INSEVIS

S7-IIoT Gateway Manual

- S7-Panel-PLC
- S7-Compact-PLC
- S7-Panel-HMI
- Periphery
- Software
- Energy management
- S7-IIoT-Gateway

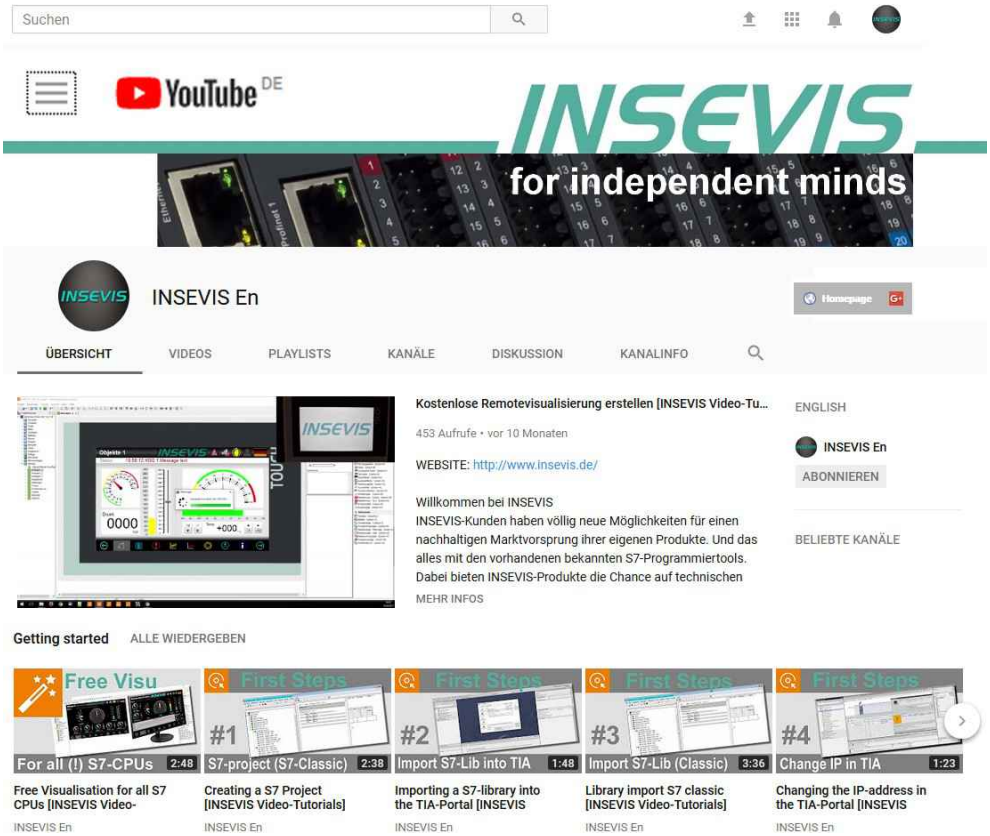
Indes of contents

Changes to older versions of the manual

Rev. 01 / 2019:
new: Initial version

Hint for better understanding by application videos

In the English YouTube-channel INSEV IS En we supply different playlists with handling videos for single details referring to functions, described in this manual. This will help you to get familiar with INSVEIS much faster – PLEASE use it beside this manual!



General instructions

Safety instructions

This manual contains instructions to avoid material damage and must be carefully attended for your own safety. These instructions are identified with a warning triangle with a note of exclamination inside and a signal word *(Signalwort)* below.

Danger	Death, heavy bodily harm or material damage will appear, if appropriated precautions are not taken over.
Warning	Death, heavy bodily harm or material damage will appear, if appropriated precautions are not taken over.
Caution	Bodily harm or material damage will appear, if appropriated precautions are not taken over.
Attention	means, that a unwished results or states can occur, if the appropriated instruction is not noticed.
Important	means the commitment to a special behavior or operation for the safe treatment of the controller / machine.

Qualified personnel

All devices described in this manual may only be used, built up and operated together with this documentation. Installation, initiation and operation of these devices might only be done by instructed personnel with certified skills, who can prove their ability to install and initiate electrical and mechanical devices, systems and current circuits in a generally accepted and admitted standard.

Operation according to regulations

This device might be only used for this operation written in this manual and only in combination with other certified external devices. For a correct operation a proper transportation, storage, initiation and maintenance is necessary.
All valid safety instructions and regulations for the prevent of industrial accidents are to be attended carefully.
The power supply must be connected to a central ground potential in a starlikely wiring.

Maintenance

Modifications / repairs of an INSEVIS device might be done only by special educated and trained personnel of INSEVIS in an ESD-safe area. Every unauthorized opening might cause damages and will terminate all warranty claims.

Data security

Each customer is responsible by himself for protecting his IT-environment against illegal external attacks. INSEVIS shall not be held liable for any direct, indirect or consequential damages respect to any claims arising from the possible illegal external access to their PLCs or HMIs by Ethernet. If you are not sure, how to protect your environment ask for help at professional legal IT-companies.

Copyright

Trade Marks

INSEVIS refers that all trade marks of particular companies used in own documentation as e.g.
- STEP®, SIMATIC® and other as reserved trade mark of Siemens AG.
- CANopen® and other as reserved trade mark of CAN in Automation eG
- WINDOWS® and other as reserved trade mark of MICROSOFT AG

and more reserved trade marks are property of the particular owners and are subjected to common protection of trade marks.

Disclaimer

All technical details in this documentation were created by INSEVIS with highest diligence. Anyhow mistakes could not be excluded, so no responsibility is taken by INSEVIS for the complete correctness of this information. This documentation will reviewed regulary and necessary corrections will be done in next version.

With publication of this manual all other versions are no longer valid.

Essential knowledge and experiences

To understand this documentation basic knowledge and experiences of the automation technology in general and the programming with STEP®7 are essential.

About INSEVIS

S7-system components for industrial automation technology

The range of INSEVIS- product families enables an integrated solution and easy to handle for small and medium automation application with latest technology, very high quality level and with additional interfaces like CANopen® and Modbus, to be configured easily.

The easy integration of INSEVIS-products into the S7-world meanwhile is famous and exemplary. Complex communication settings will be assigned easily and intuitively, so that these properties expand the common S7-world by far. A large and multilingual visualization in a modern design is done by a few clicks and the work flow is known by every WinCCflex user. It can be simulated on the visualization PC and is accessible remote.

The S7-CPUs -V and -P are the base of the successfully INSEVIS product families with Profibus DP Master/Slave.
With the new S7-CPU-T Panel-PLCs and Compact-PLCs are available with Profinet IO Controller.

Step®7-Programability

INSEVIS-S7-CPUs are programmable by STEP 7® - AWL, KOP, FUP, S7-SCL, S7-Graph from Siemens and in general command-compatible to Siemens-CPU S7-315-2PNDP. Some special INSEVIS-blocks expand the functionality and allow outstanding solutions. The S7-programming will be done by good known tools SIMATIC®-Manager or by TIA-Portal® from Siemens always.

Independence

INSEVIS-products does not base on Windows or Linux, they have an own firmware. Thereby the hard- and software can be exactly designed for a perfect co-ordination with this firmware and a low power consumption. Booting times of less than 4 seconds and completely no software licenses and a current drain of <100mA @ 24V are the result of these facts.

