SwiftComm™ Wireless SSI Interface

BEI SENSORS

A whole new era in wireless industrial control

SwiftComm
wireless industrial sensor interface

Now the machine designer is free to install sensor equipment without the expense and constraints of a hard-wired system. Encoder installations in difficult applications like cranes, rotating tables or mobile applications, are greatly simplified. The SwiftComm system includes the transmitter-receiver pair, which communicates using a point-to-point frequency-hopping 2.4 GHz RF protocol. Because of its flexible input/output electronics, it can interface with many different industrial sensors and control systems. Simply connect the SwiftComm transmitter to the sensor and the SwiftComm receiver to your control system and apply power. That's it! No complicated cabling required.

SwiftComm's proprietary radio protocols include a broad security code range, data encryption, handshaking, interference recovery, and error checking that together provides a secure and robust wireless interface system. Ruggedness and flexibility are further enhanced with SwiftComm's NEMA 4 weatherproof enclosures, panel mounting options, antenna choices and wide-range DC power inputs.

SwiftComm's Unique Advantages

- **Robust Signal**
- **Secure Transmission**
- **Real-Time Control**
- **Long Range**

SwiftComm Ordering Options for assistance call 800-350-2727

Order Note: The Transmitter and Receiver are sold as pairs. Sensor type must be the same for Transmitter and Receiver modules

TRANSMITTER MODEL NUMBER

TX	–	SS	–	PM1	–	5	–	SCS120-M18

SENSOR TYPE:
SS = SSI Absolute Encoder

MOUNTING:
PM1 = 2, 1/4–20 tapped holes

OUTPUT VOLTAGE FROM SENSOR:
5 = 5 VDC

INPUT TERMINATION:
SCS120-M18 = 10' Cable Assy
SCS120 = 10' Pigtail
Varying cable length available, consult factory

Transmitter includes antenna and pigtail or connector assembly. Power cable ordered separately.

RECEIVER MODEL NUMBER

RX	–	SS	–	PM1	–	28V/5	–	M18

SENSOR TYPE:
SS = SSI Absolute Encoder

MOUNTING:
PM1 = 2, 1/4– 20 tapped holes

OUTPUT TYPE:
28V/V = 5-28$V_{in/out}$

OUTPUT TERMINATION:
M18 = MS3101F18-1P

Receiver includes antenna. Mating cable assemblies are available.

Electrical Specifications

Supply Voltage (transmitter or receiver): 5 to 28 VDC (see model number)

Supply Current (transmitter or receiver): 220 mA Max

Output Format:
Transmitter and Receiver I/O: SSI Clock & Data
Temperature: Operating: -40° to 70°,
Storage: -40° to 100°

Rf Specifications

RF Power Output: 17 dBm (50 mW) Nominal

Frequency Range: 2.4 GHz ISM Band Adaptive Frequency Hopping Protocol

Sensitivity: -80 dBm (0.1% BER @ 1000kbps)

Antenna Connector: TNC – Reverse Polarity (50 Ohm)

Transmission Range: 300 Meters (5.5 dBi Gain "Rubber Duck" Swivel Antenna, antenna mounted directly to enclosure)

Encryption: Proprietary enhanced 40-bit encryption with pseudo-random frequency hopping sequence.

Security Codes: 5 Byte range (>500 billion unique codes)

Output Specifications

Frequency Response:
SSI Transmitter Frequency: 100KHz (Fixed)
SSI Receiver Frequency: 100KHz to 1.8MHz

Link Update Rate: 600 uS

Signal Loss Time without Link Failure: 120 mS

Transmission Response Time: 1ms typical

Mechanical Specifications

Dimensions: (mm, including Antenna Connector)
Transmitter (excluding cable set): 75W x 98L x 53H
Receiver: 75W x 119L x 53H

Weight:
Transmitter with 10-foot cable (no antenna): 911 grams
Receiver (no antenna): 455 grams

Enclosure: NEMA 4 cast aluminum, powder coated, gasketed closure intended for indoor or outdoor use. Protected against windblown dust and rain, splashing water, hose directed water and by the formation of ice on the enclosure.

