

APOLLON Q T/R/TR/SW TECHNICAL DATA SHEET EN



The Apollon-Q series offers wireless IoT level sensors with high-quality results thanks to a unique optical and radar measuring principle. They measure levels up to 2.50 meters for piece, liquid or bulk goods and are versatile for various applications including bins, chutes, channels and small containers such as waste baskets. With optimized range, short measurement and transmission intervals and support for MIOTY®, NB-IoT, LoRaWAN® and LTE-CAT-M1, they offer advanced functionalities.



VERSIONS

Article code	GNSS	Opening detection	Available	Configuration
S-APOQ-LOEU-T	X	X	✓	NFC
S-APOQ-MIOTY-T	X	X	✓	NFC
S-APOQ-LOEU-T-ACC	✓	✓	✓	NFC/BLE
S-APOQ-LOEU-TR-ACC	✓	✓	✓	NFC/BLE
S-APOQ-LOEU-SW-TR-ACC	✓	✓	✓	NFC/BLE
S-APOQ-MIOTY-T-ACC	X	✓	✓	NFC/BLE
S-APOQ-MIOTY-TR-ACC	X	✓	✓	NFC/BLE
S-APOQ-MIOTY-SW-TR-ACC	X	✓	✓	NFC/BLE
S-APOQ-NBM1-T-ACC	✓	✓	✓	NFC/BLE
S-APOQ- NBM1-TR-ACC	✓	✓	✓	NFC/BLE
S-APOQ- NBM1-SW-TR-ACC	✓	✓	✓	NFC/BLE
S-APOQ-LOEU-R-ACC	✓	✓	✓	NFC/BLE
S-APOQ-MIOTY-R-ACC	X	✓	✓	NFC/BLE
S-APOQ-NBM1-R-ACC	✓	✓	✓	NFC/BLE
S-APOQ-LOEU-T-SMAV	X	X	✓	NFC/BLE
S-APOQ-MIOTY-T-SMAV	X	X	✓	NFC/BLE
S-APOQ-LOEU-T-ACC-SMAV	✓	✓	X	NFC/BLE
S-APOQ-LOEU-TR-ACC-SMAV	✓	✓	X	NFC/BLE
S-APOQ-LOEU-SW-TR-ACC-SMAV	✓	✓	X	NFC/BLE
S-APOQ-MIOTY-T-ACC-SMAV	X	✓	X	NFC/BLE
S-APOQ-MIOTY-TR-ACC-SMAV	X	✓	X	NFC/BLE
S-APOQ-MIOTY-SW-TR-ACC-SMAV	X	✓	X	NFC/BLE
S-APOQ-NBM1-T-ACC-SMAV	✓	✓	X	NFC/BLE
S-APOQ- NBM1-TR-ACC-SMAV	✓	✓	X	NFC/BLE
S-APOQ- NBM1-SW-TR-ACC-SMAV	✓	✓	X	NFC/BLE

Designation	NFC/BLE Description
LOEU	LoRaWAN EU
MIOTY	mioty EU
NBM1	NB-IoT, LTE-CAT-M1
SW	Optimized radar for smart waste, especially for underfloor containers and heavily polluted areas
T	ToF
R	Radar
TR	Dual measuring principle of ToF and radar
ACC	Acceleration sensor for flap opening and vandalism detection
TR (without SW)	For liquids and good reflectors
SMAV	Small Angle of View 18°

GENERAL FEATURES

CHARACTERISTIC	VALUE	UNIT OF MEASUREMENT
Dimensions l x w x h	109x53x33	mm
weight	160	g
Operating temperature	-30 to 75 (up to 85°C or 125°C possible after consultation before ordering, depending on battery type)	°C
Storage temperature (recommended)	15 to 25	°C
Rel. humidity during operation	5 to 99	%
IP rating	IP 69k	
Sensor technology	ToF (optical) and/or radar	
Distance		
Traffic light function	-	
Acoustic alarm function	-	
Provisioning	NFC, BLE (see version)	
Material	Glass fiber reinforced polybutylene terephthalate PBT-GB-20	
NFC antenna	Integrated	
RF antenna	Integrated	
Accelerometer	Optional for flap openings and vandalism detection	
Batteries	Replaceable	
Primary cell type	LoRaWAN and Mioty:	

