Product Data Sheet
00813-0100-4701, Rev DC
December 2024

Emerson Wireless SmartPower™ Solutions

- Intrinsically safe design enables routine maintenance in hazardous areas
- Predictable life specified under installed conditions
- Robust design for use in harsh environments
- Low level alerts for easy maintenance
- Keyed connection for easy and fail-safe replacement

Emerson wireless solution

IEC 62591 (*Wireless*HART®) ... the industry standard

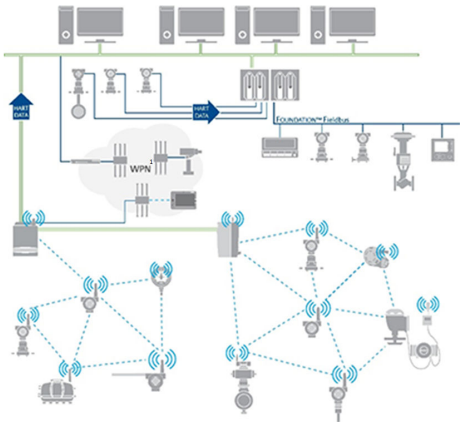
Self-organizing, adaptive mesh routing

- Backed by Emerson's proven experience in wireless field instrumentation and expert technical support.
- The self-organizing, self-healing network manages multiple communication paths for any given device. If an obstruction is introduced into the network, then data will continue to flow because the device has other established paths.

Reliable wireless architecture

- Standard Institute of Electrical and Electronics Engineers (IEEE) 802.15.4 radios
- 2.4 GHz Industrial, Scientific, and Medical (ISM) band sliced into 15 radio channels
- Time-synchronized channel hopping
- *Wireless*HART® technology delivers high reliability in challenging radio environment

Figure 1: Web plant network



Emerson's wireless

- Seamless integration to all existing host systems
- Native integration into DeltaV™ and Ovation™ is transparent and seamless
- Gateways interface with existing host systems using industry standard protocols including OPC, Modbus® Transmission Control Protocol/Internet Protocol (TCP/IP), Modbus Remote Terminal Unit (RTU), and EtherNet/IP™

Layered security keeps your network safe

- Ensures data transmissions are received only by the Wireless Gateway.
- Network devices implement industry standard encryption, authentication, verification, anti-jamming, and key management.
- Third party security verification including Achilles and FIPS197, with password strength monitoring, user-based login, password reset requirements, automatic lockout, and password expiration requirements.

Contents

SmartPower Solutions

Black power module

Designed for use with:

Rosemount 3051S Wireless Pressure Transmitter
Rosemount 3051SMV Wireless Pressure Transmitter
Rosemount 648 Wireless Temperature Transmitter
Rosemount 848T Wireless Temperature Transmitter
Rosemount 3308A Wireless Guided Wave Radar
Rosemount 2160 Wireless Level Switch
Rosemount 928 Wireless Gas Monitor
Rosemount 702 Wireless Discrete Transmitter
Rosemount 702 Wireless Plunger Arrival Transmitter
Rosemount 705 Wireless Totalizing Transmitter
Rosemount 802 Wireless Discrete Transmitter
Roxar CorrLog Wireless Corrosion Transmitter
Roxar SandLog Wireless Sand/Erosion Transmitter
Rosemount 4390 Series of Corrosion and Erosion Wireless Transmitter

Green power module

Designed for use with:

Rosemount 708 Wireless Acoustic Transmitter
Rosemount 3051 Wireless Pressure Transmitter
Rosemount 2051 Wireless Pressure Transmitter
Rosemount 248 Wireless Temperature Transmitter

Alternate power options

SmartPower Solutions Blue Power Module (see Blue Power Module Product Data Sheet**)**

- Recommended for energy intensive applications
- Double the lifetime, up to 10 years
- Compatible with most products using the Black Power Module
- Extended cover required
- Reference Blue Power Module datasheet for approved devices

Energy harvesting options (see Power Puck Product Data Sheet**)**

- Perpetuum Intelligent Power Module (IPM) accepts harvested energy and delivers to transmitter
- Perpetua® Power Pucks convert heat into thermoelectric energy and send to IPM
- Compatible with most products using the Black Power Module
- Contact Emerson representative for approved devices

Ordering Information

Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See for more information on material selection.

SmartPower Solutions Ordering Information

The starred offerings (★) represent the most common options and should be selected for best delivery. The non-starred offerings are subject to additional delivery lead time.

