Operating Instructions

Tankvision
Tank Scanner NXA820, Data Concentrator NXA821, Host Link NXA822

Inventory Control

Endress+Hauser

People for Process Automation

Table of Contents

1   Safety Instructions

1.1   Designated use

Tankvision is a dedicated tank inventory management system.
Components:
- **Tankvision Tank Scanner NXA820**
  scans parameters from tank gauges and performs tank calculations
- **Tankvision Data Concentrator NXA821**
  summarizes data from various Tank Scanners NXA820
- **Tankvision Host Link NXA822**
  provides data to host systems (such as PLC or DCS) via Modbus

The above mentioned components are operated via a standard web browser. It does not require any proprietary software. Tankvision is based on a distributed architecture on a Local Area Network (LAN). Due to its modular structure it can be adjusted to any application. It is ideally suited for small tank farms with only a couple of tanks, but also for large refineries with hundreds of tanks.

1.2   Installation, commissioning, operation

The Tankvision system is fail-safe and constructed to the state-of-the-art. It meets the appropriate standards and EC directives. However, if you use it improperly or other than for its designated use, it may pose application-specific hazards, e.g. product overflow due to incorrect installation or configuration. Installation, electrical connection, start-up, operation and maintenance of the devices must therefore be carried out exclusively by trained specialists authorised by the system operator. Technical personnel must have read and understood these operating instructions and must adhere to them. You may only undertake modifications or repair work to the device when it is expressly permitted by the operating instructions.

1.3   Notes on safety conventions and symbols

In order to highlight safety-relevant or alternative operating procedures in the manual, the following conventions have been used, each indicated by a corresponding symbol in the margin.

Safety conventions	
⚠	**Warning!** A warning highlights actions or procedures which, if not performed correctly, will lead to personal injury, a safety hazard or destruction of the instrument
☞	**Caution!** Caution highlights actions or procedures which, if not performed correctly, may lead to personal injury or incorrect functioning of the instrument
✏	**Note!** A note highlights actions or procedures which, if not performed correctly, may indirectly affect operation or may lead to an instrument response which is not planned
Explosion protection	
⟨Ex⟩	**Device certified for use in explosion hazardous area** If the device has this symbol embossed on its name plate it can be installed in an explosion hazardous area
⟨Ex⟩	**Explosion hazardous area** Symbol used in drawings to indicate explosion hazardous areas. Devices located in and wiring entering areas with the designation "explosion hazardous areas" must conform with the stated type of protection.
⟨Ex⟩	**Safe area (non-explosion hazardous area)** Symbol used in drawings to indicate, if necessary, non-explosion hazardous areas. Devices located in safe areas still require a certificate if their outputs run into explosion hazardous areas
Electrical symbols	
⎓	**Direct voltage** A terminal to which or from which a direct current or voltage may be applied or supplied
∼	**Alternating voltage** A terminal to which or from which an alternating (sine-wave) current or voltage may be applied or supplied
⏚	**Grounded terminal** A grounded terminal, which as far as the operator is concerned, is already grounded by means of an earth grounding system
⏚	**Protective grounding (earth) terminal** A terminal which must be connected to earth ground prior to making any other connection to the equipment
⏚	**Equipotential connection (earth bonding)** A connection made to the plant grounding system which may be of type e.g. neutral star or equipotential line according to national or company practice
t>85°C	**Temperature resistance of the connection cables** States, that the connection cables must be resistant to a temperature of at least 85 °C (185°F).

2 Identification

2.1 Nameplate

L00-NXA82xxx-18-00-00-yy-001

1: Order code according to the product structure
2: Serial number
3: Supply voltage
4: Type of fieldbus communication (only for Tank Scanner NXA820)
5: Degree of protection
6: Admissible ambient temperature
7: MAC address of the System LAN port
8: MAC address of the Sync Link LAN port
9: Technical data of the Service LAN port

2.2 Product Structure

2.2.1 Tank Scanner NXA820

010											Approval	
	A										Non-hazardous area	

020											Field Communication; Input	
		1									Whessoematic 550, max. 15 instruments	
		4									Modbus EIA485 master, max. 15 instruments	
		8									Sakura V1 protocol, max. 10 instruments	
		Y									Special version, to be specified	

030											Power Supply	
			1								90-250 V AC 50/60Hz	
			2								10.5-32 V DC	
			9								Special version, to be specified	

