Nokeval

Noble-Sky

Multi-input wireless transmitter for a wide range of sensors and measurement signals

Noble-Sky is a versatile, battery-powered wireless transmitter for measuring temperature, voltage, current, and digital signals.



Noble-Sky allows multiple types of sensors and measurement signals to be connected to a single wireless transmitter. The device supports temperature sensors, voltage and current signals, and digital inputs. Supported temperature sensors include a wide range of thermocouple types and resistive temperature sensors, such as Pt100 and Pt1000. The device also features four digital inputs, one of which supports pulse counting.

Measurement data is transmitted wirelessly via the Nokeval Sky radio network. Based on LoRa modulation, the radio technology provides a transmission range of up to several kilometers under good line-of-sight conditions. Transmitted data is protected with AES-128 encryption. Noble-Sky is powered by four user-replaceable C-size alkaline batteries, with an estimated battery life of approximately three years at a 15-minute transmission interval using the Effort 3 setting.

With its IP65 enclosure and an operating temperature range of -30 to +55 °C, Noble-Sky is also suitable for demanding environments and outdoor installations. The enclosure is made of ASA plastic for UV resistance in outdoor use.

Applications

General-purpose applications

Product features

- Versatile measurement capabilities: 2 or 4 temperature sensor inputs, 4 voltage inputs, 2 current inputs, and 4 digital inputs
- Wide sensor support: multiple thermocouple types and resistive temperature sensors, including Pt100, Pt1000, Ni, and Cu
- Secure wireless data transmission via Nokeval Sky
- Long battery life and easy maintenance
- Suitable for outdoor installations

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General and mechanical

Storage conditions	-40 to +60 °C, relative humidity 5–95%, non-condensing
Operating conditions	-30 to +55 °C, relative humidity 5–95%, non-condensing
Ingress protection	IP65
Enclosure material	UV-resistant ASA plastic
Dimensions	120 mm x 160 mm x 65 mm
Weight	TBD
Mounting	Wall mounting recommended, 6 screw holes in mounting flanges
Cable glands	3 x M12x1.5 glands
Configuration connection	USB-C connector on the circuit board, support for MekuWin configuration software

Power supply

Type	4 x LR14 (C size) 1.5 V alkaline batteries
Battery life	About 3 years with 15 min transmission interval with Effort 3
Battery replacement	User-replaceable; batteries can be easily replaced while the device is installed by opening the enclosure lid

Data transmission and security

Description	Nokeval Sky radio based on LoRa modulation, not LoRaWAN compatible
Frequency	433,3–434,5 MHz
Transmit power	Max. +10 dBm E.R.P.
Antenna	Internal, fixed helix antenna
Supported Sky receivers	All Nokeval Sky radio receivers and gateway devices
Range, line of sight	Dependent on radio parameters and environment; up to several kilometers in good line-of-sight conditions
Data security	All data transmitted by the device is strongly encrypted (AES-128)
Firmware updates	Via connector on the circuit board

Analog inputs

Analog inputs	2 or 4 temperature sensor inputs, 4 voltage inputs, and 2 milliampere current inputs; all galvanically interconnected
Analog input types	Differential thermocouple, Resistive temperature sensor (RTD), Voltage, Current
Voltage input ranges	**Low range:** -4 to +28 V, 0.1 mV resolution **High range:** -18 to +126 V, 1 mV resolution (up to 60 V allowed)
Voltage input accuracy	±5 mV at 25 °C ambient + 60 ppm/°C thermal drift
Current input range	0...24 mA
Current input accuracy	±0.008 mA at 25 °C ambient + 60 ppm/°C thermal drift

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Thermocouple inputs

Supported thermocouple types	B, C, D, E, G, J, K, L, N, R, S, T
Thermocouple input range (linearity)	**TcB:** 400...1700 °C (0.3 °C) **TcC:** 0...2300 °C (0.5 °C) **TcD:** 0...2300 °C (1 °C) **TcE:** -100...900 °C (0.2 °C) **TcG:** 1000...2300 °C (2 °C) **TcJ:** -160...950 °C (1 °C) **TcK:** -150...1370 °C (0.5 °C) **TcL:** -150...900 °C (0.5 °C) **TcN:** 0...1300 °C (0.1 °C) **TcR:** 0...1700 °C (0.5 °C) **TcS:** 0...1700 °C (0.5 °C) **TcT:** -200...400 °C (1 °C)
Thermocouple input accuracy	±1°C at 25 °C ambient over +0...+100 °C typical

RTD inputs

Supported RTD sensors	Pt100, Pt1000, Ni, Cu
RTD input range	-200...+600 °C
RTD input accuracy	0.05% of reading + 0.2 °C at 25 °C ambient + 0.01 °C/°C thermal drift
Analog input protection	Short-term over-voltage tolerance -24V...24 V, ESD protection according to EN 61326

Digital inputs

Digital inputs	4 digital inputs (1 with pulse counter support); inputs are galvanically interconnected
Digital input types	NPN, PNP configurable
Digital input protection	Short-term over-voltage tolerance -24...24 V, ESD protection according to EN 61326