Model

Code	Description	
701P	SmartPower Options	

SmartPower type

Code	Description	
BK	Black power module	★
GN	Green power module	★

Standard Certification

Code	Description	
KF	FM, CSA, ATEX, and IECEx Intrinsically Safe	★

Additional Certification

Every Power Module drives the standard certifications, additional certifications can be added to the product if required.

Code	Description	
I2	Brazil Intrinsically Safe	★
I3	China Intrinsically Safe	★

Emerson SmartPower Solutions Features

Intrinsically safe power solution

- SmartPower Modules can be changed in hazardous areas
- No need to remove transmitter from process to change power module

Predictable life

- Life expectancies specified under installed conditions
- Up to 10-year life depending on update rate

Easy maintenance

- Low level alerts for easy planning of replacements
- Keyed connections for easy replacement and fail-safe connection

Safe robust design

- Short circuit protection
- No special training required
- Designed for harsh environments

Specifications

Functional specifications

Life expectancy

Up to 10-year life at one minute update rate. See Power module life for more information.

Humidity limits

0–100 percent relative humidity

Physical specifications

Material selection

Emerson provides a variety of Rosemount product with various product options and configurations including materials of construction that can be expected to perform well in a wide range of applications. The Rosemount product information presented is intended as a guide for the purchaser to make an appropriate selection for the application. It is the purchaser's sole responsibility to make a careful analysis of all process parameters (such as all chemical components, temperature, pressure, flow rate, abrasives, contaminants, etc.), when specifying product, materials, options, and components for the particular application. Emerson is not in a position to evaluate or guarantee the compatibility of the process fluid or other process parameters with the product, options, configuration, or materials of construction selected.

Electrical connections

Emerson SmartPower solutions were designed for use with various Emerson Wireless devices, listed on.

Rated voltage

Black Power Module: 7.2 V Green Power Module: 3.6 V

Materials of construction

Primary Lithium-thionyl chloride with a polybutylene terephthalate (PBT) enclosure.

Weight

Black Power Module - 0.50 lb (230 g) Green Power Module - 0.34 lb (155 g)

Performance specifications

Electromagnetic compatibility (EMC)

All models:

Meets all relevant requirements of EN 61326-1:2013

Vibration effect

No effect when tested per the requirements of IEC 60770-1: High Vibration Level - field or pipeline (10–60 Hz 0.21 mm displacement peak amplitude/60–2000 Hz 3g).

Temperature limits

Operating limit	Storage limit
-55 °C to 85 °C (-67 °F to 185 °F)	-55 °C to 85 °C (-67 °F to 185 °F)

Power module life

Power module life in a given wireless transmitter is mainly a function of the wireless update rate. Faster wireless updates lead to lower power module life. Power module life is also impacted by extreme temperature service and wireless network conditions. Power module storage conditions should be temperature controlled.

Table 1: Power Module Life Estimates

Power Module Life Estimates in Years									
Update	1 sec	2 sec	4 sec	16 sec	60 sec	300 sec	20 min	40 min	60 min
Black Power Module									
3051S	0.6	1.3	2.2	5.8	10.0	10.0	10.0	10.0	10.0
3051SMV	0.4	0.7	1.3	3.5	6.8	9.4	10.0	10.0	10.0
648	0.9	0.7	2.8	6.9	10.0	10.0	10.0	10.0	10.0
848T	NR	NR	0.7	2.4	6.3	10.0	10.0	10.0	10.0
3308A	NR	NR	1.5	4.7	10.0	10.0	10.0	10.0	10.0
2160	1.2	2.1	3.2	6.9	10.0	10.0	10.0	10.0	10.0
928	1.5	2.1	2.9	3.0	3.2	3.2	3.2	3.2	3.2
702 Discrete	1.5	2.7	4.1	8.8	10.0	10.0	10.0	10.0	10.0
702 Plunger	0.7	0.9	1.1	1.2	1.2	1.2	1.2	1.2	1.2
705	1.5	2.7	4.1	8.8	10.0	10.0	10.0	10.0	10.0
CorrLog	NR	NR	NR	NR	NR	NR	1.6	2.6	3.7
SandLog	NR	NR	NR	NR	NR	NR	1.6	2.6	3.7
802	1.2	2.1	3.4	6.0	7.5	8.0	8.1	8.2	8.2
CSI 9420	Not recommended for Black Power Module. See product documentation for Blue Power Module.								
Green Power Module									
708	1.2	2.3	3.8	8.4	10.0	10.0	10.0	10.0	10.0
3051	0.6	1.3	2.2	5.8	10.0	10.0	10.0	10.0	10.0
2051	0.6	1.3	2.2	5.8	10.0	10.0	10.0	10.0	10.0
248	0.9	1.7	2.8	6.9	10.0	10.0	10.0	10.0	10.0

To better estimate power module life for a wireless transmitter in your network, visit the Power module life estimator.

