

Featuring Dynacheck® – Automatic and Continuous Self-Checking Circuitry



Intellitrol®2
Overfill Prevention
Control Unit

IEC 61508
Certified
SIL 3



The Intellitrol®2 is designed to serve as a secondary overfill protection system for loading operations. It is intended for use in hazardous locations and is packaged in an explosion-proof (flameproof) enclosure and has US approvals and certifications.

The Intellitrol®2 performs a variety of monitoring functions and provides a number of outputs to control valves, pumps and other systems including Terminal Automation Systems (TAS). It has an integrated display to indicate system and monitoring status, a bypass capability, and communications for integration with TAS and other systems.

The Intellitrol®2 contains a pair of microprocessors, each with its own relay, that monitors critical functions. Only when both processors detect a safe condition will both relays close and make outputs permissive.

The Intellitrol®2 is designed to be Failsafe® and in the event of a failure (power, sensors, or internal electronics) the unit will enter a non-permissive (safe) state.

This state of the art Dynamic Self-Testing® system controller provides overfill prevention, vehicle ground verification and vehicle identification operating in a single enclosure. The Intellitrol®2 also provides the user with comprehensive diagnostic information, both locally on the exterior of the control unit housing and remotely to the terminal automation system via RS-485 communications.

FEATURES & BENEFITS

- Overfill prevention, ground verification and vehicle identification in one compact state of the art explosion-proof enclosure.
- Scully Dynacheck® automatic and continuous self-checking circuitry.
- Automatic detection of two-wire optic/thermistor or five-wire optic vehicle sensors.
- Monitoring of up to 8 two-wire or 12 five-wire vehicle sensors.
- Complete visual diagnostic display of overfill sensors status. Will not permit loading under any fault or wet sensor condition.
- When used with Scully Sensors, the Scully Intellitrol®2 Control Unit has been certified as part of a SIL 3 Overfill Prevention System.
- Easy connection to vehicles with rugged high impact industry standard plug and cable units.

TECHNICAL SPECIFICATIONS

Temperature Range:

- **Operating:** IC2 Models: -40° to +140°F (-40° to +60°C)
- **Storage:** -50° to +185°F (-45° to +85°C)

Power Requirements: 100 - 130 VAC (120 VAC Setting) or 200 - 250 VAC (240 VAC Setting. 50/60 Hz, 30 Watts maximum.

Enclosure: Explosion-proof weathertight housing with powder coated corrosion resistant finish. Weather-tight rating: Type 4X and IP 65.

Sensor Inputs: Up to 8 Scully two-wire optic/thermistor sensors (6 or 8 channels) or 12 five-wire optic sensors (maximum). Automatic detection of two-wire vs. five-wire sensors. 3-wire high-temperature thermistor sensors are not supported.

Ground Verification Inputs: The Intellitrol®2 can be configured via an internal jumper setting to monitor static ground verification based on:

- Ground Bolt/Ground Ball using Scully pioneered Dynamically Self-Testing® ground verification systems only or
- Automatic detection and reporting of the type of grounding. Either resistive ground or Ground Bolt/Ground Ball verification systems.
- Provides a method for setting the acceptable resistance level per API/NFPA for a good vehicle ground connection when automatic ground type detection is selected.

Deadman Input: An intrinsically safe input is provided for an optional Deadman switch.

Outputs: Three outputs are provided as follows:

- **Main Permissive Output:**

A Form-A (“normally open”) AC relay output with “monitored redundant contacts”. This output closes when all overfill prevention sensors are dry and functional, a proper ground connection, and/or vehicle I.D. (optional), and/or Deadman (optional) is established. This output is an AC control output and must only be used with AC voltage. This output should be used for product flow shutdown capability and is rated at 250 VAC, 5A resistive.

- **Main Form-C, Volt-Free Output Relay:**

A Form-C (“normally open” and “normally closed”) volt-free redundant relay output contact. These output contacts reverse state (“normally open” closes and “normally closed” opens) when all overfill prevention sensors are dry and functional, and a proper ground connection, and/or Deadman (optional), and/or vehicle I.D. is established. If a volt-free relay output contact is needed, the “normally open” relay output contact may be used for product flow shut down.

