INSYS icom

Industrial Data Communication

INSYS Smart Device Monitoring App

Monitoring a Modbus Register

Configuration Guide

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1 Introduction

General

The present publication refers to a combination of selected hardware and software components of INSYS icom GmbH as well as other manufacturers. All components have been combined with the target to realize certain results and effects for certain applications in the field of professional data transfer.

The exact descriptions of all used components, to which this publication refers, are described in the tables *Hardware, Accessories* and *Software* at the end of this publication.

The symbols and formattings used in this publication are explained in the correspondent section of the device manual.

Some configurations or preparations, which are precondition in this publication, are described in other publications. Therefore, always refer to the related device manuals. INSYS Smart Devices with web interface provide you with helpful information about the configuration possibilities, if you click on "display help text" in the header.

Target of this Publication

An exemplary configuration for a typical fault monitor application is presented here. If your application has similar requirements, you may modify the configuration on the basis of this Configuration Guide.

A temperature sensor is connected to the IMON-G200 via a Modbus converter (Application Connector). If the temperature measured by the temperature sensor exceeds a certain value X, the IMON will dispatch an alarm SMS to an operator.

This can be used to monitor the function of a cooling system for example. The values and addresses specified in this Configuration Guide are exemplary and must be adjusted to your application accordingly.

The following describes how to configure the Monitoring App of an INSYS IMON fault monitor such that it fulfils above described task. It is prerequisite here that the fault monitor is ready for operation, i.e. a SIM card is inserted and it is configured accordingly.
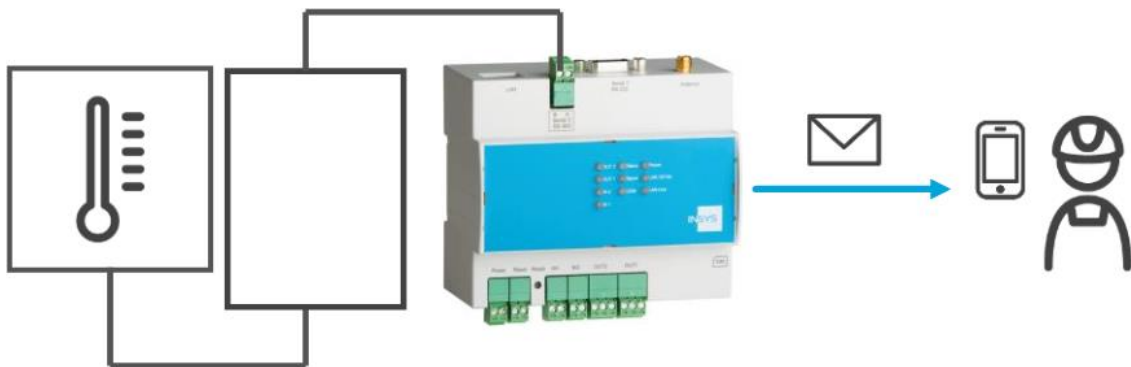