Assumptions

- Three network descendants
- 70 °F ambient temperature
- 10 years is shelf life of lithium cell
- ±10% capacity for temperature and network variation

Note
NR: This update rate not recommended for this product.

Product certification

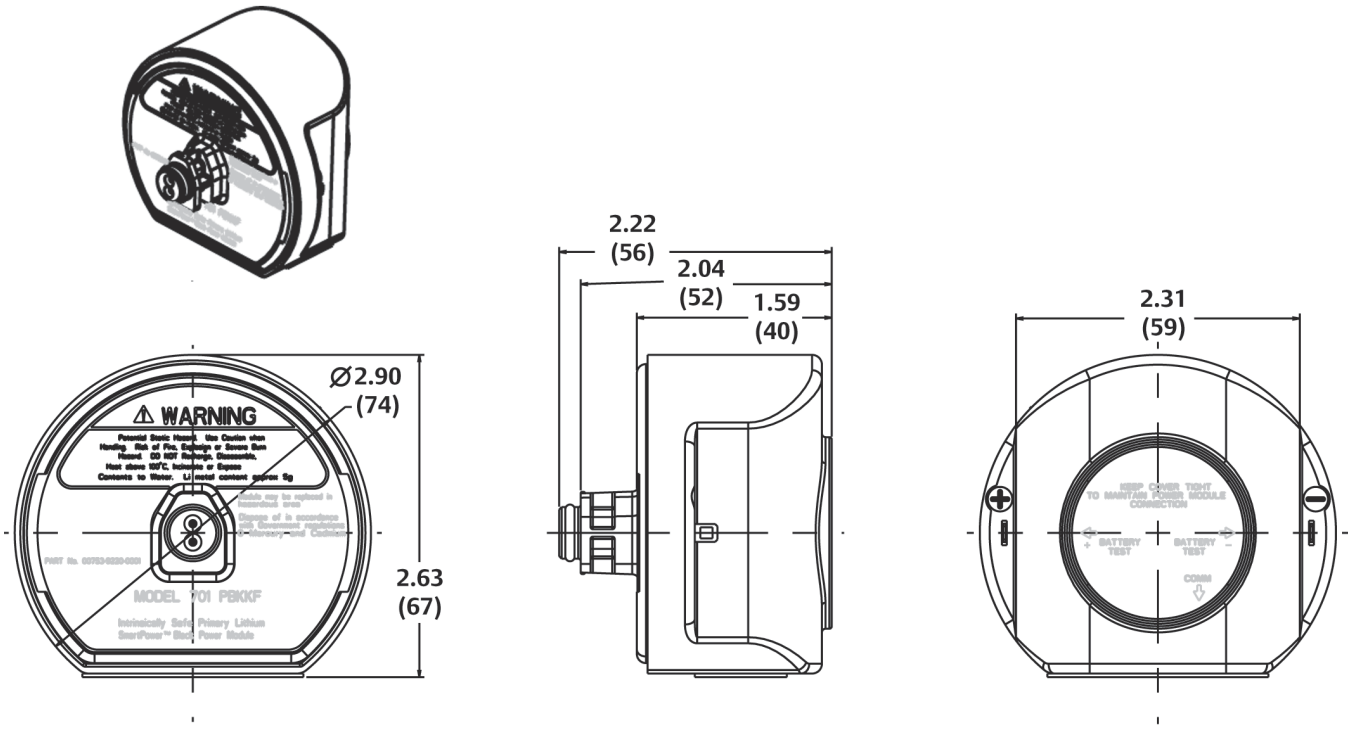
Refer to Quick Start Guide: SmartPower Solutions for product certification information.

Dimensional Drawings

Figure 2: 701PGN Green Power Module

Note
Dimensions are in inches (millimeters).

Figure 3: 701PBK Black Power Module



Note
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For more information: **Emerson.com/global**

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