040											Inventory Calculations	
				1							Oil + gas	
				9							Special version, to be specified	

050											Data Archive Memory Size	
					D						1GB; 15 parameter/min; 90 days	
					Y						Special version, to be specified	

060											Local Operation	
						1					status display	
						9					Special version, to be specified	

070											Operation Language	
							A				English	
							B				German / English	
							C				*Dutch / English	
							D				*Italian / English	
							E				*French / English	
							F				*Spanish / English	
							G				*Chinese / English	
							H				*Russia / English	
							I				Japanese / English	
							Y				Special version, to be specified	

080											Housing	
								1			DIN rail mounting PBT, IP20	
								9			Special version, to be specified	

090											Redundancy	
									1		w/o	
									9		Special version, to be specified	

100											Custody Transfer Approval	
										0	not selected	
										1	NMI type approval	
										7	PTB type approval	
										9	Special version, to be specified	

110											Additional Option	
											A	Basic version
											Y	Special version, to be specified

NXA820 –											complete product designation	

* in preparation

2.2.2 Data Concentrator NXA821

010	Approval								
	A	Non-Hazardous area							

030		Power supply							
	1	90-250 V AC 50/60Hz							
	2	10.5-32 V DC							
	9	Special version, to be specified							

050			Data Archive Memory Size						
		D	1GB; 15 parameter/min; 90 days						
		Y	Special version, to be specified						

060				Local Operation					
			1	status display					
			9	Special version, to be specified					

070					Operation Language				
				A	English				
				B	German / English				
				C	*Dutch / English				
				D	*Italian / English				
				E	*French / English				
				F	*Spanish / English				
				G	*Chinese / English				
				H	*Russia / English				
				I	Japanese / English				
				Y	Special version, to be specified				

080						Housing			
					1	DIN rail mounting PBT, IP20			
					9	Special version, to be specified			

090							Redundancy		
						1	w/o		
						9	Special version, to be specified		

100								Custody Transfer Approval	
							0	not selected	
							1	NMI type approval	
							7	PTB type approval	
							9	Special version, to be specified	

110									Additional Option
								A	Basic version
								P	Printer port, serial, W+M approved
								Y	Special version, to be specified

NXA821 –									complete product designation

* in preparation

2.2.3   Host Link NXA822

010									Approval
	A								Non-hazardous area

020									Communication; Output
		1							Modbus serial, TCP/IP, Entis + slave interface
		9							Special version, to be specified

030									Power Supply
			1						90-250 V AC 50/60Hz
			2						10.5-32V DC
			9						Special version, to be specified

060									Local Operation
				1					status display
				9					Special version, to be specified

070									Operating language
					A				English
					B				German / English
					C				*Dutch / English
					D				*Italian / English
					E				*French / English
					F				*Spanish / English
					G				*Chinese / English
					H				*Russia / English
					I				Japanese / English
					Y				Special version, to be specified

080									Housing
						1			DIN rail mounting PBT, IP20
						9			Special version, to be specified

090									Redundancy
							1		w/o
							9		Special version, to be specified

100									Custody Transfer Approval
								0	not selected
								1	*NMi type approval
								7	*PTB type approval
								9	Special version, to be specified

110									Additional Option
									A	Basic version
									Y	Special version, to be specified

| NXA822 – | | | | | | | | | complete product designation |

* in preparation

2.3   Supplied documentation

2.3.1   Operating instructions

Document number	Instrument	Type of Document
BA339F/00	■ Tank Scanner NXA820 ■ Data Concentrator NXA821 ■ Host Link NXA822	Description of Instrument Functions
BA340F/00	■ Tank Scanner NXA820 ■ Data Concentrator NXA821 ■ Host Link NXA822	Installation Instructions

2.4   Certificates and approvals

CE mark, declaration of conformity
The device is designed to meet state-of-the-art safety requirements, has been tested and left the factory in a condition in which it is safe to operate. The device complies with the applicable standards and regulations as listed in the EC declaration of conformity and thus complies with the statutory requirements of the EG directives. Endress+Hauser confirms the successful testing of the device by affixing to it the CE mark.

2.5   Registered trademarks

Microsoft®, Windows® and Internet Explorer®
Registered trademarks of the Microsoft Corporation

Modbus®
Registered trademark of the Modbus–IDA, Hopkinton, MA, USA

Java®
Registered trademark of Sun Microsystems, Inc.