Get your software rid of licenses

INSEVIS stands for a clear and honest license policy, what gives the customer sustainable cost benefits. Because of the ownership of BIOS, firmware and PC-software for visualization, configuration and remote access INSEVIS can offer its products completely without licenses.

Made in Germany

Development, PCB-design and -production, test and mounting of all INSEVIS-products - all this is made in Germany. So every product is a proof for the combination of German engineering and economy and is available with a certification of German origin.


Certificato Certyfikat Certificate Certificado Certificat

Zertifikat

TAW Cert

Die Zertifizierungsstelle TAW Cert
Zertifizierungsgesellschaft mbH für QM-Systeme und Personal

bescheinigt hiermit, dass das Unternehmen

INSEVIS
Gesellschaft für industrielle Systemelektronik und Visualisierung mbH
Am Weichselgarten 7
91058 Erlangen

für den Geltungsbereich
Entwicklung, Service und Vertrieb von Systemelektronik und Software für industrielle Automatisierungslösungen

ein Qualitätsmanagementsystem eingeführt hat und anwendet.

Durch ein Audit am 31.07.2014 wurde der Nachweis erbracht, dass die Anforderungen der
DIN EN ISO 9001
(Ausgabe 2008)
erfüllt sind.

Erstzertifizierung: 14.09.2011

Dieses Zertifikat ist gültig bis 13.09.2017

Zertifikat-Registrier-Nr.: 19010511

TAW Cert

DAkkS

Altdorf, den 14.09.2014

Dr.-Ing. Dietmar Winner, Geschäftsführer TAW Cert GmbH

TAW Cert GmbH • Fritz-Bauer-Str. 13 • 90518 Altdorf

INSEVIS operates a yearly certified quality management system ref. to DIN EN ISO 9001.

All suppliers of INSEVIS obligate to this quality management and contribute to the high quality level of INSEVIS-products.

Already during planning these families one goal was indicated as most important: to design highest quality and ergonomics into all products.

These products were put into comprehensive validation tests before they were produced in selected and certified production lines.

INSEVIS - Made in Germany

Produktfamily S7-IIoT Gateways

INSEVIS-S7-IIoT-Gateway – compatible but independent up to the cloud

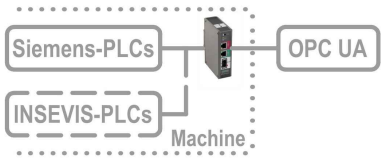
INSEVIS is known for independent and sustainable solutions in the S7-world. So, why not expand this solutions to the „Industrial Internet of Things“ or „Industry 4.0“? The large know-how for S7-technology, combined with most modern security-, communication- and operation philosophy allow optimal combination of S7-solutions with the big-data-world on one side and, secure connections between S7-islands completely without a portal or a cloud.

Referring to the „Reference architecture model Industry 4.0 – RAMI4.0“ INSEVIS supplies all configuration shells onboard, so that a single browser is enough to assign and configure all the settings. But not for anyone, because a sophisticated user management cares for a considerably protection and allows released connections only. External access is possible by openVPN in a safe way.

The benefit of the INSEVIS S7-IIoT-Gateway is, that quasi “by the way”“ a web visualization made by the VisuStage is used and this WinCCflexible-like software is easy to use for anybody, even non-programmers. With huge projections by the implemented „NodeRed“ you can let you imagination run; create tweeds, emails or convert text to speech and get it read to you by an artificial voice. The integrated project- and version management cares for a better overview or backups of previous versions.

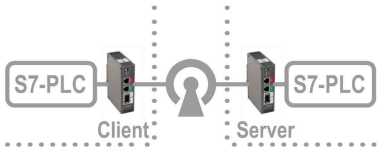
Fields of application

Add S7-controllers by OPC UA-interface to I4.0



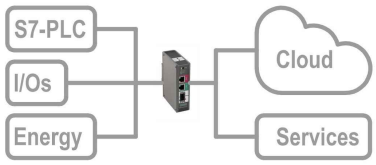
Secure integrating of the S7- Welt by OPC UA to MES, HMI, SCADA ref. to RAMI4.0 (administration shell)

Secure connection of PLC-islands without Cloud/Portal



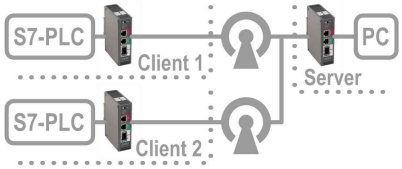
By Site-To-Site-open-VPN directly and secure client/server connection of two S7-islands without need of a clouds or portal

Data acquisition, -processing and -forwarding by IIoT



Data acquisition in S7- and field-layer and transfer by OPC UA or MQTT into cloud or by FTP, email, Twitter, etc.

Secure remote maintenance of multiple systems



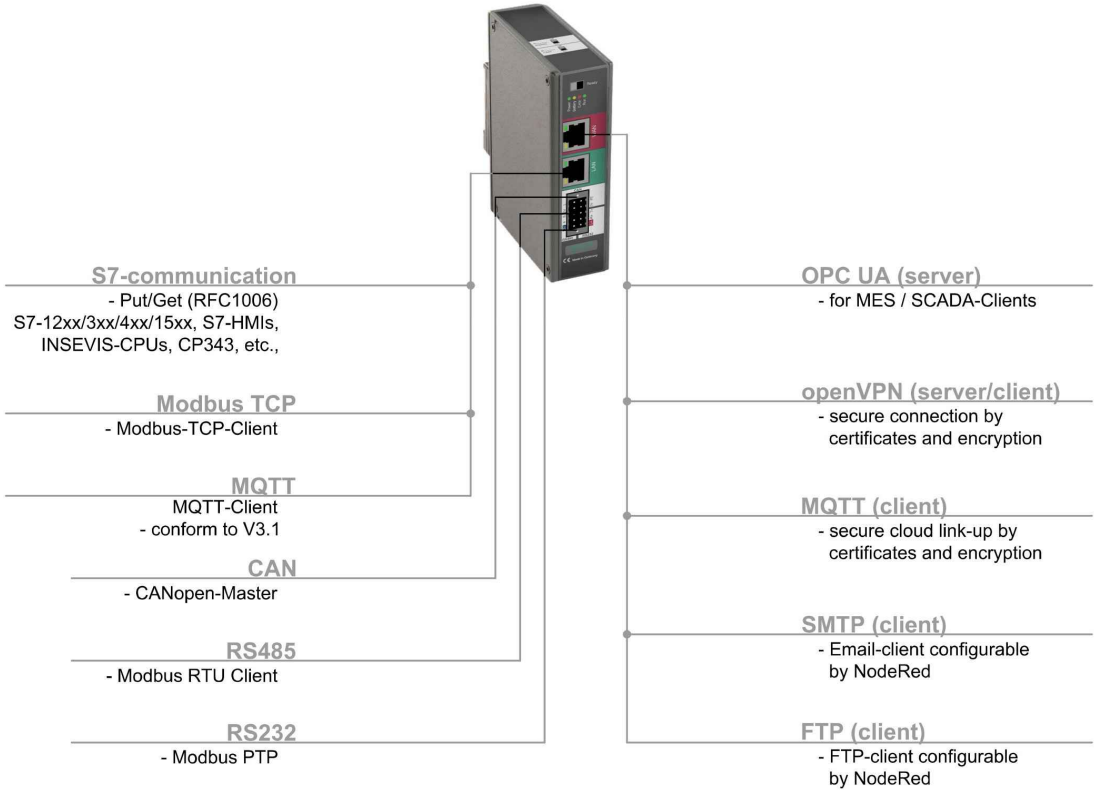
Secure remote maintenance of multiple S7-islands by openVPN from a central station

Produktfamily S7-IIoT Gateways

Communikation in LAN and WAN

Das S7-IIoT-Gateway communicates to control- and field-level by Ethernet RFC1006 (S7-communication Put/Get) and Modbus-TCP as by a CANopen-compatible protocol, by RS485 (Modbus-RTU) and by RS232 (Modbus-PTP).

