



THE 8800 SERIES RACK MONITOR

8800 Series Overfill Protection
& Ground Verification



OPW 
ENGINEERED SYSTEMS
a **DOVER** company

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ENGINEERING | WHAT'S NEXT

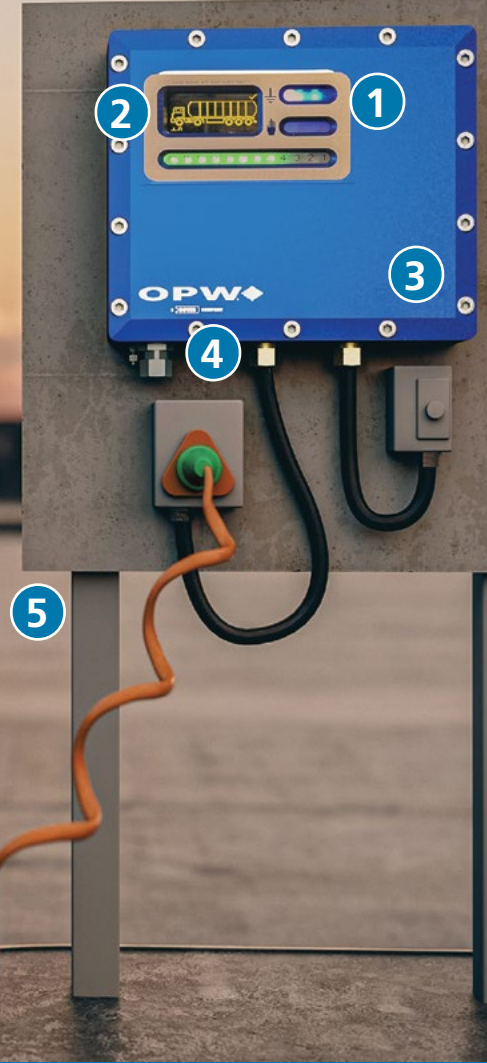
A PICTURE IS WORTH A THOUSAND WORDS

The 8870N Series Overfill Protection & Ground Verification Monitor from OPW Engineered Systems helps make miscommunication at the loading rack a thing of the past. Rather than relying on written directions or blinking lights to indicate a permissive or non-permissive status for API bottom loading of multi-compartment tank trucks, the 8870N rack monitor uses symbols and pictograms for a more intuitive and simpler to understand loading process.

This gives the driver added peace of mind that the loading operation is being performed properly and safely. This also allows the 8870N rack monitor to be used anywhere in the world, no matter the native language of the driver, region or country.

THE 8870N SERIES INTERFACE FEATURES

- 1 LED ground status-indicator lights
- 2 Enhanced detailed OLED display with diagnostic readout
- 3 Compact, low-profile housing withstands extreme weather conditions
- 4 Three separate output relays
- 5 Optional SmartSocket parking receptacle provides notification when plug is properly stored (Not pictured)



OPW 8870N Series

The OPW 8870N Overfill Protection and Ground Verification Monitors are designed for API bottom-loading applications on single and multi-compartment tank trucks at storage depots. It is the first unit with a simplified OLED Graphic Display. Vehicle Sensor and Grounding status is shown at a glance!

Product Specifications	
Input power supply	85-264 Vac 50/60Hz Auto-Switching
Nominal power consumption	4VA
Output relays	240V ac/dc 2AT
Communication	Optional RS485/mobus datacomms port
Operating temperature	-45°C to +70 °C
Response time	< 400ms
Approvals	ATEX / IECEx / QPS for NA and CAN / PESO
Enclosure	IP68 according to IEC 60529
Weight	7.3 kg
Dimensions	270x230x60 mm



NOTE: Based on the truck-wiring configuration, the 8870N Rack Monitor truck graphic displayed may vary.