3 Installation

3.1 Incoming acceptance, transport, storage

3.1.1 Incoming acceptance

Check the packing and contents for any signs of damage.
Check the shipment, make sure nothing is missing and that the scope of supply matches your order.

3.1.2 Delivery content

- Tankvision
- Ferrite for installation on the power supply cable
- Operating Instruction BA340F/00

3.1.3 Transport, storage

Pack the measuring instrument so that it is protected against impacts for storage and transport. The original packing material provides the optimum protection for this.
Permissible storage temperature: 0 to +55 °C (32°F to 131°F).

3.2 Mounting

3.2.1 Dimensions
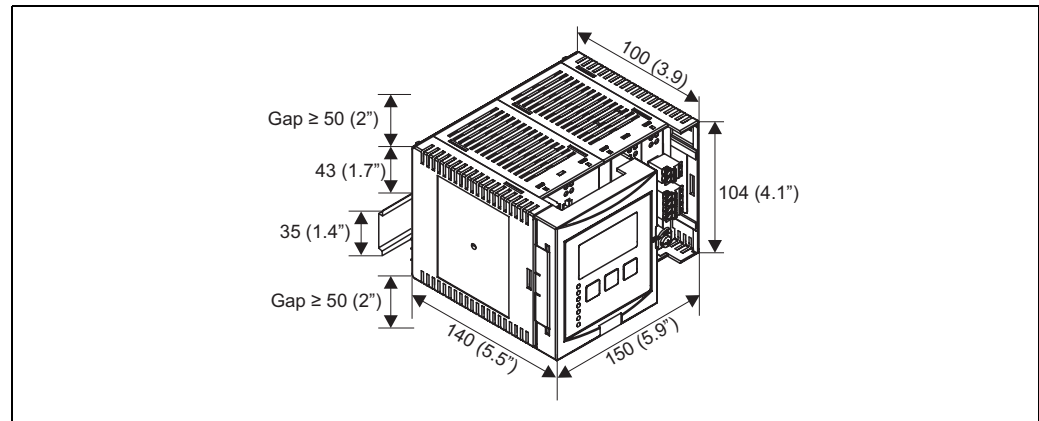
NXA82xxx-06-00-00-yy-002

3.2.2 Installation conditions

- The DIN-rail housing must be mounted outside hazardous areas in a cabinet.
- The housing is mounted on a DIN rail EN 60715 TH 35x7,5 or TH 37x15.
- Do not install the instrument in the vicinity of high-voltage lines, motor lines, contactors or frequency converters. The installation regulations for high-voltage lines, motor lines, contactors or frequency converters must be observed.
- To ensure easy mounting and opening of the housing, a distance of approx. 1 cm (0.39 in) should be kept between the instruments.

3.2.3 Mounting
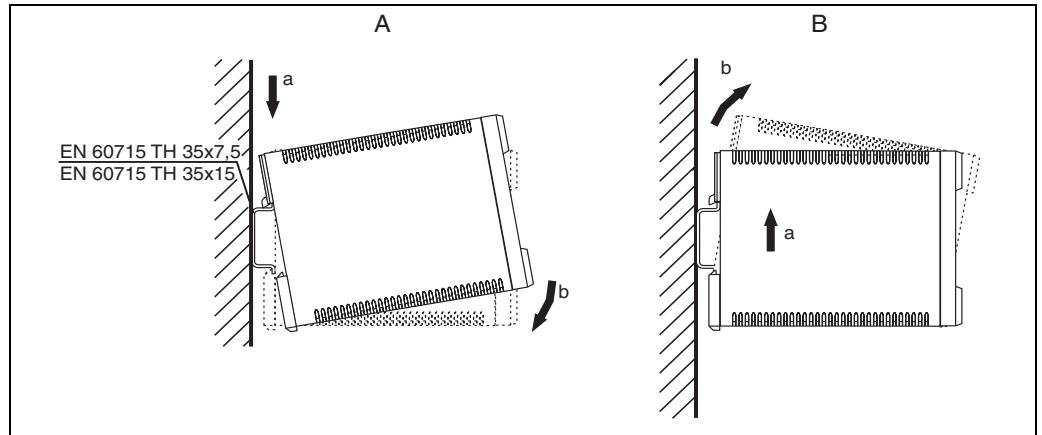
L00-FMU90xxx-17-00-00-xx-001

A: *Attaching the instrument to the rail* *B:* *Detaching the instrument from the rail*

3.3 Installation check

After installing the device, carry out the following checks:

- Is the device damaged (visual inspection)?
- Does the device correspond to the measuring point specifications such as ambient temperature etc?
- If available: Are the measuring point number and labelling correct?
- Is the instrument sufficiently protected against rainfall and direct sunlight?
- Is the instrument securely mounted to the DIN rail (visual inspection)?