At the WAN-side a firewall protects the device against unauthorized communication attempts. The Gateway offers OPC UA-server functionality (free or accordant to S7-definition of the namespace) for data exchange with SCADA-, MES- or other management systems. The MQTT-client functionality allows the process data supply for cloud systems.



Most important properties at a glance

LAN: S7-Ethernet and Modbus-TCP

Communicate by RFC1006 (S7-communication Put/Get) easily and with all Siemens-S7-CPUs
Integrate energy meters into your system by Modbus-TCP.

LAN: Modbus-RTU and CANopen

Easy data exchange by additional protocols to communicate to diferent kinds of field devices like energy meters, decentral I/Os, FC, etc.

OPC-UA: S7-variables import and register mapping

Import S7-variables from Simatic-Manager or TIA-Portal including symbols and supply it as data point.
Map Modbus registers to OPC UA-data points.

OPC-UA: free namespace

Either create a namespace according to S7-1500 or create your own free namespace as an ideal image of your solution by OPC UA

MQTT: onboard configuration

Simple configuration by implemented „NodeRed“ also for non-programmers easy to achieve

MQTT: field date into the Cloud

Process data supply by MQTT-client, by serial (RTU) and/or Ethernet (TCP) data receiving and forwarding to S7-CPUs

openVPN: secure S7-communication

Setup of openVPN-connections including certificate-management by onboard-configuration to connect 2 S7-islands completely without portal or cloud. Or as simple secure remote maintenance.

openVPN: secure web visualization

Secure use of the integrated, HMTL5-compatible web visualization by openVPN-connections

Web-Config

One onboard-configuration tool saves all external PC-tools
Secure access control by integrated user-management, comprehensive backup-, restore- and update functionalities

NodeRed

Integrated and intuitively projection of additional services such as Twitter, FTP, email, text to speech trending, etc.)
integrated dashboard function as additional visualization

Produktfamily S7-IIoT Gateways

Technical data

S7-IIoT-Gateway for 35mm DIN-rail

Standard configuration:

Ethernet with
- RFC1006 (S7-communication),
- Send/ Receive via TCP and UDP,
- Modbus TCP

Run/Stop switch

State LEDs for Power, Battery, Error, Run

Inserting stripes
- for Logo and identification (thereby customized adaption possible easy)

on demand :

RS232 with
- Modbus-TCP

RS485 with
- Modbus RTU
- with switchable teminate resistors for RS485

CAN
- protocol compatible to - CANopen®
- with switchable teminate resistors for RS485

Scope of delivery:
- Grounding terminal
- Technical data sheet

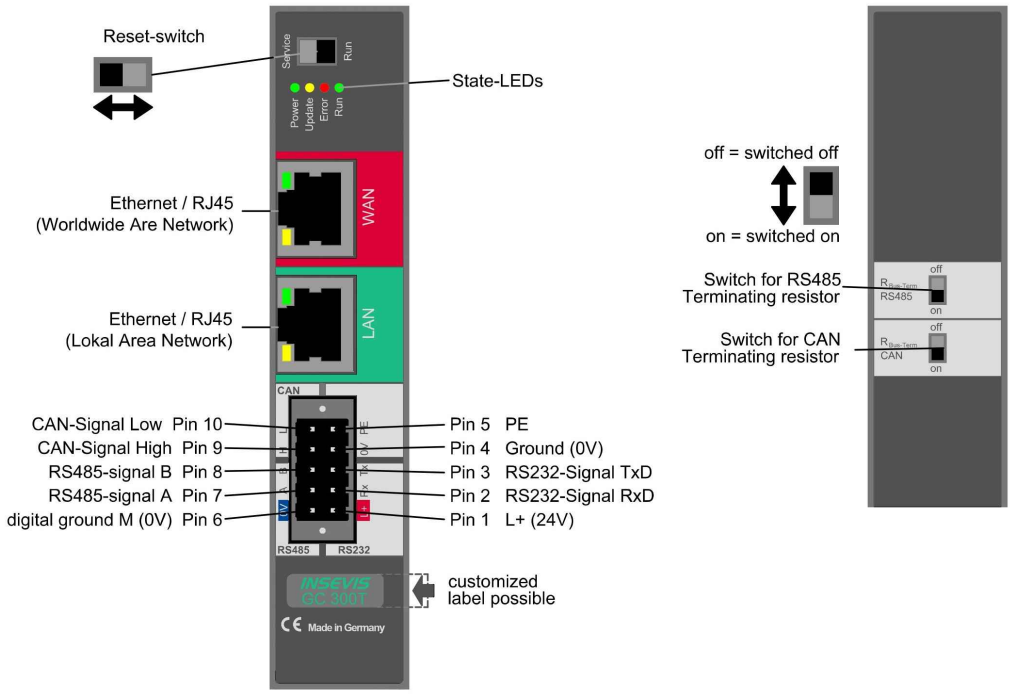


Image: view of GC300T

Produktfamily S7-IIoT Gateways

Technical data	
Dimensions W x H x D (mm) Cut out W x H (mm) Protection class Weight	46 x 116 x 84 35mm DIN rail IP41 ca. 350g
Operating temperature range Storage temperature range	-20°C ... +60°C (without condensation) -30°C ... +80°C
Connection technology	removable connector with 2 bolt flanges aside (cage clamp technology) for cross section up to max. 1,5mm^2
Load voltage L+	24V DC (11 V ... 30V DC)
Start-up current	< 3A

Technical data	CPU
CPU-type	Typ T (GC300T)
Working memory	256 MByte
internal memory	4 GByte, thereof ca. 1 GByte for user data (visualizations, etc)
Programming languages Programming system	JavaScript Node-RED
Serial interfaces (protocols)	COM1: RS 232 (Modbus-PTP) – on request COM2: RS 485 (Modbus-RTU) – on request
Ethernet (protocols)	ETHERNET: 10/100 MBit S7-communication, TCP, UDP, Modbus-TCP MQTT, SMTP Client, HTTP(more by Node-RED) Theoretical performance limit: 100 Connections with 2000 datapoints over all. More datapoints are possible if not every datapoint changes every cycle (100ms)
OPC UA Server SecurityPolicy	Predefined namespace,compatible to S7-1500 + max. 100 user-variables alternatively user defined namespace with external modeler (via binary data export) optionally OPC UA DI able to provide datapoints from all other interfaces including history history configurable in sample time and number of samples subscriptions / monitored items < 100 none / Basic 256 Sha 256 sign / Basic 256 Sha 256 sign & encrypt (single shiftable or detouchable)
Node-RED	performance limit ca. 50 variables actualise cyclic data points from all other interfaces
CAN (protocols)	compatible to CANopen® master/ slave 10 kBaud ... 1 MBaud – on request

Commissioning

The gateway is shipped with LAN-address 192.168.80.60. If the own net differs from it, act as follows:

- Connect LAN-interface of the gateway (Do not mix it with the WAN-interface) with the LAN- interface of your computer.
- Set the IP-address in the computer to „automatic“ or assign a IP-address in the subnet of the gateway (for example 192.168.80.65).
- For the first configuration of the gateway open a compatible browser (see technical data sheet) in your computer.
- Insert the IP-address of the gateway in the browser.
- If the browser informs about a security risk, add an exceptional rule.

