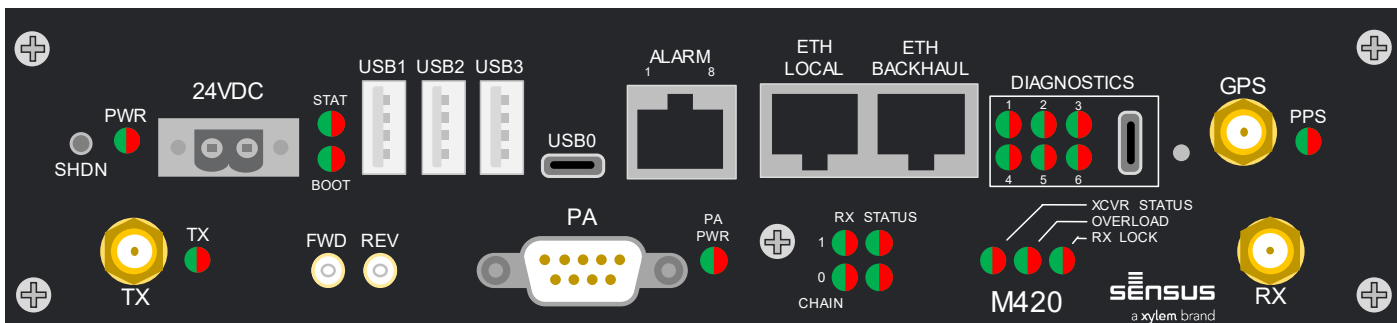


# M420

## TRANSCEIVER

The M420 transceiver is a full duplex FlexNet® transceiver intended for installation into a Sensus FlexNet® M420B or M420D Base Station. By providing dual M420 transceivers, a single base station can simultaneously support communications for both AMI meter reading systems and high value applications such as DA, DR, HAN, and lighting control while transmitting and receiving in a 200 kHz band of spectrum. This bandwidth enables more dedicated channels and higher network traffic capacity.



### Specifications

Dimensions	10"W x 5.25"D x 1.75"H
Transceivers	Single, dual
Temperature	-40°C to +60°C convection, -40°C to +70°C with forced air cooling
Humidity	95% non-condensing
Operating Voltage	20V to 30V
Output Power	+45 dBm nominal, +47dBm nominal in max power mode
TX Frequency Stability	0.5 ppm
Spectrum	Licensed 900 MHz PCS/MAS
Compliance	FCC CFR47 Part 15, Part 24 and Part 101 IC RSS 119 and RSS 134 UL/CSA 62368-1 - Standard for Safety Audio/Video, information and communication technology equipment
Emission Designator	5K90F1D/11K8F1D/8K75F1D/17K5F1D
Authorized Bandwidth	Part 24/RSS134 = 20 kHz Part 101/RSS119 = 25 kHz

## Compliance Statements

### **Warning!**

Sensus devices are for professional installation only. They are to be serviced by professional personnel only. This product is NOT for consumer installation or servicing.

### **RF Radiation Hazard!**

In order to satisfy the FCC RF exposure limit for transmitting devices, a separation distance of the following must be maintained:

- 366 cm (12 ft.) while operating the Sensus M420 transceiver with the M400G2 PA and a 12.15 dBi antenna
- 371 cm (12.17 ft.) while operating the Sensus M420 transceiver with a M420PA and a 12.15 dBi antenna
- 918 cm (30.11 ft.) or more while operating the Sensus M420 transceiver with the M400G2 PA and a 20.15 dBi antenna
- 931 cm (30.54 ft.) or more while operating the Sensus M420 transceiver with the M420 PA and a 20.15 dBi antenna

To ensure compliance, operations at closer than this distance are not recommended. This minimum safe distance is required between personnel and this antenna of this device.

Note: CFR 47 Part 101 limits the radiated power to 1,000W in the 941.0 MHz to 941.5 MHz frequency band. Use of a 20.15 dBi antenna may require the use of an inline RF attenuator. Professional installation required.

### **RF Radiation Hazard!**

In order to satisfy the ISED RF exposure limit for transmitting devices, a separation distance of the following must be maintained:

- 544 cm (17.85 ft.) while operating the Sensus M420 transceiver with the M400G2 PA and a 12.15 dBi antenna
- 552 cm (18.11 ft.) while operating the Sensus M420 transceiver with a M420PA and a 12.15 dBi antenna
- 1367 cm (44.85 ft.) or more while operating the Sensus M420 transceiver with the M400G2 PA and a 20.15 dBi antenna
- 1386 cm (45.47 ft.) or more while operating the Sensus M420 transceiver with the M420 PA and a 20.15 dBi antenna

To ensure compliance, operations at closer than this distance are not recommended. This minimum safe distance is required between personnel and this antenna of this device.