4 Wiring

4.1 Wiring examples
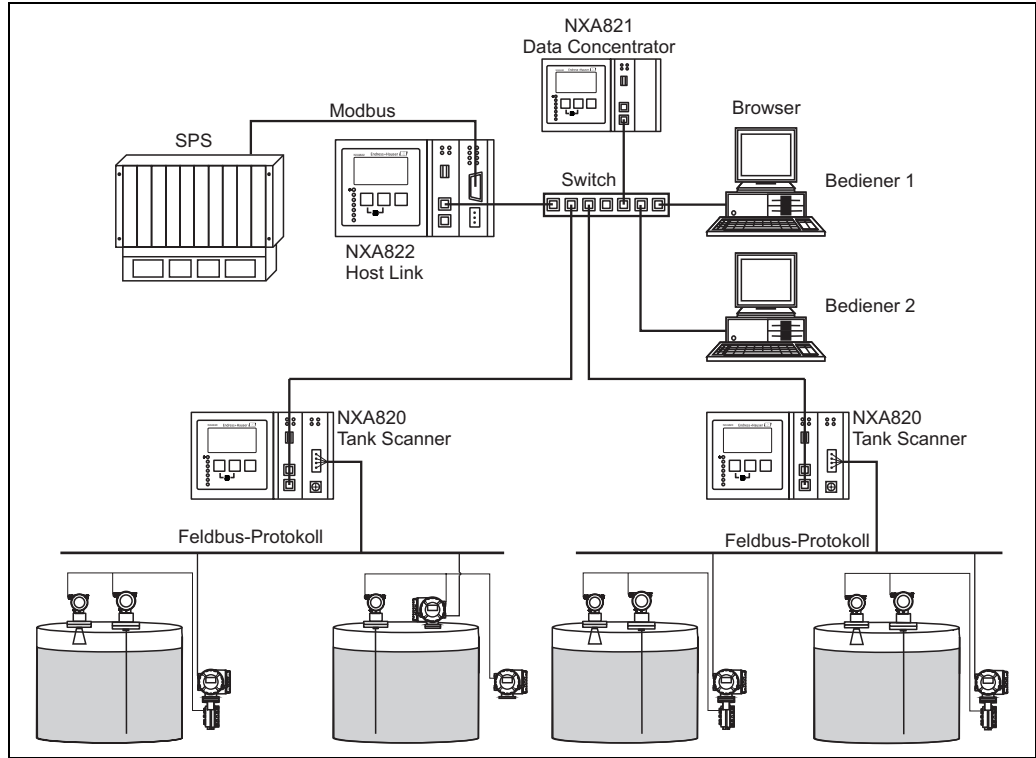
L00-NXA82xxx-02-00-00-en-005

4.2 Terminal assignment
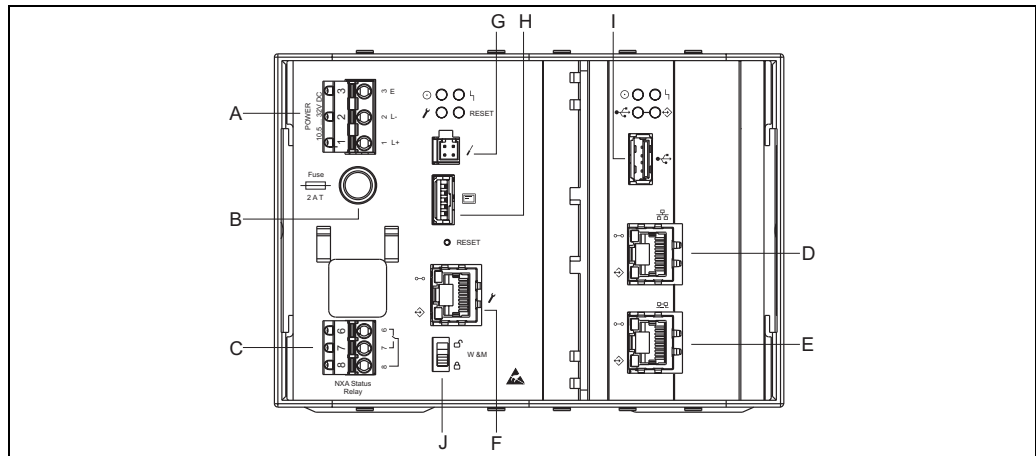
L00-NXA82xxx-04-00-00-yy-020

A: Power supply B: Fuse C: Status relay D: System LAN port E: Sync Link LAN port F: Service LAN port
G: Endress+Hauser CDI port H: Display port I: USB port J: Weights & Measures locking switch

4.2.1 Power supply

Terminal	Meaning for AC version (90–250 VAC) NXA821 – *1*******	Meaning for DC version (10.5–32 VDC) NXA821 – *2*******
1	L	L+
2	N	L–
3	Potential equalization	Potential equalization
⊂⊐	Fuse 400 mA T	Fuse 2 A T

Connector: Phoenix 7.62 GMSTB/GFKC

Overvoltage Protection

Power supply: 2 x HAW561

Surge arrester HAW651K
- for low voltage users 24/48V, single pole, requirement class C, basic component with plugged in protection unit, defect display, 18 mm (0.71 in) housing width. Order code: 51003569