The login credentials for the first login are

Name	admin
Password	admin

ATTENTION:

The Admin-password must be changed for security reasons immediately after first login!

Change now the IP-address of the gateway as written below:

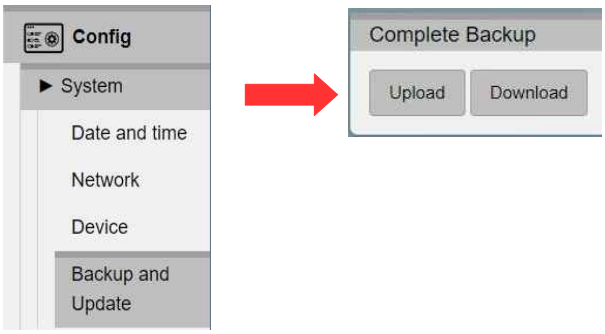
Navigate to : **System / Network** and insert at **LAN Address** a new IP-address, which fits into your local net.
By **Save to device** (lower right) the new settings will be applied.

Example project

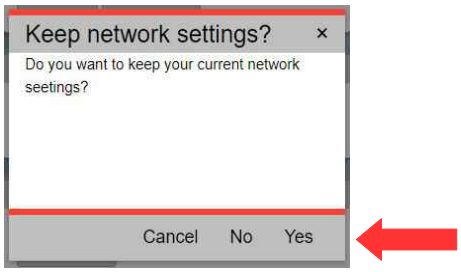
VIDEO-Tutorial available
For this example you find a link to a instructional YouTube® video in the download section of Insevis.com

The variables in the demo project correspond to the variables in the demo visualisations for the Insevis HMIs, Panel-PLCs and Remotevisualisations. We reccomend to keep a device with such a demo visualisation, or at least a PLC with PUT/GET enabled, in the same LAN network as the gateway

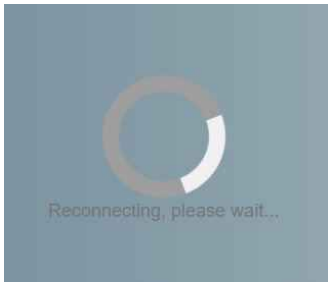
You can download the demo-project at www.insevis.com/downloads under the section **Gateway.** After the download has finished you can log in and navigate to **System / Backup and Update**. **This section is only accessible as the user admin.** Now press the button **Upload** in the tile **Complete Backup** to upload the demo project.



In the popup dialog you can choose to keep your network settings. The demo project comes with the LAN IP 192.168.80.60. If this differs from your settings choose Yes

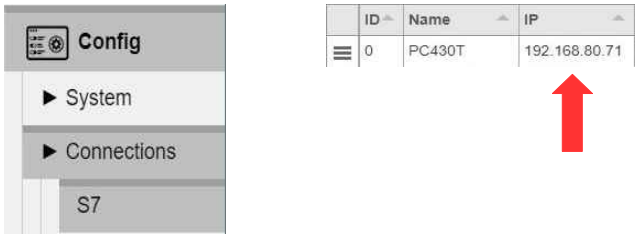


Now navigate to the demo project and confirm. The project is now beeing processed and the gateway will restart itself. This may take 1-2 minutes.



After the restart has finised you can login with the standard credentials (admin : admin). You will find now a preconfiguration including connections and datapoints.

First check if the IP address of the defined connection corresponds to the addres of the PLC in your network. If it differs from the configuration change the settings of the PLC or the settings in the gateway.
To adjust the gateway navigate to **Connections / S7** and alter the address in the ip column in the table.
Save your changes with Save to device (bottom right)

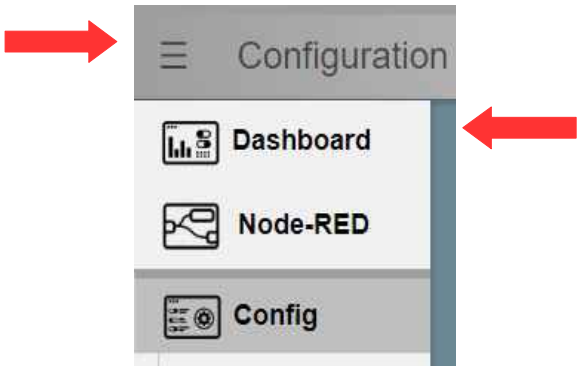


The gateway is now able to get data from the PLC and pass them on to Node-RED and the OPC UA server.

Example project

Dashboard-Visualisation

An Example for the Node-RED dashboard is also included an is already beeing executed.
To access the dasboard open the sidebar menue (the three horizontal bars) and select **Dashboard**



The dashboard will open in a new tab.
The structure of the dasboard corresponds to the deomo visualisations for the Insevis HMIs and Panel-PLCs.

Example project

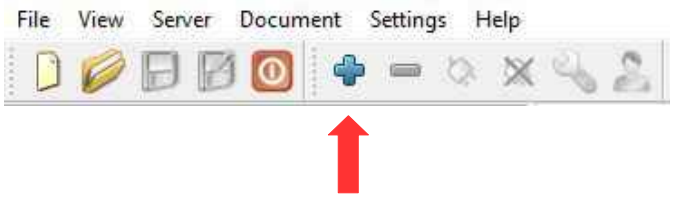
OPC UA-Server

The OPC UA server is also already accessible with a corresponding client. We demonstrate this here by the example of **UA-Expert**.

You will find the program at www.unified-automation.com. Instructions on how to download the software are provided on the website.

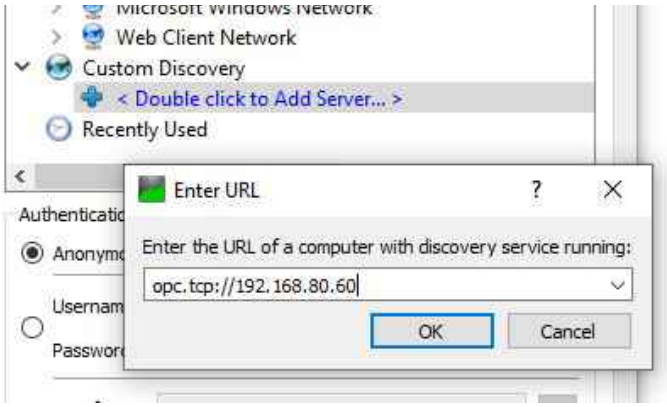
When you open UA-Expert for the first time you have to create a client certificate. To do so follow the instructions and fill out all requested fields.

To connect to the OPC UA server on the gateway add the server with a click on the **+** Symbol



Choose in the popup menue

Custom Discovery / + < Double click to Add Server... >.