8870N FEATURES

- **2-Wire or 5-Wire Optic** automatic sensor recognition technology
- **Combined** overfill protection and ground verification
- **120-/240-volt** auto-switching
- **Supports** up to 12 5-wire or 8 2-wire optic sensors
- **Self-checking** at Start-Up; continuous Self-Monitoring
- **Three relays** including one separate user-definable output relay: Overfill & Ground, Overfill, Ground, Smart Storage Hanger
- **Fail-safe** redundant permissive output relays
- **Intuitive** OLED graphic display
- **LED** individual status-indicator lights
- **Real-time** clock
- **Event logging** time stamped
- **Vehicle data** communication prepared
- **Sophisticated** wireless multiple-function and bypass key
- **Dead-man switch** connection available
- **Low-temperature** operational in extreme environmental conditions as low as -45°C
- **MODBUS** communication available
- **Conforms** to NEN EN13922, API RP1004 and VOC directive 94/63/EC
- **Combine** with OPW-Civacon 5-Wire Cane Probe for top-loading applications on tank truck or railcars
- **SIL 1** standard, SIL 2 optional

8851N FEATURES

- **5-wire Optic** sensor technology only
- **Combined** Optic overfill protection and ground verification
- **120-/240-volt** auto-switching
- **Supports** up to 12 5-wire optic sensor compartments
- **Self-checking**
- **Fail-safe** redundant permissive output relay
- **LED** status-indicator lights
- **Real-time** clock
- **Wireless** bypass key
- **Dead-man switch** connection available
- **Low-temperature** operational in extreme environmental conditions as low as -45°C
- **Combine** with Civacon Cane Probe for top-loading applications on tank truck or railcars
- **SIL-1** capabilities

OPW 8851N Series

The OPW 8851N 5-Wire Overfill Protection and Ground Verification Monitors are designed for API bottom-loading applications on single- and multi-compartment tank trucks at storage depots or for top-loading applications on tank trucks or railcars when combined with an OPW-Civacon 5-wire optic cane probe.

Product Specifications	
Input power supply	85-264 Vac 50/60Hz Auto-Switching
Nominal power consumption	4VA
Output relays	240V ac/dc 2AT
Communication	Optional RS485/422 datacomms port
Operating temperature	-45°C to +70 °C
Response time	< 400ms
Approvals	ATEX / IECEx / QPS for NA and CAN
Enclosure	IP68 according to IEC 60529
Weight	7.3 kg
Dimensions	270x230x60 mm



8811N FEATURES

- **Ground verification**
- **Fail-safe** redundant permissive output relay
- **120-/240-volt** auto-switching
- **LED** status-indicator lights
- **Dead-man switch** prepared
- **Low-temperature** operational in extreme environmental conditions as low as -45°C

FEATURES AT A GLANCE

	8870N	8851N	8811N
Overfill Protection	✓	✓	
Ground Detection	✓	✓	✓
OLED Graphic Display	✓		
LED Indicator Lights	✓	✓	✓
Smart Storage Hanger Compatible	✓*	✓*	
2-Wire	✓		
5-Wire Optic	✓	✓	N/A
Up to 12 Probes	✓	✓	N/A
120-/240-Volt Auto-Switching	✓	✓	✓
Sil 1 Standard	✓	✓	N/A
Sil 2 Optional	✓		

* Full features available on the 8870N;
Limited features available on the 8851N

OPW 8811N Series

For ground verification only, the OPW Civacon 8811N Ground Verification Controller is designed to allow the operator to visually confirm when a ground connection between the vehicle and the loading terminal is established. The controller is equipped with green and red LED's for visual status indication.

Product Specifications	
Input power supply	85-264 Vac 50/60Hz Auto-Switching
Nominal power consumption	4VA
Output relays	240V ac/dc 2AT
Operating temperature	-45°C to +70 °C
Response time	< 400ms
Approvals	ATEX / IECEx / QPS for NA and CAN
Enclosure	IP68 according to IEC 60529
Weight	7.3 kg
Dimensions	270x230x60 mm



OPW Smart Storage Hanger

The patent-pending OPW Smart Storage Hanger helps ensure safe storage of plug-and-cord assemblies when not connected to the truck. When used with an 8870N or 8851N rack monitor, connect a plug to the Smart Storage Hanger receptacle to verify the plug is properly seated and the pin connections are intact (8870N only).