- for standard voltage users 115/230V, single pole, requirement class C, basic component with plugged in protection unit, defect display, 18 mm (0.71 in) housing width. Order code: 51003570

L00-NXA820-04-00-en-001
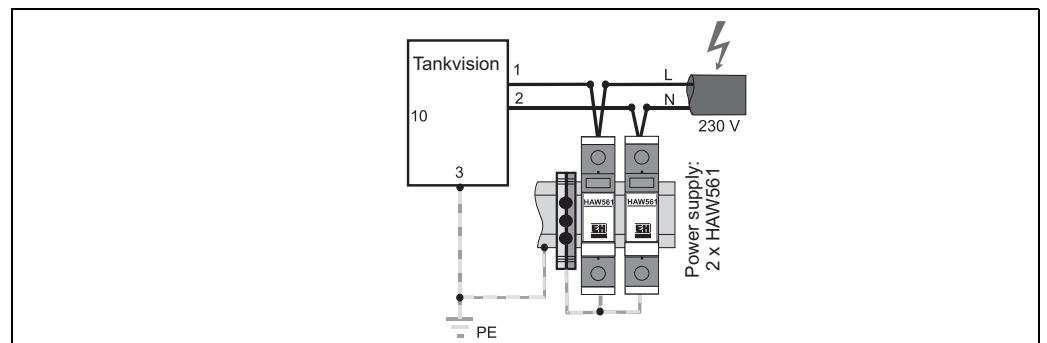
✎ Note!
The signal input with the NXA820 can be protected by a suitable overvoltage protection, additionally to the overvoltage protection which is integrated in the instrument.

Wiring of DC Variants

To meet the emission class A[1], it is mandatory to install the enclosed ferrite as close as possible to the power supply connector of the device. If this is not possible an additional line filter can be installed.

L00-NXA82xxx-04-00-00-xx-001
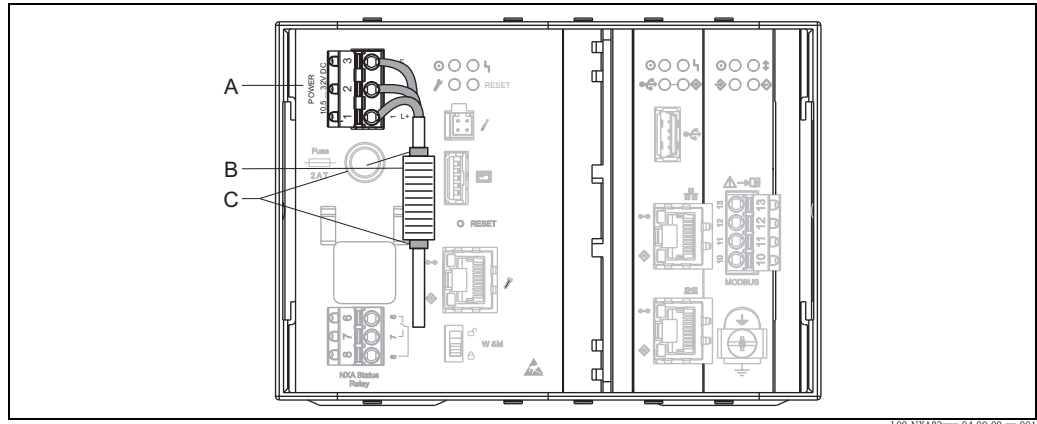
A: Terminal clamp B: Ferrite C: Fixation (e.g. cable straps)