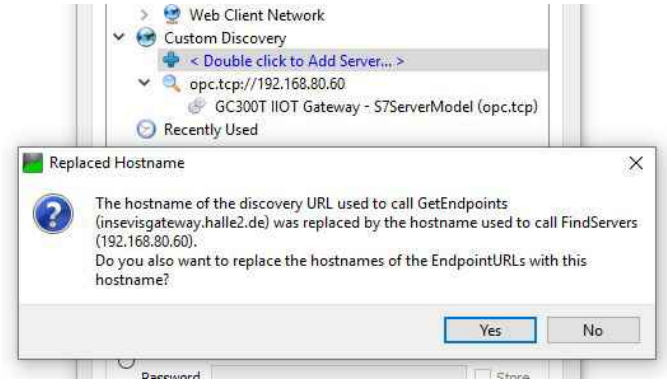
Now enter the IP address of the gateway

opc.tcp://192.168.80.60

and submit it.
The server is now added to the list below.

Open the server with the **>** symbol and the underlying entry aswell.

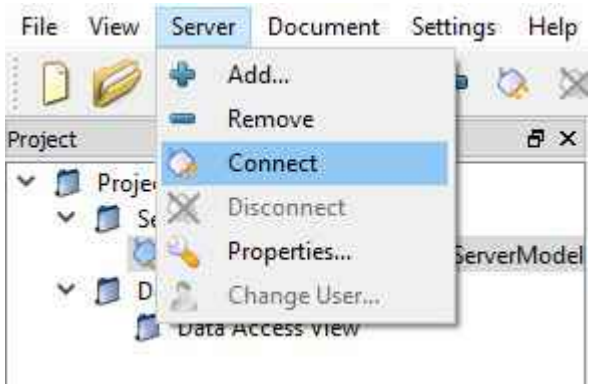
Confirm the **Replace Hostname** dialog with **Yes**.



OPC UA-Server

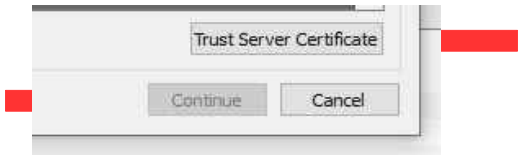
Now choose the encryption.
Select here: **Basic256Sha256 - Sign & Encrypt (uatcp-uasc-uabinary).**

The server has now been added to the project tree on the left side. To connect to the server select it and choose from the menuebar **Server / Connect**.



In the following popup you are beeing warned that the certificate from the server is not trustworthy.

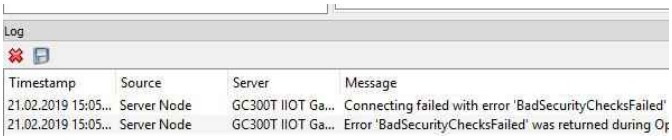
Select **Trust Server Certificate** and **Continue** after that.



In the log output at the bottom window a new error message will show up:

Connecting failed with error 'BadSecurityChecksFailed'.

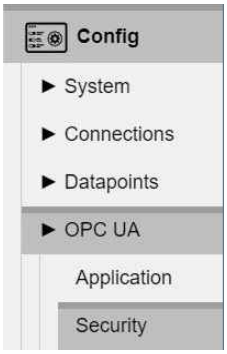
This means the server has rejected the client certificate



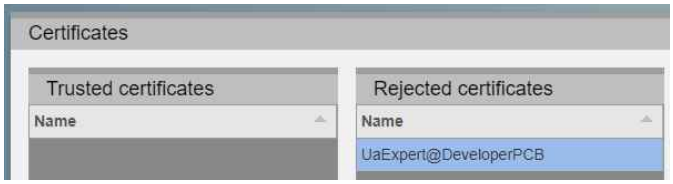
Example project

OPC UA-Server

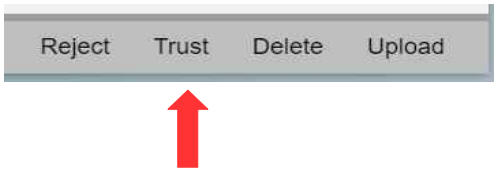
To trust the client certificate navigate in the web config to **OPC UA / Security.**



Under **Certificates** in the list **Rejected certificates** the certificate of the client is listed.

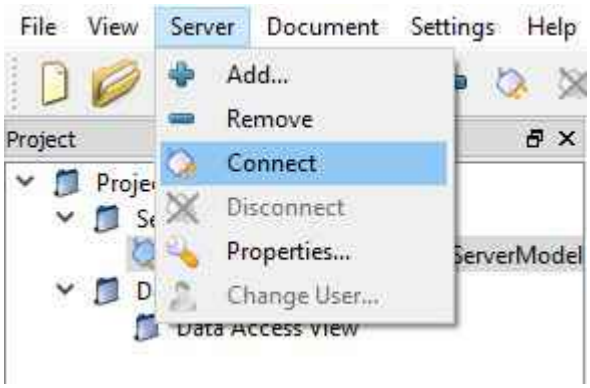


Select now the certificate and trust it with the **Trust** button in the functionbar below.Save your changes with **Save settings to device** (bottom right)

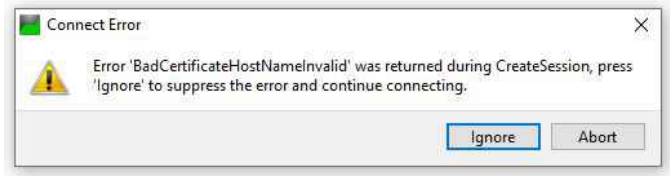


Now restart the OPC UA server to apply your changes. To do so select **Restart** in the red popup at the top.

Back in UA Expert try to connect again to the server (menubar **Server / Connect**)



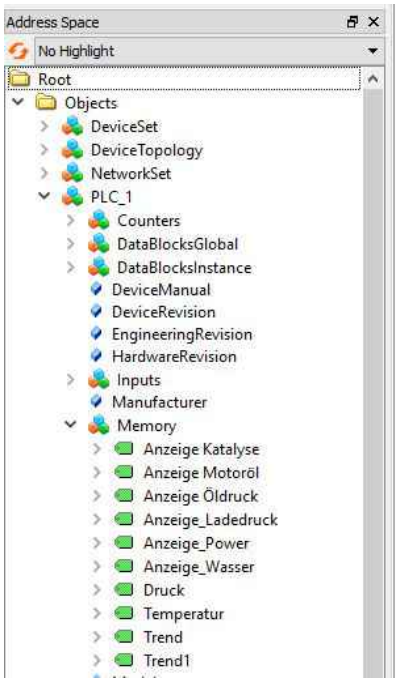
Ignore the next popup to establish the connection.



Example project

OPC UA-Server

UA Expert is now connected to the server. In the bottom left window below the project tree you can see the namespace of the server. At **Root / Objects / PLC_1 / Memory** are all variables listed which are configured for this example.



To read the variables just drag and drop them to the middle section where they can be observed and controlled.

