 900/01-086-075-101, + sense barrier | 1 lb | \$525.00 |
| 69493 | 9001/02-016-015-10, - sense barrier | 1 lb | \$395.00 |
| Miscellaneous Barriers: | | | |
| 30266 | 9001/00-086-390-101, - excitation barrier | 1 lb | \$345.00 |
| 30265 | 9001/01-086-390-101, + excitation barrier | 1 lb | \$345.00 |
| 72521 | 9001-01-199-390-101, + excitation barrier | 1 lb | \$450.00 |
| 197643 | Barrier, dual channel, RS-422 | 1 lb | \$485.00 |
| 31542 | 9002/77-093-300-001, RS-232 | 1 lb | \$450.00 |

Options/Accessories

| Part # | Description | Price |
|--------|--|----------|
| 33531 | DIN rail, 6 in length | \$12.00 |
| 35815 | IS barrier installation manual | \$15.00 |
| 110424 | FRP enclosure, up to 4 barriers (not included) | \$240.00 |
| 22828 | Ground terminal block | \$25.00 |
| 42219 | Barrier fuse (160 mA) | \$15.00 |
| 208123 | Isolator, barrier mount | \$5.00 |

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