Mounting Options: Two 1/4 - 20 tapped holes on back of enclosure for mounting to flat surface. Optional mounting ears or DIN rail kit available.

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Specification No. 02107-002 Rev 6-15 A

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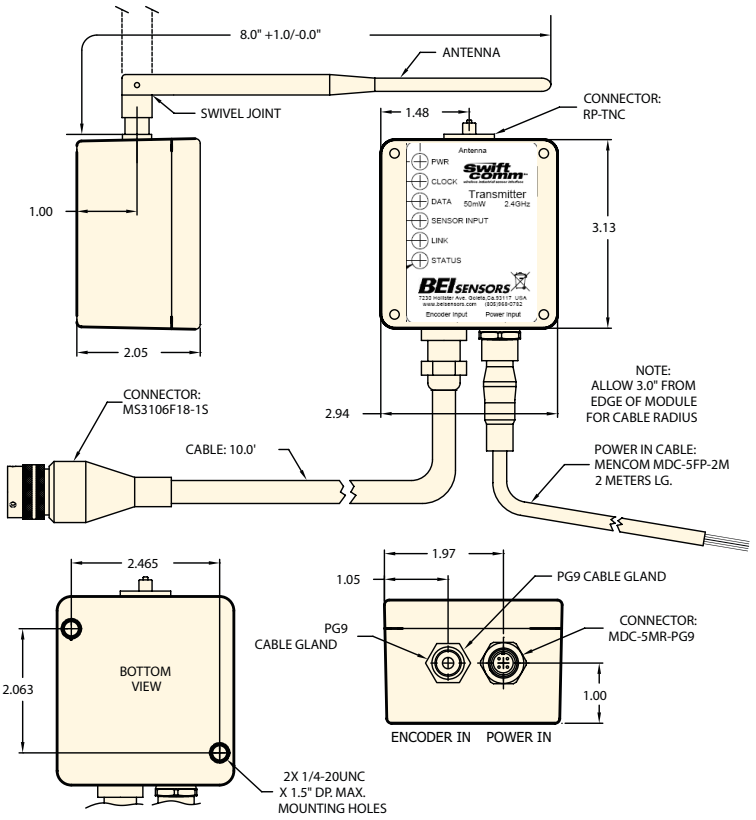
SwiftComm Transmitter Module

The SwiftComm Transmitter Module has two connector plugs: a 5-pin connector for power input, B.I.T output and chassis ground; and a 3-meter (10 foot) cable with a 10-pin MS connector attached to the end.

Transmitter: Pwr Input & BIT Output (5 Pin Connector)					
Pin	**Function**	**Color**	**Pin**	**Function**	**Color**
1	+V (Supply Voltage)	BRN	4	——	BLK
2	B.I.T Output*	WHT	5	Case Ground	GRY
3	0V (Circuit Common)	BLU			

*If transmission is interrupted for longer than 0.13 seconds the status of this pin will change from LO to HI. B.I.T. is HI at +V level.

Transmitter: Encoder Input (MS3106F18-1S or 10 ft pigtail)		
Pin	**Color (Pigtail)**	**SSI Function**
A	Yellow	DATA
B	Blue	CLOCK
C	Orange	——
D	Red	+V
E	——	——
F	Black	0V (Supply to Encoder)
G	——	——
H	Wh/Yellow	DATA
I	Wh/Blue	CLOCK
J	Wh/Orange	——