Data Access View

#	Server	Node Id	Display Name	Value	Datatype	ource Timestamp	Server Timestamp	Statuscode
1	GC300T IIOT Ga...	NS3|String|Anze...	Anzeige Katalyse	28	Int16	15:53:26.632	15:53:26.632	Good
2	GC300T IIOT Ga...	NS3|String|Anze...	Anzeige Motoröl	73	Int16	15:53:26.731	15:53:26.731	Good
3	GC300T IIOT Ga...	NS3|String|Anze...	Anzeige Öldruck	58	Int16	15:53:26.841	15:53:26.841	Good
4	GC300T IIOT Ga...	NS3|String|Anze...	Anzeige_Ladedruck	40	Int16	15:53:26.939	15:53:26.939	Good
5	GC300T IIOT Ga...	NS3|String|Anze...	Anzeige_Power	32	Int16	15:53:27.053	15:53:27.053	Good
6	GC300T IIOT Ga...	NS3|String|Anze...	Anzeige_Wasser	61	Int16	15:53:27.161	15:53:27.161	Good
7	GC300T IIOT Ga...	NS3|String|Druck	Druck	0	Int16	15:53:27.261	15:53:27.261	Good
8	GC300T IIOT Ga...	NS3|String|Tem...	Temperatur	0	Int32	15:53:27.372	15:53:27.372	Good
9	GC300T IIOT Ga...	NS3|String|Trend	Trend	65	Int16	15:55:22.836	15:55:22.836	Good
10	GC300T IIOT Ga...	NS3|String|Trend1	Trend1	353	Int16	15:55:22.842	15:55:22.842	Good

Systemsettings

Date and time

VIDEO-Tutorial available
For this menue you find a link to a instructional YouTube® video in the download section of Insevis.com

In this menue you can adjust the date and time for the gateway. These settings are persistent to restarts and power loss and are beeing updated by the includet real time clock.

Caution:

If the gateway has a established internet connection date and time are beeing set automatically and manual input will be ignored.

Set the system time hours:minutes:seconds

Set the system date. day.month.year

Set the timezone. Open the list of available timezones with the arrow **v** and search for your timezone in the searchbar

Write the PCs time and date to the gateway.

Network

VIDEO-Tutorial available
For this menue you find a link to a instructional YouTube® video in the download section of Insevis.com

Under Network you can acces the network settings for the device. Applying these settings can take a few seconds and are only possible if all inputs are correct.

Set the address of the WAN port

Set the netmask of the WAN port

Set the address of the network gateway with wich the device connects itself to the internet. This is required to install additional packages to Node-RED

Set the address of the LAN port. The web configurator is only available on the LAN port.

Set the netmask of the LAN port

Set the address of the nameserver for the network wich the device needs to connect itself to the internet. This is required to install additional packages to Node-RED

Set in which net the network gateway is reachable. Set this to LAN and connect the LAN port to a network with internet access to install additional packages to Node-RED.

Device

VIDEO-Tutorial available
For this menue you find a link to a instructional YouTube® video in the download section of Insevis.com

In this menue you can adjust device specific settings.

Set the device name. The device name is part of the device FQN and is added to certificates and nameservers.

Set the device domain. The device name is part of the device FQN and is added to certificates and nameservers.

Set the password of the admin account. The name admin can not be changed. The standard password is **admin**.

Restart Gateway restarts the complete device which corresponds to a power cycle. **Restart Server** only restarts the server software. After both actions you have to log in again.

Shows you the status of the server.

Backup & Update

VIDEO-Tutorial available
For this menue you find a link to a instructional YouTube® video in the download section of Insevis.com

In this menue you can archive, restore and update your device.

ACHTUNG:

Der **Upload** von Dateien überschreibt die aktuellen Einstellungen.

Contains all connections, datapoints and OPC UA and history settings of these datapoints.

Contains all settings of the webconfigurator exept connections, datapoints, users, admin, certificates and Node-RED projects.

All users exept admin.

All settings for admin.

Complete backup including connections, datapoints, users, admin, certificates and Node-RED projects.

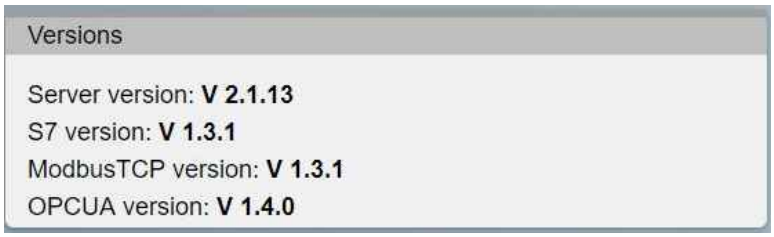
Upload of update packages. This may take a few minutes.

Remove all user data and settings. After this action the LAN adress of the device is 192.168.80.60

Backup & Update

Download the logfiles to analyze what happened in case of an error.

Shows you the versions of all software components.

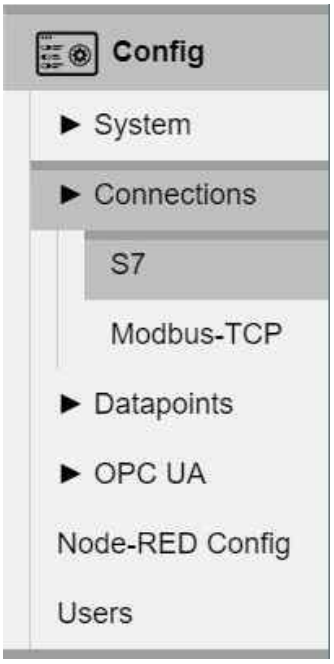


Connections

S7-Connections

VIDEO-Tutorial available
For this menue you find a link to a instructional YouTube® video in the download section of Insevis.com

In this menue you can manage the connections between the gateway and S7 PLCs.



Row handle to select row. Use shift or ctrl to select multiple.

ID of the connection.
Is used to get data from this connection in Node-RED.

Name of the connection.
Freely selectable.

IP address of the PLC.
Has to be in the LAN network.

Ressource-ID
Part of the tsap

Rack number
Part of the tsap

Slot number
Part of the tsap

Tsap of the PLC.
Is automatically calculated

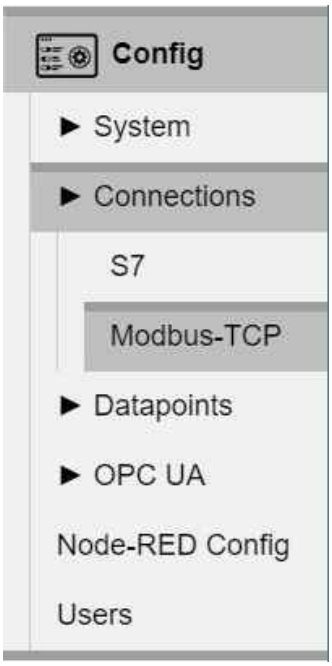
Status of the connection.
If the state **running** is not stable, an error has occured.

Ping the entered IP address

Modbus-TCP

VIDEO-Tutorial available
For this menue you find a link to a instructional YouTube® video in the download section of Insevis.com

In this menue you can manage the connections between the gateway and Modbus-TCP enabled devices.



Row handle to select row. Use shift or ctrl to select multiple.

ID of the connection. Is used to get data from this connection in Node-RED.

Name of the connection.
Freely selectable.

IP-Adresse des Partners.
Muss im LAN-Netz liegen

Port for the Modbus device

Status of the connection.
If the state **running** is not stable, an error has occured.

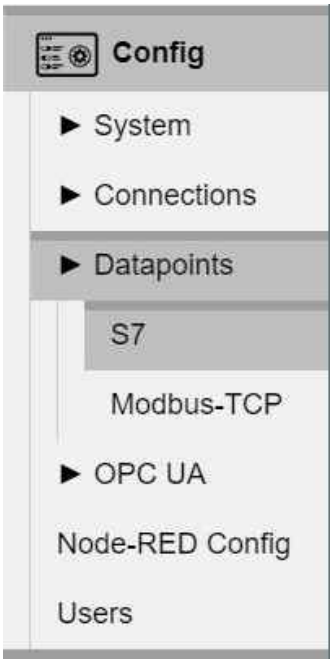
Ping the entered IP address

Datapoints

S7-Datapoints

VIDEO-Tutorial available
For this menue you find a link to a instructional YouTube® video in the download section of Insevis.com

In this menue you can manage the datapoints for the configured S7 PLCs.