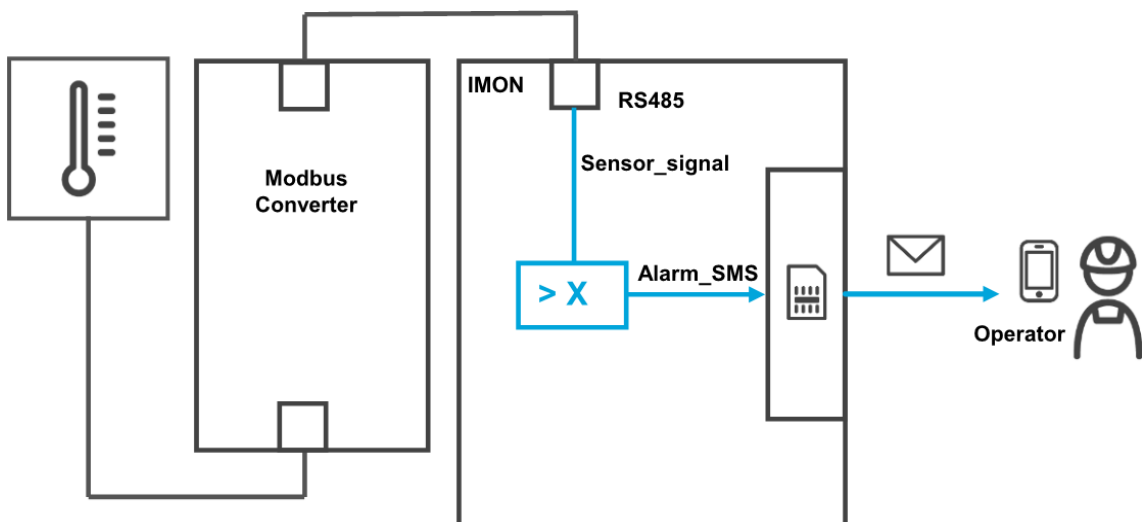Figure 1: Monitoring a Modbus register – overview

Figure 2: Monitoring a Modbus register – simplified diagram

2   Summary

Fault monitor configuration for monitoring a Modbus register

How to configure an INSYS fault monitor for monitoring a Modbus register and triggering a message dispatch. You will find detailed step by step instructions in the following section.

- Add device "Modbus" with Modbus type and RTU connection
- Add element "Sensor_signal" as Modbus register
- Add recipient "Operator" with mobile phone number
- Ad monitoring "Temp_high" ("Sensor_signal" exceeds value)
- Add action "Alarm_SMS" as message to the "Operator"
- Add assignment "Temp_high" to "Alarm_SMS"

3 Configuration

Provisions

It is recommended to commission the router as suggested in the Quick Installation Guide. Different settings of the router may result in necessary adjustments of the settings described in the following. Please prepare the following items before starting the configuration of the application:

■ **Connection to the router**

→ You have access to the Monitoring App of the router via your web browser.

■ **Configurations in the router**

→ The router is logged in to the cellular network (configuration via startup wizard or in "GSM / GPRS" or "UMTS" menu).

→ The router can send SMS (the Service Center Number is specified in the "Messages" menu on the "Configuration" page).

Monitoring App Configuration

A functional Monitoring App requires to add the individual devices, elements, logic operations, recipients, monitorings and actions as well as the assignment of actions to monitorings.

Perform the following steps for this:

■ Adding devices
■ Adding elements
■ Adding recipients
■ Adding monitorings
■ Adding actions
■ Adding assignments

Monitoring a Modbus Register

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■ **Adding devices**

How to add the necessary devices for the Monitoring App. It is necessary to add the connected Modbus converter as a device for this application.

1. Select in the menu the page → Setup application → Devices

2. Select the ⌈Add device⌉ button

   ✓ The "Add device" page appears.

3. Enter "Modbus" as name and select "Modbus" as type and "RTU" as connection

4. Select the serial interface "Serial 2" and enter the remaining parameters according to your Modbus converter

Gerät hinzufügen

Name	Modbus
Typ	Modbus ▾
Anschluss	RTU ▾
Serielle Schnittstelle	Serial 2 ▾
Baudrate	9600 ▾
Datenbits	8 ▾
Parität	NONE ▾
Stopbits	1 ▾
Polling-Intervall	5 Sekunden
Modbus Slave-Adresse	64

⌈OK⌉   ⌈Abbrechen⌉

5. Click on ⌈OK⌉

   ✓ You have added the devices that are necessary for the application with this.

■ **Adding elements**

How to add the necessary elements for the Monitoring App. It is necessary to add the respective Modbus register as element for this application.

1. Select in the menu the page → Setup application → Elements

2. Select the ⃞Add Element⃞ button

  ✓ The "Add element" page appears.