The “normally closed” relay output contact is intended for any additional non-critical output status reporting functions. This Form-C contact is rated at 250 VAC, 5A resistive.

- **Good Ground or Truck Present Output (non Fail-safe):**

A transistor switch is available to indicate that a good ground has been detected or that a truck is connected. This fully isolated output is designed to provide a control logic level signal to a Programmable Logic Controller (PLC) or a Solid State Relay. This output is capable of sinking up to 5mA (milliAmp). When the optoisolator is in the ON or conducting state, the maximum saturation voltage at rated current is 0.4 VDC. In the non-conducting or OFF state, the transistor is capable of withstanding up to 25.2 VDC.

Response Time: 450 milliseconds maximum after wet sensor or fault condition.

Communications Port: The communications port is a half-duplex, RS-485 multi-drop communications port, utilizing Modbus™ RTU (straight binary) communications protocol at 1200, 2400, 4800, 9600 or 19200 baud rate; 8 bits; even, odd or no parity.

Approvals: All Intellitrol®2 units fall under the approvals for:

- FM Approved for the U.S. and Canada: Explosion proof for Class I, Division 1, Groups C and D; with Intrinsically Safe outputs for connection to Class I, Division 1, Group C and D, and Class I, Zone 0, Group IIB, hazardous indoor and outdoor (Type 4X) locations, temperature class T4 at an ambient temperature of -40°C to +70°C.
- NEMA 4X rating, for either indoor or outdoor use and is Watertight, dust tight and corrosion resistant.

Shipping Weight: 31 lbs (14.1 kg). Refer to diagram for dimensions.



MODEL DESIGNATIONS

Model Designations

Prefixes

Suffixes

FM & CSA Approved =

IC2

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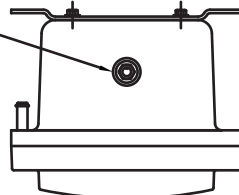
O Overfill Prevention

G Ground Verification

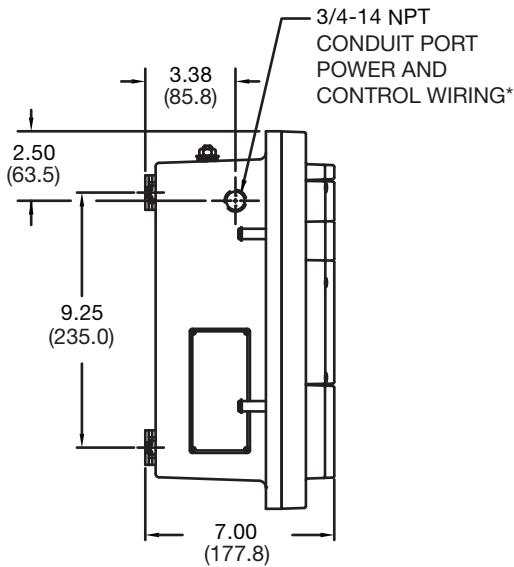
V Vehicle Identification

All Dimensions in Inches (Millimeters in Parenthesis)