Row handle to select row. Use shift or ctrl to select multiple.

Name of the connection to which this datapoint is assigned to.

Name of the datapoint.
Freely selectable or assigned from an import.

Location of the datapoint in the PLC.

Number of the datablock if space is set to DB

S7-300 Datatype

Address-offset

Bit-index if datatype is BOOL

Amount of datapoints.
Values >1 create an array which is read as a whole block at once.

The calculated address based on the providet information.

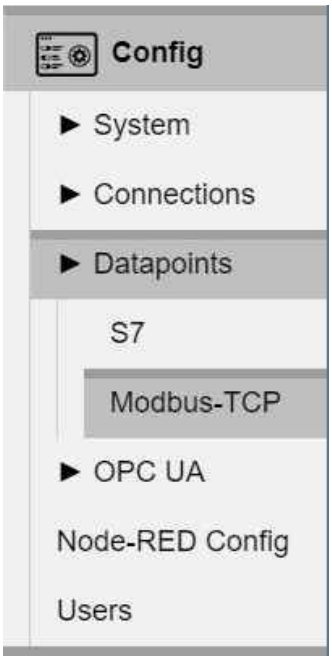
Checkbox to pass this variable to the OPC UA server.

Imported comment of the variable

Modbus-TCP

VIDEO-Tutorial available
For this menue you find a link to a instructional YouTube® video in the download section of Insevis.com

In diesem Menüpunkt werden die Datenpunkte der verbundenen Modbus-TCP Geräte verwaltet.



Row handle to select row. Use shift or ctrl to select multiple.

Name of the connection to which this datapoint is assigned to.

Name of the datapoint.
Freely selectable or assigned from an import.

Location of the datapoint in the Modbus device.
IR=Input Register, HR=Holding Register,
DI=Discret Input, CL=Coil

Word index of the datapoint

Datatype of the datapoint

Amount of datapoints.
Values >1 create an array which is read as a whole block at once.

Endianess of the datapoint
Nur bei Datentypen mit 4 Byte (DINT, DWORD, REAL)

Checkbox to pass this variable to the OPC UA server.

Comment of the variable

	Connection	Name	Space	Index	Datatype	Count	Endianess	OPC UA	Comment
	Connection_0	REG_01	IR	0	DWORD	1	Big	✗	

OPC UA

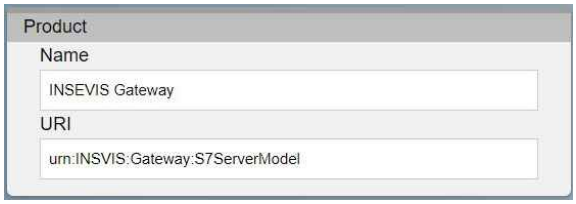
Application

VIDEO-Tutorial available
For this menue you find a link to a instructional YouTube® video in the download section of Insevis.com

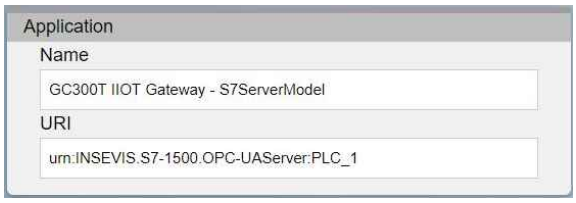
In this menue you can adjust the aplication settings of the OPC UA server.

The **URL** is used to connect to the server by name. It is not directly changeable but it ist derived from the **FQN** and **Port**.

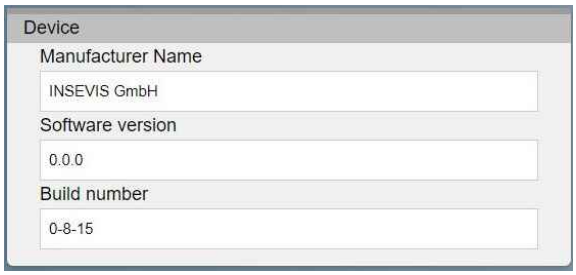
The **Product name** represents the server in a human readable form. The **Product URI** must be globally unique.



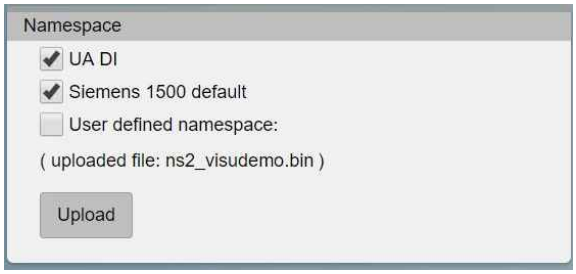
The **Application Name** represents the application in a human readable form. The **Application URI** must be globally unique.



The **Manufacturer Name** represents the name of the manufacturer in a human readable form. **Software version** and **Build number** are used for versionmanagement.



Activating of the integrated namespaces. The **UA DI** namespace contains typedefinitions which can be referenced by other namespaces. **Siemens 1500 default** represents the structure of a Siemens 1500 PLC. **User defined namespace** activates a namespace uploadet by the user.



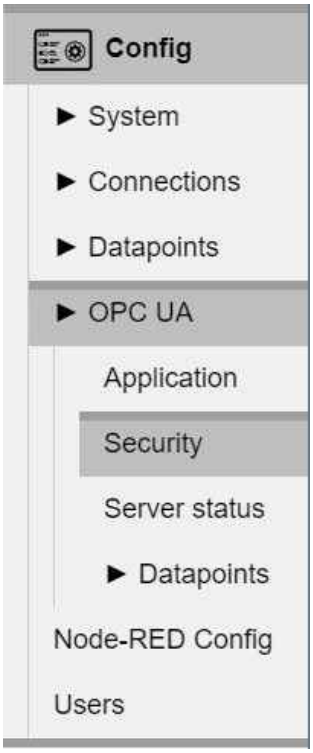
Security

VIDEO-Tutorial available
For this menue you find a link to a instructional YouTube® video in the download section of Insevis.com

In this menue you can adjust to security settings for the OPC UA server.

ACHTUNG:

The setting **Encryption none** enables an unencryptet access and data transmission to the OPC UA server. **This poses a substantial security risk and should only be enabled for testing purposes**.



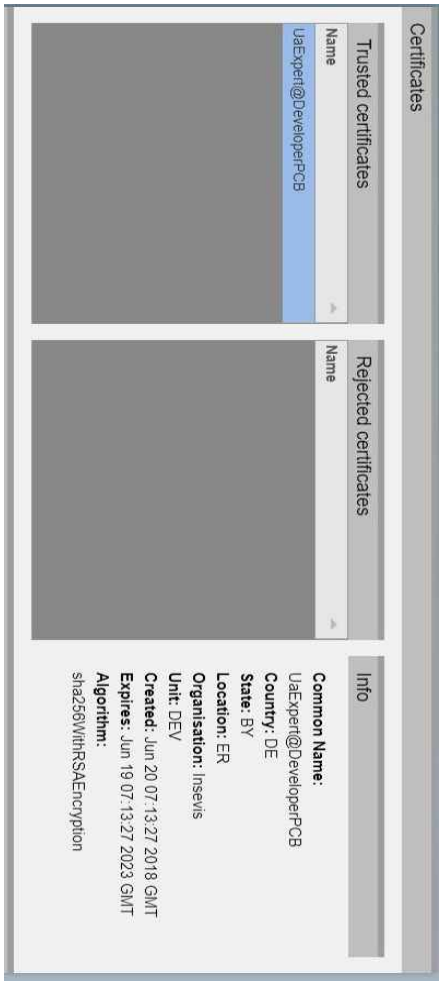
Defines the permitted connection types.
none : no encryption or signature
Basic – Sign : signed transmission
Basic – Sign & Encrypt : Encrypted and signed transmission.

