

MN100 Synap Modem

MN100 is a general-purpose modem that provides wireless connectivity to any IoT sensor. It implements the patented SynapMesh communication protocol tailored for Low Power Wide Area Networks (LPWAN) in the sub-GHz frequency region. The modem is designed to enable massive roll-outs of IoT devices. Installing a Synap modem is completely hassle-free.

MN100 allows for instant IoT deployment of a sensor. No configuration or programming is needed as the Synap IoT Network is fully managed in the centralized SynapCloud network controller. A profile containing the sensor control commands and data structure is downloaded to the modem and the sensor is ready to report.

Cloud managed

Mesh capable

No configuration

No programming

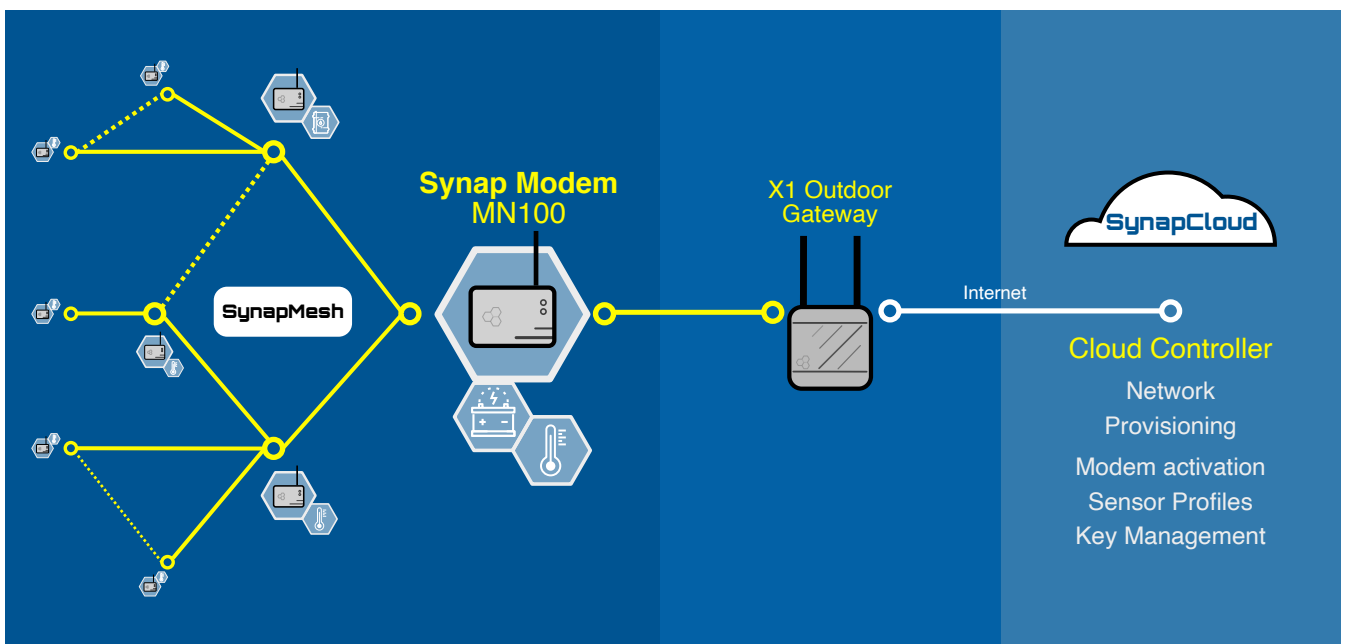


Cable Replacement

Instant productization

RS 422/485 Modbus

Solution Overview



MN100 Synap Modem

Product Specification

Radio Parameters

Radio frequency:	868MHz or 915Mhz ISM bands
Radio modulation:	LoRa
Radio connectivity:	Half duplex. Single channel
Channel size:	125kHz
RX sensitivity:	-135dBm
TX power:	20dBm
Free space communication range:	Up to 20 km to Synap Outdoor gateway with 20 dBm TX and -100 dBm RX Up to 8 km to Synap modem or Synap Indoor mini Gateway
Antenna connection:	SMA-female

Connectivity & Data Interface

Wireless backhaul connectivity:	Synap Gateway X1
Serial comm port: Protection:	RS 422/485 (support Modbus) 15kV ESD protection

Hardware

Processor:	STM Cortex MCU
Radio Hardware:	Semtech SX1276

Power

Power supply:	5-12V DC. 5.5/2.1mm plug
Power consumption:	
<i>Standby mode</i>	29mA @ 5V
<i>Transmitting mode</i>	98mA @ 5V

Security features (SynapShield)

Encryption:	AES-256 encryption
Data Integrity:	SHA-256
MAC layer address authentication:	SynapMesh protocol
Security key:	SynapShield Secure dynamic key generation

Other features

Modem registration:	Automatic. Through SynapCloud controller
System profile for sensor provisioning:	Centralized managed by SynapCloud controller

Physical Characteristics

Weight:	69g
Dimensions:	90x56x20 mm
Casing material:	ABS plastic
Operation temperature:	-10° to +55°C ambient temperature 5-95% humidity, non-condensing
LED lights:	2 LED indicators: On/Off, Radio <i>(can be turned off for power saving)</i>
Mounting:	Wall mount DIN-35 rail mount <i>(optional mounting accessory required)</i>

Accessories

Antenna:	915 MHz omnidirectional. SMA-male 868 MHz omnidirectional. SMA-male
Power adaptor:	9V AC/DC adapter
DIN rail mount foot:	Wago 209-188 mounting foot

Standards and regulations

Radio & EMC:	RED 2014/53/EU Directive article 3 ETSI EN 300 220-2 EN 61000-6-1:2007 IEC 61000-6-1:2005 (ed. 2.0) ETSI EN 301 489-3 v1.6.1:2013 FCC 47 CFR part 15: 2014 - Part 15- Radio frequency devices RSS-Gen - Issue 5, April 2018 RSS-247 Issue 2, February 2017 - Digital Transmission Systems (DTSS), Frequency Hopping Systems (FHSS) and License- Exempt Local Area Network (LE-LAN) Devices
Human Safety:	EN 62209-2 (SAR) IEC/EN 62479-1
Electrical:	EN 60950
Environmental:	WEEE, RoHS

Warranty

Basic hardware warranty:	1 year
--------------------------	--------

