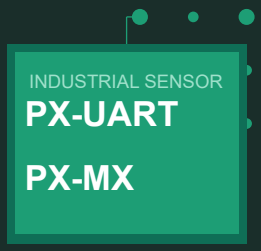
PX-UART, PX-MX

Radar Level/Range Sensor

UART / RS-232 | Industrial IoT | Distance/Presense Monitoring

IP67 | –40°C to +85°C | Low Power



OVERVIEW

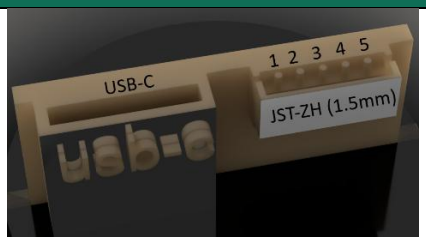
The **PX-UART** and **PX-MX** are compact, range sensors designed for continuous deployment in industrial, agricultural, and smart-city monitoring applications. It measures distance of a target medium using FMCW 60 GHz Radar streaming calibrated readings over a standard 3.3V UART or RS232 interface at user-configurable baud rates up to 115200 bps. All units are factory-calibrated and arrive ready to deploy.

Table 1: PX-UART

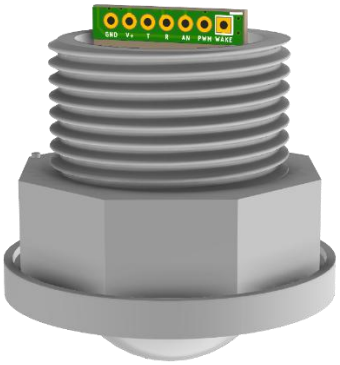
- Milimeter accuracy
- UART / RS-232— single connector
- Factory-calibrated
- Configurable sampling rate: sub 1 s to 3600 s
- On-board RTC with timestamped data packets
- 3.3 V / 5 V dual supply;
- <10 uA sleep current, <100mA active peak pulses
- IP67 rated enclosure, UV-stabilized ASA
- Extended operating range: −40°C to +85°C
- Compact form factor: 62 × 38 × 22 mm
- Optional heated inlet for high-humidity environments

PIN DIAGRAM

Pin	Signal	Description
1	VCC	3.3 V or 5 V supply
2	GND	Ground
3	TX	UART transmit (sensor → host)
4	RX	(optional) UART receive (host → sensor)
5	DE	(optional) enable (active HIGH)
6	NRST	(optional) Hardware reset (active LOW)



Pin	Signal	Description
1	GND	Ground
2	V+	3.3 V or 5 V supply
3	TX	UART transmit (sensor → host)
4	RX	(optional) UART receive (host → sensor)
5,6		Unused
6	WAKE	(optional) Wake



ELECTRICAL CHARACTERISTICS

Parameter	Min	Typical	Max	Unit	Conditions
Supply voltage (VCC)	3.0	3.3 / 5.0	5.5	V	Both rails supported
Active current draw	—	9.5	100	mA	All sensors active, 1 Hz
Sleep current	—	6.8	25	µA	Sensors off, RTC running
UART logic level	—	VCC	—	V	3.3 V or 5 V auto-detect
Baud rate	1200	9600	115200	bps	8N1 default

Start-up time	—	1.2	2.0	s	From power-on to first packet

SENSOR PERFORMANCE

Parameter	Range	Accuracy	Resolution	Response Time
Range	0 to 100’	±1.5 %	0.01 %	< 3 s

UART COMMUNICATION PROTOCOL

The PX-UART transmits ASCII data frames at configurable intervals. Each frame is terminated by CR+LF. The default baud rate is 9600, 8N1.

There are two types of data exchanged between a host and a Pexla sensor.

- **Sensory Data**: These are simple ASCII data packets, that the sensor automatically starts transmitting at startup or after a configuration is applied. The format is : **Rxxxxx<CR><LF>** where **xxxxx** is a 5 digit number, representing the target’s distance in mm
- **Configuration Commands**: This is the formatted data that starts with two << and ends with two >>. Since an individual command is enclosed in <> pair, you will see the commands that are sent to the sensor or received as three < and three >: <<<….>>> For detailed list of configuration commands, please refer to the SDK

Please see the SDK for detailed information about the data format and protocol.

Ordering Information

Part Number	Description
PX-UART-F	3/4” (26mm)-14 NPT front panel mount, no enclosure
PX-UART-R	1.5” (42mm) - 11.5 NPT rear panel mount, no enclosure
PX-UART-EN03	1.5” (42mm) -11.5 NPT, rear panel mount with water proof enclosure + 3’ cable
PX-UART-EN10	1.5” (42mm) -11.5 NPT, rear panel mount with water proof enclosure + 10’ cable
PX-UART-EN30	1.5” (42mm) -11.5 NPT, rear panel mount with water proof enclosure + 30’ cable
PX-MX-F	3/4” (26mm)-14 NPT front panel mount, no enclosure
PX-MX-R	1.5” (42mm) - 11.5 NPT rear panel mount, no enclosure
PX-MX-EN03	1.5” (42mm) -11.5 NPT, rear panel mount with water proof enclosure + 3’ cable
PX-MX-EN10	1.5” (42mm) -11.5 NPT, rear panel mount with water proof enclosure + 10’ cable
PX-MX-EN30	1.5” (42mm) -11.5 NPT, rear panel mount with water proof enclosure + 30’ cable