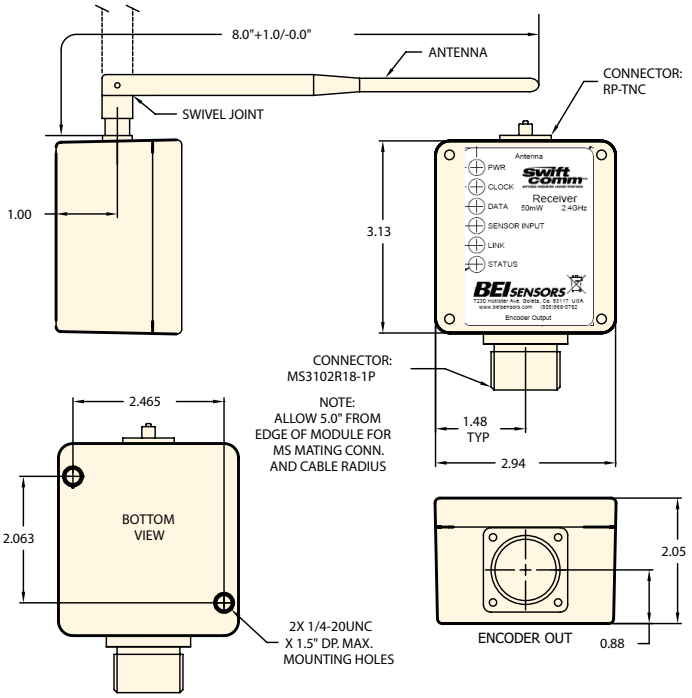


SwiftComm Receiver Module

Receiver Pinouts: Encoder Output (MS3102R18-1P)			
PIN	**FUNCTION**	**PIN**	**FUNCTION**
A	Data	F	0V (Circuit Common)
B	Clock	G	—
C	—	H	Data
D	+V (Supply Voltage)	I	Clock
E	B.I.T Output*	J	—

*If transmission is interrupted for longer than 0.13 seconds the status of this pin will change from LO to HI. B.I.T. is HI at +V level.

Table A–Front Panel Indicators		
FUNCTION	**COLOR**	**DESCRIPTION**
POWER	GREEN	ON Indicates input power is supplied to the Module
A	RED	Indicates quadrature signal A status
B	RED	Indicates quadrature signal B status
Z	RED	Indicates index signal Z status
LINK	GREEN	ON Indicates SwiftComm Modules have established a reliable RF link. OFF Indicates the RF link has been lost and the B.I.T. signal is active
STATUS	RED	Blinks ON each time RF packets are lost. Rate of blinking indicates relative quality of the RF link. Useful when setting up antennas and troubleshooting interference problems.



The SwiftComm Receiver Module has an MS connector that provides the same output signals as a standard BEI encoder. Input power can be from 5 to 28 VDC. Quadrature output signals (specified at time of ordering) can be 5 VDC or V in. The B.I.T output signal indicates the RF Link Status. Case ground is internally connected to 0V (Circuit Common). Depending on system grounding, link performance may be improved by electrically isolating SwiftComm case from metallic mounts.

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SwiftComm Accessories

Part Number	Description
31320-K53M	Power Cable, 3 meter
31391-18xx	Receiver Cable/Connector Assembly
37100-010	Antenna Extension Cable & Mounting Bracket
38554-001	Transmitter/ Receiver Mounting Bracket
38561-001	Transmitter/ Receiver DIN Rail Adapter
31450-001	Din Rail Isolating Kit Assembly

United States FCC IC: VSR-SWIFTCOMM11 I Canadian IC: 7445A-SWIFTCOMM11
Licensed in US, Canada and European Union.

FCC NOTICE

This equipment has been tested and found to comply with the limits for a class B digital device pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energyand if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

In order to maintain compliance with FCC regulations, shielded cables must be used with this equipment. Operation with non-approved equipment is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of the manufacturer could void the user's authority to operate the equipment.

FCC RF EXPOSURE STATEMENT

To satisfy RF exposure requirements, this device and its antenna must operate with a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

INFORMATION FOR CANADIAN USERS (IC NOTICE)

Under Industry Canada regulations, this radio transmitter may only operate using an antenna having a maximum gain of 5.5 dBi approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP)is not more than that necessary for successful communication.

The radio transmitter IC 7445A-SWIFTCOMM11 has been approved by Industry Canada to operate with the antenna and optional coaxial extension cable listed below with a maximum gain of 5.5 dBi. The required antenna impedance is 50 ohms. Antenna types not included in this list or having a gain greater than 5.5 dBi are strictly prohibited for use with this device.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal de 5.5dBi approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique pour d'autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communicationsatisfaisante.

Le présent émetteur radio (IC 7445A-SWIFTCOMM11) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal de 5.5dBi. L'impédance requise pour chaque type d'antenne est de 50ohms. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareilne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage.

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