

BST1712-XT TPMS transmitter – FCC version

Product Manual

BST1712-XT - Tire pressure measure transmitter - Standard version



Product description

BST1712-XT is an extensor that, assembled on a standard tire valve, measures the air pressure of the tire, temperature and battery voltage level and transmits these data through radio interface (434MHz license-free ISM band), with proprietary Micro.sp® technology based on short pulses transmitted with Pulse Position Modulation (PPM), which guarantees high RF peak power, as required for radio link reliability, but with a very low average power and consequently low current consumption.

Powered by a standard CR1225 lithium battery, it can guarantee a lifetime of at least 3 years.

Technical specifications

Pressure Range (1)	0 – 12 bar (1200 kPa)
Overpressure (1)	20 bar (1 minute)
Operating Temperature	-40 +80 °C
Storage Temperature	-40 +85 °C
Measurement Sampling And TX Period Time	12 seconds (Typ.)
Battery type	CR1225 (48mAh)
Expected Life	OPERATING MODE: 3 years
EXPECTED LIFE REDUCTION IN "0 Bar SLEEP MODE "	20% less/OP-MODE/Year

Note 1: Relative Pressure .

Radio Frequency specifications

Compliant to FCC part 15.231.

Parameter	Conditions	Specification			Unit
		Min	Typ	Max	
Frequency	20 °c		434,4		MHz
Frequency Error (1)	-40 +80 °C	434,25		434,5	MHz
MODULATION BANDWIDTH (-20 dBc) (2)	-20 ÷ +60 °c	434,0		434,7	MHz
Field strength at 3m (3)	-40 ÷ +80 °c	60	65	70	dBuV/m
MODULATION BANDWIDTH (-6 dBc)			300		kHz
Spurious Emission	RBW=100kHz			-40	dBm
Duty Cycle			0,25%		
Transmission Period Time	-40 ÷ +80 °c	11s	12s		

Note 1: Measured as the midpoint of the emission spectrum bandwidth.

Note 2: Frequency of the -20dBc (dB under the erp peak power) points of the emission spectrum measured under the extreme test conditions (temperature and source voltage).

Note 3: Radiated power measured with the EUT on a test-fixture simulating the ground plane reference.

Measurement Performance Specifications

Pressure measurement

The reported performance reflects the use of a 10 bit measurement. The BST1712-XX transmits the pressure measurement calibrated at the first calibration point (9 bar) plus the second point (4 bar) calibration error.

Computation and temperature compensation to obtain the reported performance are performed on the receiver side.

PARAMETER	TEMPERATURE	SPECIFICATION			UNIT
		MIN.	TYP.	MAX	
Pressure Range (1)	-40 ÷ +80 °c	100		1200	kPa (2)
Measurement Resolution	-40 ÷ +80 °c	± 4,3	± 2,3		kPa
Measurement Error					
1) 3 bar to 10 bar	-20 ÷ +60 °c		±10		kPa
2) 1 bar to 12 bar	-20 ÷ +60 °c			±20	kPa
3) 1 bar to 12 bar	-40 ÷ +80 °c			±30	kPa

Note 1: Relative Pressure

Note 2: 100 kilopascal (kPa) = 1 bar

Temperature measurement

The reported performance reflects the use of a 10 bit measurement (25 °C calibrated) and a 8 bit resolution transmitted message.

PARAMETER	MIN	TYP	MAX
Temperature Range	-40 °C		+80 °C
Measurement Error			
1) -20 to +60 °C		±2°C	±3°C
2) -40 to -20 °C		±3°C	±4°C
3) +60 to +80 °C		±3°C	±4°C

Battery voltage measurement

A 10 bit measure of battery voltage is transmitted with 2 bits as reported in the table below.