3. Enter "Sensor_signal" as name and select "Modbus", "Modbus" and "Holding register" under Device

4. Enter the respective Modbus register (here "0")

Element hinzufügen

Name	Sensor_signal
Gerät	Modbus ▾
	Modbus ▾
	Holding-Register ▾
Register	0

OK   Abbrechen

5. Click on ⃞OK⃞

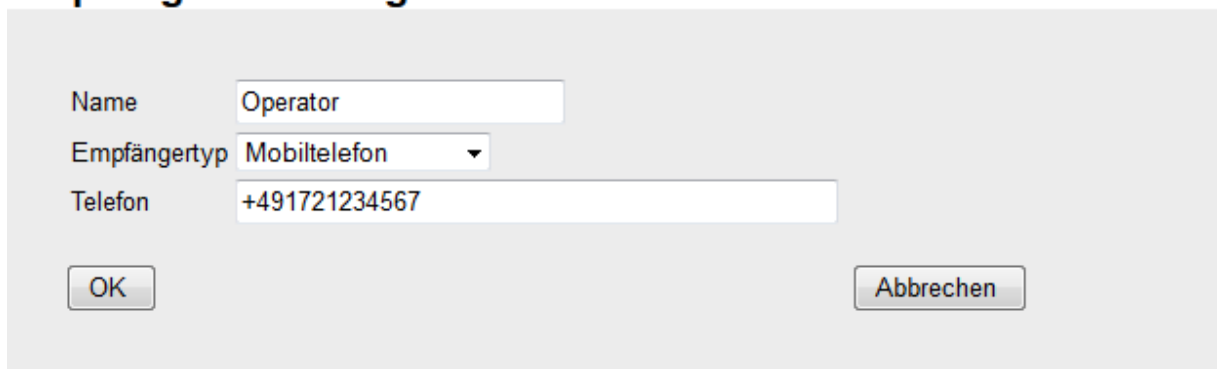 ✓ You have added the elements that are necessary for the application with this.

■ **Adding recipients**

How to add the necessary recipients for the Monitoring App. It is necessary to add the mobile phone number of the operator to transmit the alarm SMS for this application.

1. Select in the menu the page → Setup application → Recipients

2. Select the ⌐Add recipient¬ button

   ✓ The "Add recipient" page appears.

3. Enter "Operator" as name

4. Select the recipient type "Mobile phone"

5. Enter the mobile phone number

Empfänger hinzufügen

Name	Operator
Empfängertyp	Mobiltelefon ▼
Telefon	+491721234567

[OK]   [Abbrechen]

6. Click on ⌐OK¬

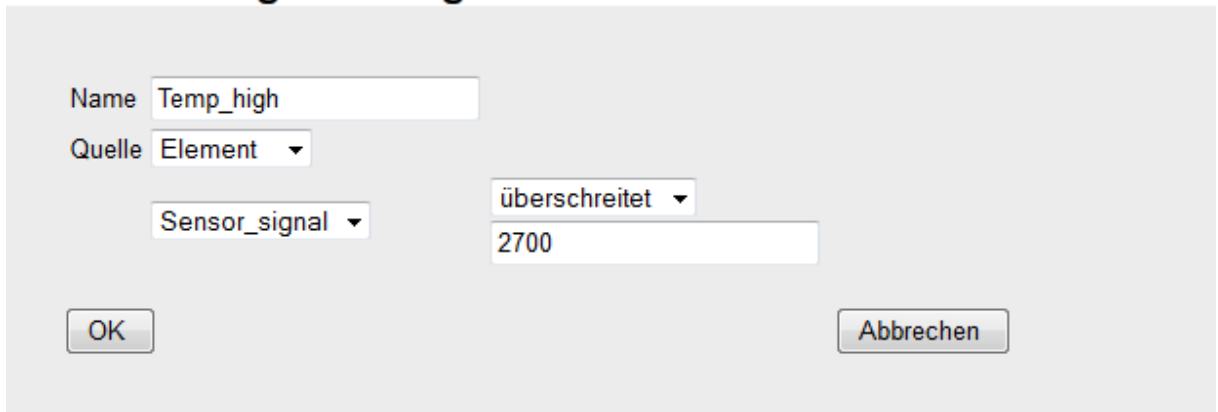   ✓ You have added the recipients that are necessary for the application with this.

