

Manual

Sensor Test – Shadow Monitoring System

version 1.0.1

Contents

1	Changes	3
2	Introduction	4
3	Audience	4
4	Using the tool	5
4.1	Starting the tool.....	5
4.2	The main screen.....	5
4.3	Perform a test.....	6
4.4	Evaluate the test.....	6
4.5	Respond to an error.....	7
5	Text announcements	8
5.1	Light sensor.....	8
5.2	Precipitation monitor.....	8
5.3	Hygro-thermo transmitter.....	9
5.4	Climate sensor.....	9
5.5	Visibility sensor.....	10
5.6	ISpin sensor.....	10
5.7	Converter test.....	10

List of Figures

1	main screen.....	5
2	successful test.....	6

1 Changes

revision	date	comment	created	reviewed
1.00	May 26, 2016	first edition	KEL	SWU
1.01	January 15, 2021	Test of clima, visibility, ISpin sensor and RS485 converter integrated	MMA	

2 Introduction

This manual is written for the sensor test software „Sensor Test – Shadow Monitoring System“ in version 1.0.1. This tool is intended to check for connection and errors of the sensors used by the shadow monitoring system. Those are:

- light sensor
- precipitation monitor
- hygro-thermo transmitter
- climate sensor
- visibility sensor
- ISpin sensor
- RS485 Converter

This software can only communicate over a network connection. Direct use of a RS485 interface is not supported.

3 Audience

The user should be familiar with Ethernet networks, RS485 bus connections and the sensors used by NorthTec.

4 Using the tool

4.1 Starting the tool

This tool needs no installation. Simply start the „sensor_test_shadow_monitoring_system.exe“ application.

4.2 The main screen

After starting this tool, the shown screen (Figure 1) will be displayed.

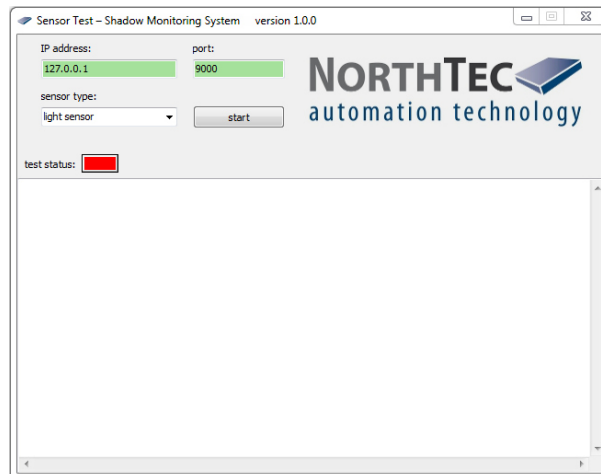


Figure 1: main screen

Setting the network connection

In the left upper corner are two edit fields where the IP address and the network port can be changed. They are marked by „IP address“ and „port“

To change the IP address click to this field and type the new address. **NOTE** Leading zeros will be removed after entering the IP. The field will be highlighted in red if the address is wrong. A valid IP address will be highlighted in green.

The network port can be change by clicking the port field and typing a new value. Valid port numbers will be highlighted in green. Faulty port numbers will be highlighted in red.

Chose type of sensor

Below the IP address field there is a dropdown box to set the sensor to be tested. The following sensors can be chosen.

- light sensor
- precipitation monitor
- hygro-thermo transmitter
- climate sensor
- visibility sensor
- ISpin sensor
- RS485 converter

Starting the test

Right beside the dropdown box is the start button. This button will start the test.

Status of the test

Below the dropdown box is a virtual LED. Its marked with „test status“. The virtual LED has three colors.

color	meaning
red	Test failed
yellow	Test is running
green	Test successfully accomplished

Below the virtual LED there is a text field. The field shows what has happened. If the test has successfully accomplished, the id, serial number of the sensor or a message that the sensor was successfully tested will be shown.

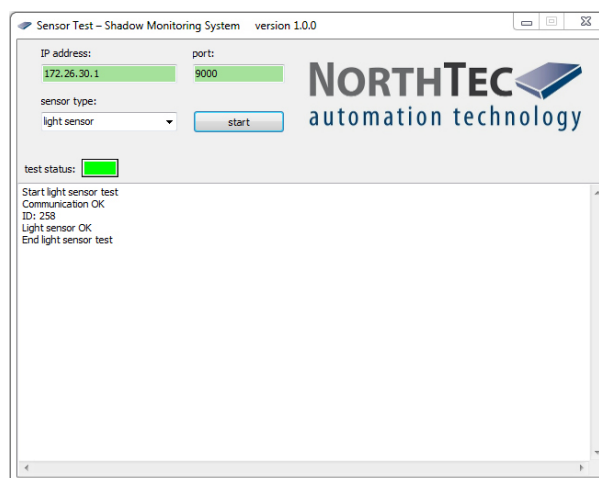


Figure 2: successful test

4.3 Perform a test

To perform a test simply enter the IP address and port of the serial converter, chose an sensor and push the start button. Then wait as long as the status LED is yellow.