Provides a **Download** for the server certificate. **Regenerate** deletes the current certificate and generates a new one. This new certificate hast to be distributed to the clients as the old one is no longer useable.

Trusted certificates contains a list of certificates which are beeing trusted.

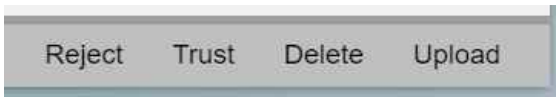
Rejected certificates contains a list of certificates which have been rejected. Upon first connection every certificate is rejected at first and has to be manually added to the trusted list.

Selecting a certificate displays further information about it in this window.



Security

Selected certificates can be moved to the corresponding list with **Reject** and **Trust**. **Delete** deletes the selected certificate and **Upload** enabels you to manually add a certificate.



Server status

VIDEO-Tutorial available
For this menue you find a link to a instructional YouTube® video in the download section of Insevis.com

In this menue you can control server.

Start and **Stop** controlls the server.
Start on startup starts the server with the gateway.

S7 Datapoints in the OPC UA Server

VIDEO-Tutorial available
For this menue you find a link to a instructional YouTube® video in the download section of Insevis.com

In this menue you can adjust to previously submitted datapoints for the OPC UA server.

Row handle to select row. Use shift or ctrl to select multiple.

Name of the connection to which this datapoint is assigned to.

Name of the datapoint.

Address of the datapoint

Datatype in the OPC UA namespace.
Must have same storage width as S7 datatype

Node ID of the datapoint
Used to identify the datapoint in the namespace.
Can be string or integer.

Type of the Node ID
String or Numeric

Browse name
Human readable name for the datapoint in the namespace.

Checkbox to actiave the history for this datapoint.

Time between samples.
The datapoints are beeing refreshed every 100ms.
Enter only larger values.

Number of samples.
Only limitet by the available storage.

Connection	Variable	Address	OPC-UA Datatype	Node ID	Node ID type	Browse name	History	HistorySampleTime (ms)	HistorySampleCount
PC430T	Trend	MW12	INT16	Trend	string	Trend	✓	500	1000

Modbus-TCP im OPC UA Server

VIDEO-Tutorial available
For this menue you find a link to a instructional YouTube® video in the download section of Insevis.com

In this menue you can adjust to previously submitted datapoints for the OPC UA server.

Row handle to select row. Use shift or ctrl to select multiple.

Name of the connection to which this datapoint is assigned to.

Name of the datapoint.

Address of the datapoint

Datatype in the OPC UA namespace.
Must have same storage width as Modbus-TCP datatype

Node ID of the datapoint
Used to identify the datapoint in the namespace.
Can be string or integer.

Type of the Node ID
String or Numeric

Browse name
Human readable name for the datapoint in the namespace.

Checkbox to actiave the history for this datapoint.

Time between samples.
The datapoints are beeing refreshed every 100ms.
Enter only larger values.

Number of samples.
Only limitet by the available storage.

	Connection	Variable	Address	OPC-UA Datatype	Node ID	Node ID type	Browse name	History	HistorySampleTime (ms)	HistorySampleCount
	Connection_0	Connection_00	DI0	BOOLEAN	Connection_00	string	Connection_00	✕	0	0

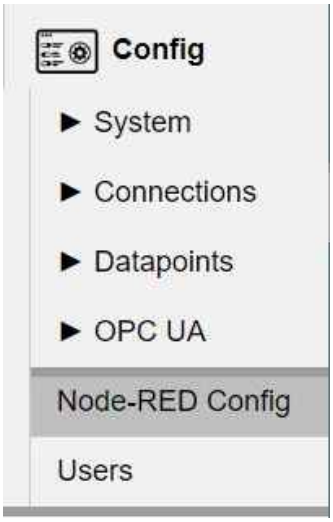
Node-RED Config

VIDEO-Tutorial available
For this menue you find a link to a instructional YouTube® video in the download section of Insevis.com

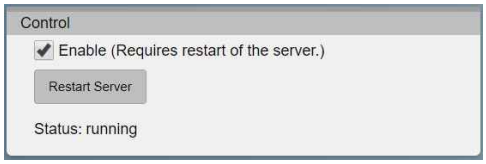
In this menue you can adjust the behaviour of Node-RED

CAUTION:

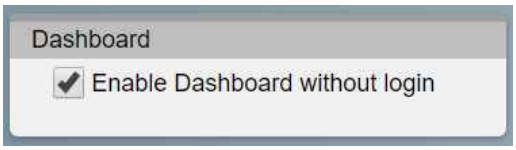
Do not activate Node-RED if you don't need it as it consumes substantial system resources.



Enable starts Node-RED together with the gateway. **Restart Server** restarts the software of the gateway to immediately apply the changes to **Enable**.



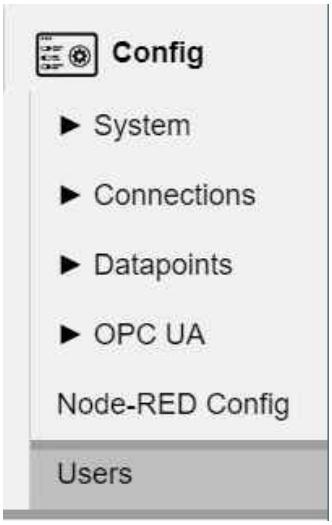
Enables the access to the dashboard without a prior login.



Users

VIDEO-Tutorial available
For this menue you find a link to a instructional YouTube® video in the download section of Insevis.com

In this menue you find the usermanagement. **Doubleclick** on an entry to **edit** it.



Name of the user.
Freely selectable.

E-Mail address of the user.
Freely selectable.

Information text about the user.

Privileges of the user.
Used to limit access to specific sections of the webconfigurator.

Startpage of the user.
The page to which the user will be redirected to after login.
Make shure the user has sufficient privileges to access this site.

INSEVIS

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Zertifiziert nach DIN EN ISO 9001:2015

Qualifiziertes Personal

Die hier beschriebenen Installationen dürfen nur von qualifiziertem Personal (fachlich ausgebildete Personen, die die Berechtigung nachgewiesen haben, Geräte, Systeme und Stromkreise nach allgemeinen gültigen Standards in Betrieb zu nehmen, zu erden und zu kennzeichnen) vorgenommen werden.

Hinweise zur Sicherheit

Diese Anweisung beinhaltet Hinweise, die zur ersten Kommunikation mit den INSEVIS-Geräten dienen und ersetzt kein Handbuch. Informieren Sie sich vor der weiteren Programmierung im Handbuch über die jeweiligen Sicherheitshinweise über bestimmungsgemäßen Gebrauch, qualifiziertes Personal und Instandhaltung.

Marken

Haftungsausschluss