

NFC-Sensor Transponder

NST series

The NFC sensor transponder variants of the NST series represent innovative data loggers to be used intuitively in multi-purpose applications. Collected data is transmitted wirelessly via the NFC interface of the data loggers to NFC enabled mobile devices (e.g. mobile phone, tablet). These data can be distributed worldwide by using the already existing infrastructure of the mobile telecommunication networks. Therefore a dedicated reader is not necessary anymore.

These sensor transponders can be utilised in a wide range of application scenarios like facility management, logistics as well as service and maintenance. Due to their modular structure they can be adapted with regard to customer specific requirements. The devices are available with a rugged design suited for harsh environment applications as well as cost-

effective foil packaging. The integration of a number of different sensor elements establishes the precondition for applying data logger of the NST series not merely for cold chain monitoring. In fact it is predestinated to record important environmental parameters during the transport of high-quality assets (e.g. machinery, fragile products). The collection and recording of unusual events like shock or free fall can provide a helpful basis for resolving warranty claims.

In the application area of maintenance the sensor transponder allows for the recording of a machines state. An operator can obtain a summary of the operating conditions and adapt maintenance cycles. Hence the usage of the sensor transponder helps to increase operating efficiency and to avoid cost-intensive down time.

Product features and available sensor elements:

Communication:

- NFC interface for wireless data transmission according to ISO 18092 – compatible to HF-RFID
- Transmission rate 106 kbit/s to maximum 424 kbit/s
- Connection setup < 0.1 s
- Read range up to 5 cm depending on terminal

Temperature sensor:

- Range: -20 °C to 60 °C
- Resolution: 0.1 °C
- Precision: +/- 0.3 °C (from 10 °C to 60 °C)

Humidity sensor:

- Range: 5 % – 90 % relative humidity
- Precision: < +/- 2 %rh (from 20 %rh to 60 %rh)

Shock sensor:

- Range: +/- 2 g, +/- 4 g, +/- 8 g, +/- 16 g
- Precision: 16mg, 31 mg, 63 mg, 125 mg

System:

- Non volatile memory for recording up to 32.764 measurement values
- Dimensions and weight: 82 mm x 52 mm x 16 mm, 48 g
- Housing: Hard case: ABS (IP54) | Soft case: LDPE (IP 67)
- Application software for Android OS (from Version 2.3.3)



Hard case

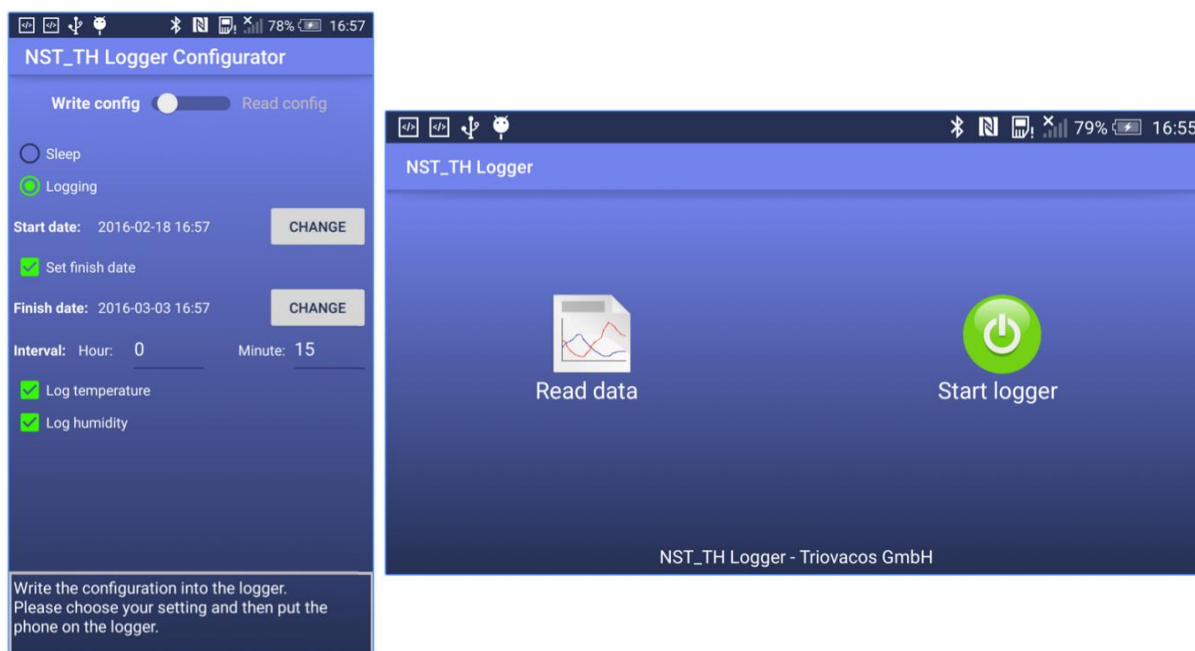


Soft case

The following table summarizes the sensor transponders available from the NST series including meaningful combinations of temperature, humidity and shock sensors. Customer specific design variants with different types of sensors, e.g. pressure or optical sensors, can be provided upon request.

Model	Housing		Type of integrated sensor	Application software (Google Play Store)
	Hard case	Soft case		
NST T14	✓	✓	Temperature	NST_T Logger
NST-TH14	✓		Temperature Humidity	NST_TH Logger
NST-TS14	✓	✓	Temperature Shock	NST_TS Logger
NST-THS14	✓		Temperature Humidity Shock	NST_THS Logger

In order to test the basic functions of the sensor transponders appropriate software is available in Google Play Store for free. For the development of customer specific applications we provide corresponding software libraries and sample programs to demonstrate the possibilities and usage of our codes. Alternatively, we offer the development of a customized app by our team of software experts.



Depending on the application scenario completely different demands on equipment and functionality with regard to the configuration of the data logger exist. Therefore, the NST series offers a variety of options. An overview of the current prices for different configurations of the devices are available on request.