Afin de satisfaire la limite d'exposition RF ISED pour les appareils de transmission, une distance de séparation de éléments suivants doit être maintenue:

- 544 cm (17,85 ft.) ou plus pendant le fonctionnement du Sensus appareil (M420 émetteur-récepteur avec le M400G2 PA et un antenne de 12,15 dBi)
- 552 cm (18,11 ft.) ou plus pendant le fonctionnement du Sensus appareil (M420 émetteur-récepteur avec le M420 PA et un antenne de 12,15 dBi)
- 1367 cm (44,85 ft.) ou plus pendant le fonctionnement du Sensus appareil (M420 émetteur-récepteur avec le M400G2 PA et un antenne de 20,15 dBi)
- 1386 cm (45,47 ft.) ou plus pendant le fonctionnement du Sensus appareil (M420 émetteur-récepteur avec le M420 PA et un antenne de 20,15 dBi)

Pour assurer la conformité, un fonctionnement à distance inférieure à celle est pas recommandée. Cette distance minimale de sécurité est nécessaire entre le personnel et l'antenne de cet appareil.

Note: SRSP-505 limits the radiated power to 250W, 600W, or 2,500W depending on the use case in the 941.0MHz to 941.5MHz frequency band and in the 952.0MHz to 953.0MHz frequency band. SRSP-509 limits the radiated power to 2,500W in the 930.0MHz to 931.0MHz frequency band and in the 940.0MHz to 941.0MHz frequency band. Use of a 20.15 dBi antenna may require the use of an inline RF attenuator.

### **Warning!**

The antenna used for this transmitter must not be co-located in conjunction with any other antenna or transmitter.

### **Attention!** For Class B - Unintentional Radiators:

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 energy and, 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

### **Warning!**

Hazardous voltages are present: to reduce the risk of electric shock and danger to personal health, follow the instructions provided in the product manual.

### **Attention!**

Any modifications made to this device that are not approved by Sensus may void the authority granted to the user by the FCC to operate equipment.

### **Attention!**

ICES-003 Class B Notice—Avis NMB-003, Classe B

This Class B digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

### **Warning!**

When applicable, there is danger of explosion if batteries are mishandled or incorrectly replaced. On systems with replaceable batteries, replace only with the same manufacturer and type or equivalent type recommended per the instructions provided in the product manual.

Do not disassemble batteries or attempt to recharge them outside the system. Do not dispose of batteries in fire.

Dispose of batteries properly in accordance with the manufacturer's instructions and local regulations.

### **Warning!**

For products with multiple power cords, all power cords must be disconnected to completely remove power from the system.

### **Warning!**

For products that use power cords, not all power cords have the same current ratings. Do not use the power cord provided with your equipment for any other use. Household extension cords do not have overload protection and are not meant for use with computer systems. Do not use household extension cords with your Sensus product.

### **Warning!**

Do not dispose in fire, mix with other battery types, charge above specified rate, connect improperly, or short circuit, which may result in overheating, explosion or leakage of cell contents.

### **Warning!**

This radio is intended for use in occupational/controlled conditions, where users have full knowledge of their exposure and can exercise control over their exposure to meet FCC limits. This radio device is NOT authorized for general population, consumer or any other use.

### **Warning!**

Sensus products are designed to be connected only to a grounded main circuit outlet. Do not defeat the plug grounding pin and do not plug these products into a non-grounded main power circuit.

### **Attention!**

This device complies with Industry Canada license-exempt RSS standard(s).

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

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'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

### **Attention!**

This radio transmitter, M420 Transceiver, has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Le présent émetteur radio, M420 Transceiver, a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. 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.

- DIPOLE 10dBd (12.15 dBi)
- DIPOLE 18 dBd (20.15 dBi)

 **Attention!**

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain 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 (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des 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 communication satisfaisante.

 **Warning!**

**ANTENNAS:** An outdoor antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can come in contact with such power lines or circuits as death or serious injury can occur. Be sure the antenna system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electric Code (NEC) in the U.S.A. provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes and requirements for the grounding electrode. Antenna grounding shall be according to the National Electrical Code, ANSI/NFPA 70.

 **Warning!**

This product can expose you to chemicals including Di(2-ethylhexyl)phthalate (DEHP), which are known to the State of California to cause cancer or birth defects or other reproductive harm. For more information, visit [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

**xylem.com**

**SENSUS** | 637 Davis Drive | Morrisville, NC 27560 | 800.638.3748 | [sensus.com](http://sensus.com)

©2022 Sensus. All products purchased and services performed are subject to Sensus' terms of sale, available at either [sensus.com/TC](http://sensus.com/TC) or 1-800-638-3748. Sensus reserves the right to modify these terms and conditions in its own discretion without notice to the customer. The Sensus logo is a registered trademark of Sensus.

This document is for informational purposes only, and SENSUS MAKES NO EXPRESS WARRANTIES IN THIS DOCUMENT. FURTHERMORE, THERE ARE NO IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION, WARRANTIES AS TO FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY. ANY USE OF THE PRODUCTS THAT IS NOT SPECIFICALLY PERMITTED HEREIN IS PROHIBITED.