■ Adding monitoring operations

How to add the monitoring operations for the Monitoring App. It is necessary to monitor the Sensor_signal element for this application.

1. Select in the menu the page → Monitoring

2. Select the [Add monitoring] button

   ✓ The "Add monitoring" page appears.

3. Enter "Temp_high" as name and select "Element", "Sensor_signal" and "exceeds" under Source

4. Enter the value to be exceeded according to your application (here: 2700)

Überwachung hinzufügen

Name	Temp_high
Quelle	Element ▼

Sensor_signal ▼   überschreitet ▼
2700

[OK]   [Abbrechen]

5. Click on [OK]

   ✓ You have added the monitoring operations that are necessary for the application with this.

■ **Adding actions**

How to add the actions for the Monitoring App. It is necessary to send an alarm SMS for this application.

1. Select in the menu the page → Actions → Definitions

2. Select the ⌈Add action⌉ button
   - ✓ The "Add action" page appears.

3. Enter "Alarm_SMS" as name and select "Message" under Target

4. Highlight "Operator" under Recipient and select the ⌈>>⌉ button

5. Enter the SMS text under Message

Aktion hinzufügen

Name Alarm_SMS

Ziel Nachricht ▼

Empfänger   ausgewählt

| Absender ▲ | >> | Operator ▲ |
| ▼ | << | ▼ |

Nachricht   Temperature too high

OK   Abbrechen

6. Click on ⌈OK⌉
   - ✓ You have added the actions that are necessary for the application with this.

■ **Adding assignments**

How to add the assignments for the Monitoring App. It is necessary to assign the respective actions to the monitorings for this application.

1. Select in the menu the page → Actions → Assignments

2. Select the ⌑Add assignment⌑ button

   ✓ The "Add assignment" page appears.

3. Select "Temp_high" as Monitoring and "Alarm_SMS" as Action

Zuordnung hinzufügen

Überwachung   Aktion
Temp_high ▼ -> Alarm_SMS ▼

OK   Abbrechen

4. Click on ⌑OK⌑

   ✓ You have added the assignments that are necessary for the application with this.

4   Test

Testing the application

The Monitoring App is active directly after configuration. You can check the correct function directly by putting the application into operation and cool down the sensor to a temperature below the threshold first before heating it up to exceed this threshold.

The actual value of the Modbus register (Sensor_signal) is indicated directly on the status page of the web interface of the Monitoring App (consider update interval). The value is above the value configured in the monitoring in following figure. The alarm SMS will be sent to the configured contact with this. A SIM card must be inserted and the fault monitor must be configured accordingly (PIN, SCN) for dispatching the SMS.

ⓘ   *Please consider that the value is monitored for exceeding the threshold, i.e. no SMS would be dispatched, if the value is already above the threshold when monitoring starts (when switching on the fault monitor).*

Status

Aktualisierung alle 5	Sekunden	OK

Modbus		
Modbus	Sensor_signal	3575

5   Used Components

Please observe: The power supply units required to operate devices are not listed here in detail. Take care for a provision at the site, if they are not part of the scope of delivery.

Hardware

Description	Manufacturer	Type	Version
Fault monitor	INSYS	IMON-G200 IMON-U300	Firmware 2.12.5 Monitoring 2.2.0
Modbus converter	CEL-MAR	ADA-401WP	-
Temperature sensor	Conrad	No. 19 82 84	-

Table 1: Used hardware

Software

Description	Manufacturer	Type	Version
Operating system	Microsoft	Windows 7	Ultimate SP1
Browser	Mozilla	Firefox	39

Table 2: Used software

Germany

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