2 x 1.5V (recommended Energizer ultimate Lithium) or LiSOCL2 after consultation
 NB-IoT/LTE-M: 2 x 3V
 (recommended LiMnO2 Varta CR AH-R)

CONNECTIVITY AND RF SPECIFICATION

FEATURE	VALUE	UNIT
RF standards		
Frequency LoRaWAN®/mioty® EU	868	MHz
Frequency cellular	Band 8, 20 (900 MHz, 800 MHz)	MHz
Transmission power loRaWAN®/Mioty® EU	14	dBm
Transmission power NB-IoT	23	dBm
Lora® mac layer version	1.0.2, 1.0.4	

LOCALIZATION LORAWAN SENSORS

FEATURE	VALUE	UNIT
WIFI SSID Scan	Up to 6 MAC addresses on port 199	
WIFI SSID Scan Frequency	2,4	GHz
WIFI SSID Scan Accuracy	6 to 50	m
GNSS	GNSS Scan with GPS and BeiDou	
GNSS accuracy	10 to 100	m
Antenna	Integrated	
Chipset	LR1110	
Feature for on-prem indoor tracking	Customization by configuring that up to 5 MAC addresses and RSSI values are transmitted in the standard uplink payload	
Tracking in the LoRaWAN	Network-dependent	
Tracking in motion	Yes	

LOCALIZATION CELLULAR SENSORS

FEATURE	VALUE	UNIT
WIFI SSID Scan	Up to 20 MAC addresses	
WIFI SSID Scan Frequency	2.4 and 5	GHz

WIFI SSID scan accuracy	2 to 50	m
GNSS	GPS, Galileo, GLONASS, BeiDou	
GNSS accuracy	5 to 100	m
Antenna	Integrated	
Cell Locate	Supports	
Tracking in Motion	Yes	

SENSOR SPECIFICATION TOF (OPTICAL)

For all sensors **without XXXX-SMAV**

FEATURE	VALUE	UNIT
Measuring field	up to 8 x 8 points	
OPENING ANGLE	Standard 27° - aperture angle adjustable	°
Wavelength	940nm	nm
Measuring frequency	Up to 50 Hz	Hz
Measuring range	2.50 meters standard (up to 3.50m possible)	m
Laser class	Class 1	
Minimum range	Standard 5 cm (up to 2 cm possible with less accuracy)	Cm
Repeat accuracy	2 mm	mm
Lens properties	Hydrophobic and dust-repellent	

Valid for the following sensors: S-APOQ-XXXX-XX-XXX-SMAV

CHARACTERISTIC	VALUE	UNIT
Measuring field	1 point	
Opening angle	18° - aperture angle	°
Wavelength	940nm	nm
Measuring frequency	Up to 50 Hz	Hz
Measuring range	3m standard (up to 5m possible)	m
Laser class	Class 1	
Minimum range	Standard 10 cm (up to 2 cm with lower accuracy possible)	cm
Repeat accuracy	2 mm	mm
Lens properties	Hydrophobic and dust-repellent	

SENSOR SPECIFICATION RADAR

FEATURE	VALUE	UNIT
Type	Pulse Radar (CPR)	
Opening angle	approx. 25° level 1, approx. 15° level 2	°
Frequency	60.5 GHz	GHz
Operating range	2.50 meters standard (up to 3.50m possible)	m
Absolute accuracy	nm	nm
Relative accuracy	µm	µm