The delivered ferrite must be installed as follows:
1. Put over the cable (prior installing the core cable ends)

2. The ferrite must be installed and secured against slipage next to the terminal clamp (e.g. with 2 cable straps)

4.2.2 Status Relay

Terminal	Meaning	Remarks
6	normally open contact	• NXA operating normally: terminals 7 & 8 are interconnected
7	normally closed contact	
8	switching contact	• NXA powered off or fault status condition: terminals 6 & 8 are interconnected

Connector: Phoenix FKC 2,5HC/3–St–5,08

Note!
The depicted switching state of the relay refers to the de–energized state.

4.2.3 LAN connection

Socket	Meaning	Remarks
	System LAN port	Connects the instrument to the network.
	Sync Link LAN port (in preparation)	Used for connection to redundant unit. If the primary unit fails, its task is taken over by the redundant unit.
	Service LAN port	Connects the instrument to a computer locally for service purpose. Only this instrument can be configured. The Service LAN port does not allow access to the network.

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1)   DIN EN 55011: Industrial, scientific and medical (ISM) radio–frequenzy equipment – radio disturbance characteristics – limits and methods of measurements

4.2.4 Additional elements in the terminal compartment

Symbol	Meaning	Remarks
	Endress+Hauser CDI port	Not used in the Tankvision instrument.
	Display port	For the connection of the local display in the housing cover. Is connected on delivery.
	USB port	Reserved for future enhancements.
W&M	Weights & Measures Switch	■ :W&M parameters are unlocked and can be changed. ■ :W&M parameters are locked and cannot be changed.

4.3 Terminal assignment Field connection – Tank Scanner NXA820
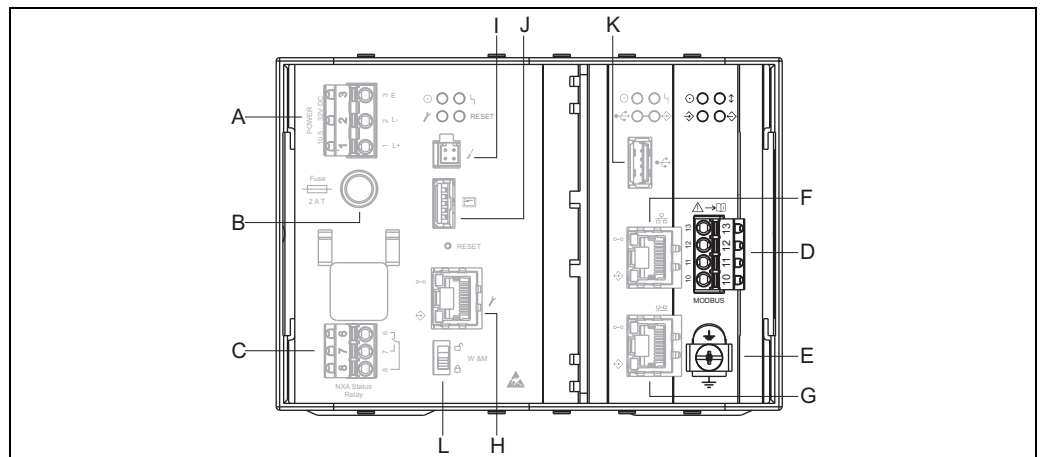
L00-NXA82xxx-04-00-00-xx-004

A: Power supply B: Fuse C: Status relay D: Fieldbus connection E: Ground F: System LAN Port G: Sync Link LAN port H: Service LAN port I: Enderess+Hauser CDI port J: Display port K: USB port L: Weight & Measures locking switch