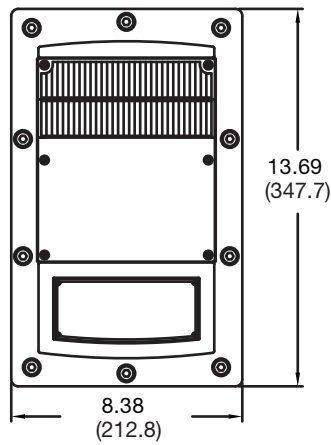
ENCLOSURE GROUND BONDING STUD



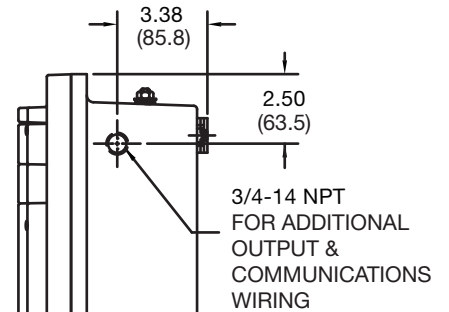
Top View



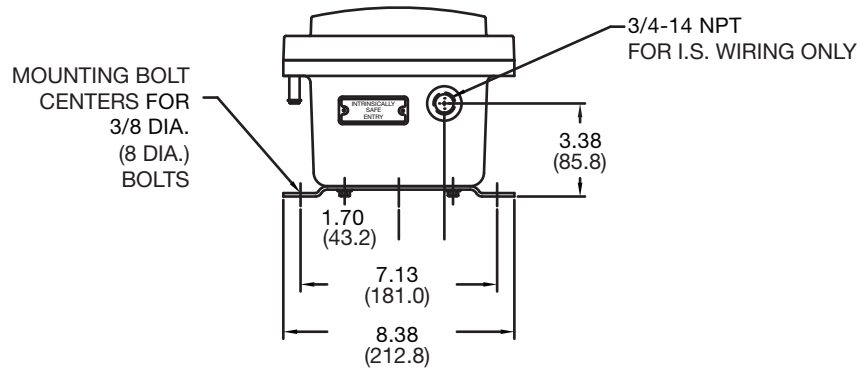
Side View Left



Front View



Side View Right



Bottom View

CONTROL UNITS

<i>Description</i>	<i>Part Number</i>
IC2-OG Intellitrol Overfill & Ground	09549
IC2-OGV Intellitrol Overfill, Ground & V.I.P.	09550

SYSTEM ACCESSORIES

<i>Description</i>	<i>Part Number</i>
Bypass Key Authorizer	08939
Deadman Control Switch Assembly	08863
USB to RS-485 Converter Kit (for communications)	09001
SC-8B Sculcon Junction Box, 10 Contacts/ 4 J Slots Green Plug, 30' Orange Coiled Cable	08677
SC-8A Sculcon Junction Box, 10 Contacts/ 2 J Slots Green Plug, 20' Orange Straight Cable	07581
SC-8A Sculcon Junction Box, 10 Contacts/ 2 J Slots Green Plug, 30' Orange Coiled Cable	08729
SC-6A Sculcon Junction Box, 8 Contacts/ 2 J Slots Green Plug, 20' Orange Straight Cable	07582
SC-6A Sculcon Junction Box, 8 Contacts/ 2 J Slots Green Plug, 30' Orange Coiled Cable	08156
10 Contact, 4 J-Slot Pull-Away Plug (SC-8B) with 30' Coiled Cable	36159
Pull-Away Plug Socket for Thermistor	09569
SC-6W Sculcon Junction Box, 6 Contacts/ 3 J Slots Blue Plug, 20' Blue Straight Cable	08139
SC-6W Sculcon Junction Box, 6 Contacts/ 3 J Slots Blue Plug, 30' Blue Coiled Cable	08159
6 Contact, 3 J-Slot Pull-Away Plug (SC-6WP) with 30' Coiled Cable	09672
Pull-Away Plug Socket for Optic (SJ-6)	08184

REPLACEMENT PARTS

<i>Description</i>	<i>Part Number</i>
Module Assembly, 2-OG 120V	09576
Module Assembly, 2-OGV 120V	09552
Module Assembly, 2-OG 240V	09551
Module Assembly, 2-OGV 240V	09577
Cover Bolt, M8 x 1.25 x 25mm	50005
Contact Fuse (F5, F8), 5A, Hi-interrupt	26372
Cover O-ring (gasket)	31340
Corrosion Inhibitor	40268
Lens Assembly (with 6 mounting screws)	08980
Display Module (with backing plate)	09553
Display Cable Feed-through	08982
Lens Mounting Screw, 8-32 x 3/4	50080
Retaining Ring, Cover Hinge	54039
Text Mask (English), Overfill and Ground	38052*
Text Mask (English), Overfill, Ground and Vehicle ID	38053*
Heat Sink Assembly	09481

*For a diagnostic display panel in a language other than English add -
"S" for Spanish, "F" for French, "I" for Italian, "D" for Danish or "G" for German