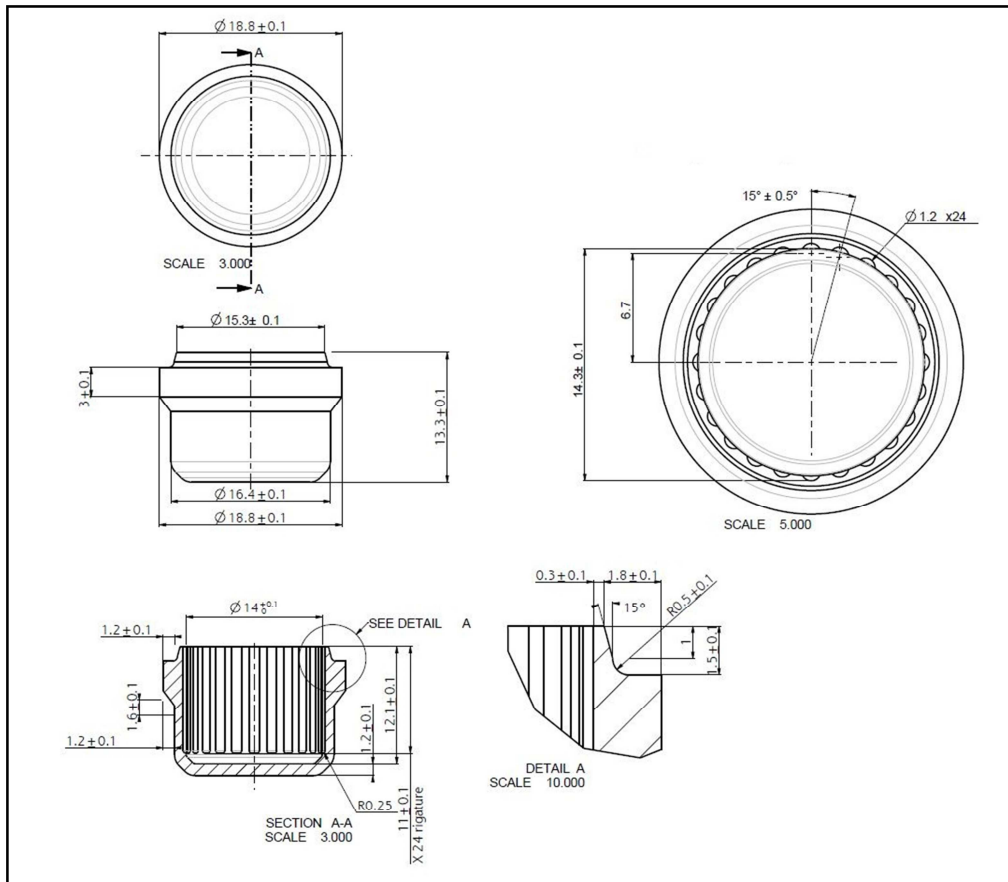
1 1	Battery Voltage $\geq 2,9$ V
1 0	$2,5$ V \leq Battery Voltage $< 2,9$ V
0 1	2 V \leq Battery Voltage $< 2,5$ V
0 0	Battery Voltage < 2 V
MEASUREMENT ERROR (-40 to +80 °C) $\pm 0,1$ V	

Mechanical Specifications

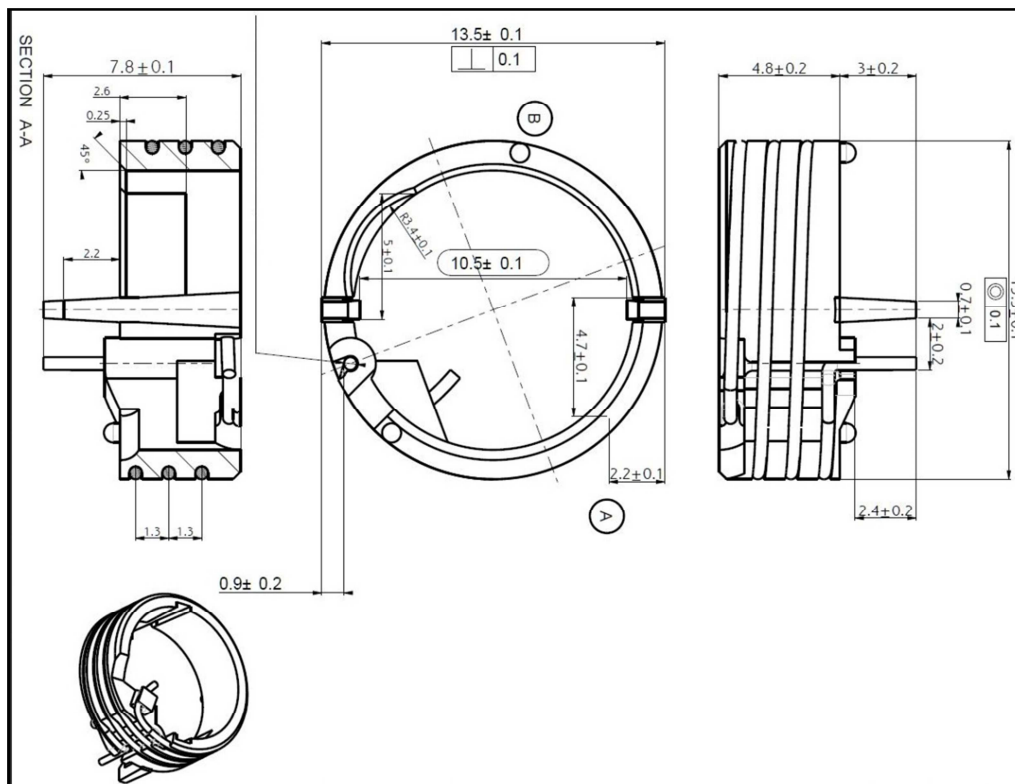
DIMENSIONS (without plastic cap)	40 x 23 x 20,5mm
WEIGHT	30g

Mechanical Drawing

Plastic Antenna Cover



Helical antenna



Compliance Information



HVIN: 30100722

FCC ID: 2ASD630100722

IC: 24732-30100722

FCC Interference Statement (Part 15.105 (b))

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 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.

FCC Part 15 Clause 15.21

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC Part 15.19(a)

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference
- (2) This device must accept any interference received, including interference that may cause undesired operation.

ISED RSS-Gen Notice

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:

- (1) This device may not cause interference
- (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;
- 2) l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.