PATENT-PENDING



SMART STORAGE HANGER FEATURES

- **Patent-pending receptacle** provides safe storage of plug assemblies while helping prevent excessive wear of plug components
- **Protects** against dirt and water ingress
- **Voltage-free** connection (powered by the Rack Monitor when connected)
- **Visually verifies** all wiring between the plug, cable and monitor are intact and connected correctly (8870N only)
- **AUX2 relay** can be activated at detection of Smart Storage Hanger:
 - Positive identification that plug is the parked position
 - Positive identification that the plug pins are functional (8870N only)
- **Aluminum** housing
- **Can be mounted** on any preferred location or the OPW Parking Adaptor stand with a Smart Storage Hanger configuration

Prod. No.	Description
7454E	10-Pin: 4-J Slots for the 8870N Rack Monitor
7154E	6-Pin: 3-J Slots for the 8851N Rack Monitor



The cable connections are verified and status displayed (8870N only)



The monitor verifies that the plug is properly seated after fueling. In this example, a relay has been configured to display a green-light indicator light when the plug is properly seated (not included)



Connect the plug to the Smart Storage Hanger receptacle



The Rack Monitor detects if the plug is properly seated

8800 Series Rack Monitor Contractor Packs

Contractor Packs have been created to make ordering monitors, junction boxes and cords/clamps easy. Select the rack monitor, junction box option (standard or breakaway) and cord/clamp type. We pack all the components in a single carton.



Rack Monitor



Junction Box



Plug

Prod. No.	Monitor	Cord/Clamp	Breakaway	Junction Box Item	Cord or Clamp Item
8870N-PACK1-B0	8870N	5-Wire Blue Optic	No	7500-7500	7100-7100
8870N-PACK2-B1	8870N	5-Wire Blue Optic	Yes	7540-7540	7120-7120
8870N-PACK1-G0	8870N	2-Wire Green	No	7500-7500	7300-7300
8870N-PACK2-G1	8870N	2-Wire Green	Yes	7510T-7510	7320-7320
8851N-PACK1-B0	8851N	5-Wire Blue Optic	No	7500-7500	7100-7100
8851N-PACK2-B1	8851N	5-Wire Blue Optic	Yes	7540-7540	7120-7120
8811N-PACK1-C1	8811N	Ground Clamp	No	7500-7500	7720-7720

Contractor Pack Ordering Information

1	2	3
8870N	PACK 1	B0



SCAN HERE FOR OTHER
PLUG AND CORD
OPTIONS, AND SELECT
ORDER GUIDE

1	RACK MONITOR 8870N Overfill Protection and Ground Verification w/OLED Display 8851N Overfill Protection and Ground Verification 8811N Ground Verification
2	JUNCTION BOX OPTION PACK 1 (Standard for 8870N, 8851N, 8811N) - 7500-7500 PACK 2 (Breakaway for 8870N) - 7540-7540 PACK 2 (Breakaway for 8851N) - 7510T-7510
3	CORD OR CLAMP ITEM B0 - 7100-7100 - 5-Wire Blue Optic Standard B1 - 7120-7120 - 5-Wire Blue Optic Breakaway G0 - 7300-7300 - 2-Wire Green Standard G1 - 7320-7320 - 2-Wire Green Breakaway C1 - 7720-7720 - Clamp with 40' Straight Cord

Popular Rack Monitor Accessories:



7300-7300*
2-Wire Green
Plug & Cord



7100-7100*
5-Wire Blue Optic
Plug & Cord



7720-7720*
Ground Clamp
with 40' Wire



7500-7500*
Junction Box

*Breakaway cord and junction box options are available. Visit www.opw-es.com for more information.