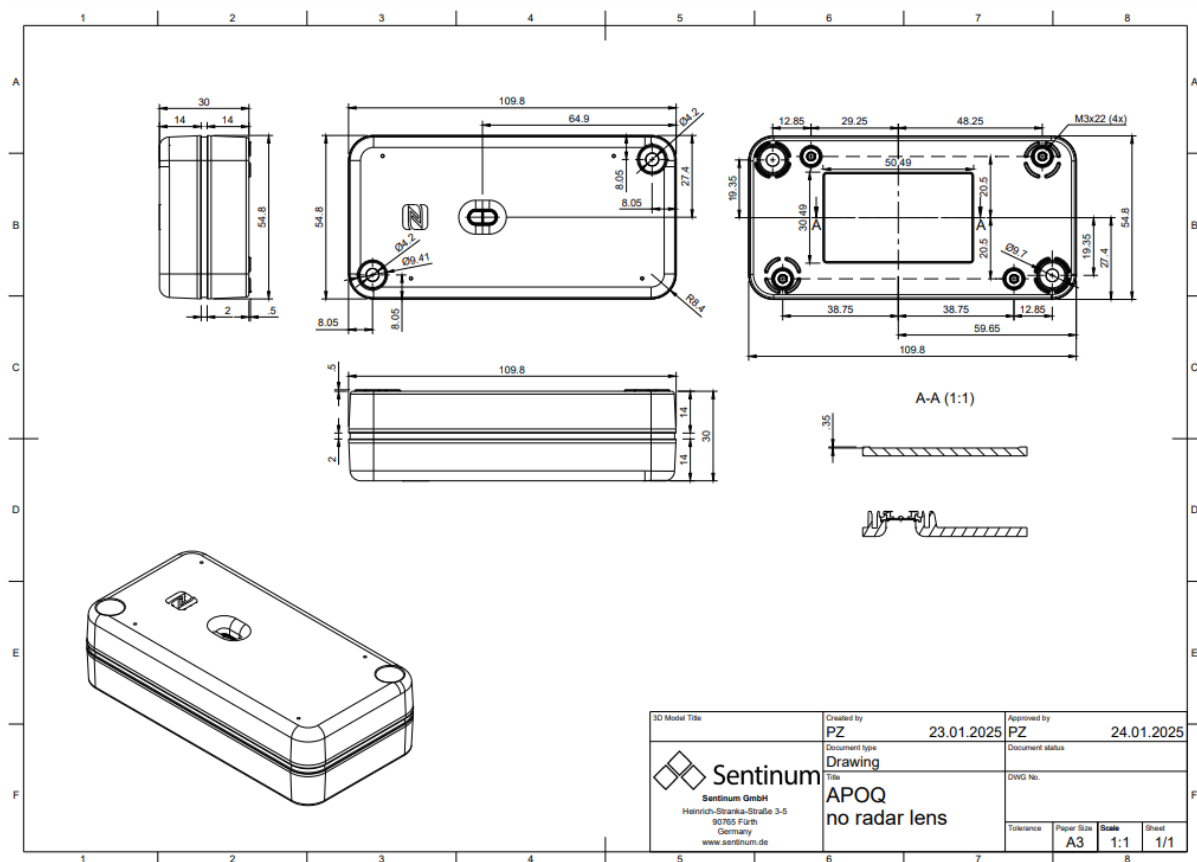
SENSOR SPECIFICATION TEMPERATURE FOR -ACC SENSORS

Characteristic	VALUE	UNIT
Temperature range	-40 - +85	°C
Accuracy 0°C to 70°C	+/-0,8	°C
Accuracy -40°C to +85°C	+/-1,3	°C
Resolution	1	°C

SENSOR SPECIFICATION TEMPERATURE FOR NON-ACC SENSORS

characteristic	VALUE	UNIT
Temperature range	-30 - +85	°C
Accuracy 0°C to 70°C	+/-2	°C
Accuracy -40°C to +85°C	+/-1,5	°C
Resolution	1	°C

TECHNICAL DRAWING WITHOUT RADAR



TECHNICAL DRAWING WITH RADAR