4.4 Evaluate the test

After the test has performed, the status LED will show the result. If it is green the sensor is ok. If it is red, the test failed. A test can fail because of two reasons. The first one is, that the communication to the sensor could not be established. The second one is, that the sensor reports an error.

4.5 Respond to an error

If the sensor reports an error

Replace the sensor.

If the communication to the sensor failed

Check for the right IP address and port.

Check the network connection.

Check the IP setting of the computer running this tool.

Check the power supply for the sensor.

Check all fuses and overvoltage suppressors.

Check the polarity of the RS485 bus.

Check the wiring.

Check for other communication to the sensor.

Replace the sensor.

5 Text announcements

5.1 Light sensor

displayed text	meaning
Start light sensor test	The test has started.
Error: Incorrect IP address	The IP address is invalid.
Error: Port error	The port number is invalid.
Error: light sensor does not respond!	No message or a faulty message were received.
Error: Response by the light sensor incorrectly!	The sensor send a wrong or invalid message.
Communication OK	The communication to the sensor is ok.
ID: xxxxx	The ID of the sensor.
Warning: No valid GPS signal!	The sensor could not receive a valid GPS signal. Free sight to the sky is crucial for a valid signal.
Error: light sensor reports error!	The sensor is damaged.
Light sensor OK	Communication and sensor are ok.
End light sensor test	The test has ended.

5.2 Precipitation monitor

displayed text	meaning
Start precipitation monitor test	The test has started.
Error: Incorrect IP address	The IP address is invalid.
Error: Port error	The port number is invalid.
Error: precipitation monitor does not respond!	No message or a faulty message were received.
Error: Response by the precipitation monitor incorrectly!	The sensor send a wrong or invalid message.
Communication OK	The communication to the sensor is ok.
SN: xxxxx	The serial number of the sensor.
Error: precipitation monitor reports error!	The sensor is damaged.
Precipitation monitor OK	Communication and sensor are ok.
End precipitation monitor test	The test has ended.

5.3 Hygro-thermo transmitter

displayed text	meaning
Start hygro-thermo transmitter test	The test has started.
Error: Incorrect IP address	The IP address is invalid.
Error: Port error	The port number is invalid.
Error: hygro-thermo transmitter does not respond!	No message or a faulty message were received.
Error: Response by the hygro-thermo transmitter incorrectly!	The sensor send a wrong or invalid message.
Communication OK	The communication to the sensor is ok.
SN: xxxxx	The serial number of the sensor.
Error: hygro-thermo transmitter reports error!	The sensor is damaged.
hygro-thermo transmitter OK	Communiacion and sensor are ok.
End hygro-thermo transmitter test	The test has ended.

5.4 Climate sensor

displayed text	meaning
Start climate sensor test	The test has started.
Error: Incorrect IP address	The IP address is invalid.
Error: Port error	The port number is invalid.
Error: climate sensor does not respond!	No message or a faulty message were received.
Error: Response by the climate sensor incorrectly!	The sensor send a wrong or invalid message.
Communication OK	The communication to the sensor is ok.
SN: xxxxx	The serial number of the sensor.
Warning: climate sensor not ready!	Not all values of the climate sensor are available
climate sensor OK	Communiacion and sensor are ok.
End climate sensor test	The test has ended.

5.5 Visibility sensor

displayed text	meaning
Start visibility sensor test	The test has started.
Error: Incorrect IP address	The IP address is invalid.
Error: Port error	The port number is invalid.
Error: visibility sensor does not respond!	No message or a faulty message were received.
Error: Response by the visibility sensor incorrectly!	The sensor send a wrong or invalid message.
Communication OK	The communication to the sensor is ok.
SN: xxxxx	The serial number of the sensor.
Visibility message: alarm message	The visibility sensor has a visibility alarm
Hardware message: alarm message	The visibility sensor has a hardware alarm
visibility sensor not OK	The visibility sensor has a internal error
visibility sensor OK	Communiacion and sensor are ok.
End visibility sensor test	The test has ended.

5.6 Ispin sensor

displayed text	meaning
Start Ispin sensor test	The test has started.
Error: Incorrect IP address	The IP address is invalid.
Error: Port error	The port number is invalid.
Error: Ispin sensor does not respond!	No message or a faulty message were received.
Error: Response by the Ispin sensor incorrectly!	The sensor send a wrong or invalid message.
Communication OK	The communication to the sensor is ok.
Warning: Ispin sensor not ready!	Not all or no values of the climate sensor are available
Rotor speed message: warning message	See warning message
Accelerometer message: alarm message	Failure of accelerometer sensor
Sensor path message: alarm message	Failure of sensor path
Ispin sensor OK	Communiacion and sensor are ok.
End Ispin sensor test	The test has ended.

5.7 Converter test

displayed text	meaning
Start converter test	The test has started.
Error: Incorrect IP address	The IP address is invalid.
Error: Port error	The port number is invalid.
Converter detected	Converter detected.
No converter detected	No converter detected.
End converter test	The test has ended.