4.3.1 Field connection – Tankvision Tank Scanner

Terminal	Whessoematic 550[1] NXA820 – *1*********		Modbus EIA485[2] NXA820 – *4*********		Sakura V1[3] NXA820 – *8*********	
10	–	Data signal (-)	A	Data signal (-)	B	Data signal (+)
11	+	Data signal (+)	B	Data signal (+)	A	Data signal (-)
12	not connected		C	Signal Common	not connected	
13	not connected		S	Capacitive Shield	S	capacitive shield
⏚	Ground		Ground		Ground	

[1]   For details → 📄 17

[2]   For details → 📄 16

[3]   For details → 📄 16

4.3.2 Additional information on Modbus EIA485

Connection

As described in the "Modbus over serial line specification and implementation guide V1.02" published by the Modbus–IDA organisation (www.modbus.org) and based upon the EIA/TIA-485-A physical layer specification, Modbus two-wire serial requires the following four electrical connections between each of the devices on the bus.:

Terminal	Signal	Purpose	Remarks
10	A	Data signal (-)	These signals must be connected using a balanced twisted pair cable.
11	B	Data signal (+)	
12	C	Signal Common	Must interconnect all devices on the bus.
13	Shield	EMC Protection	Copper braided or combined foil and braided shielding.

Additional bus settings

- Bus biasing resistors (must be present at one point on the bus) (always enabled inside NXA820)
- Bus termination resistor (must be present at each end of the bus) (software selectable inside NXA820)

Cable Specification

Characteristic impedance	135 to 165 Ω at measuring frequency of 3 to 20 MHz
Cable capacitance	$\leq$ 30 pF/m
Core cross-section	$\geq$ 0.34 mm^2 (AWG 22) multi-strand cable is preferred
Cable type	Single twisted pair + third conductor (for common) or Dual twisted pair (common uses second pair with wire joined together)
Cable resistance	$\leq$ 110 Ω/km
Signal damping	Max. 9 dB over the entire length of the cable cross-section
Shielding	Copper braided shielding or combined foil and braided shielding

4.3.3 Additional information on Sakura V1

Connection

Terminal	V1	Meaning	Remarks
13	S	Capacitive Shield	Connector: Phoenix FKIC 2,5/4-St-5,08
12		Not connected	
11	A		
10	B		
⏚	Ground		Must be independently connected directly to a primary grounding point using 4 mm^2 cable.

V1 Definition

V1 fieldbus is a voltage mode digital communication using up to ± 30 V$_{DC}$, and requires the following three electrical connections between each of the devices on the bus:

Signal	Purpose	Remarks
A	Data signal (–)	These signals must be connected using a balanced twisted pair cable.
B	Data signal (+)	
Shield	EMC protection	Copper braided or combined foil and braided shielding

V1 Cable specification

Cable capacitance	≤ 50 nF/m
Core cross-section	≥ 0.9 mm^2 (AWG 17) multi-strand cable is preferred
Cable type	twisted pair
Cable resistance	≤ 30 Ω/km
Shielding	Copper braided shielding or combined foil and braided shielding
Insulation	≥ 60 V$_{DC}$

4.3.4   Additional information on Whessoe WM550

The WM550 communication protocol works using a current loop principle.

Caution!
Please take care that the signal and power cables always are separated to prevent noise and electrical interference between them.

Connection

Please take into consideration that the principle of current loop connection works as follows:

The Tankvision (master) (–) signal point connects to slave 1 (+) signal point. Slave 1 (–) signal point connects to slave 2 (+) signal point until (the last) slave N (–) signal point connects back to the Tankvision (master) (+) signal point closing the current loop.

Terminal	Signal	Purpose	Remarks
10	–	Data Signal	Current Loop (–)
11	+	Data Signal	Current Loop (+)

Cable specification

Please ensure to follow the following recommendations for field installation of the Tankvision with the WM550 protocol variant
- Cable with twisted and non-shielded pairs
- Cable with at least 0,5 mm² (20 AWG) section
- Maximum total cable resistance: 250 Ω
- Cable with low capacitance

	Cross section (mm² (AWG))	Resistance (Ω/km)	Capacitance (nF/km)
Cable 1	0,5 (20)	39.2	60
Cable 2	0,75 (18)	24.6	65
Cable 3	1,3 (16)	14.2	75

4.4 Terminal assignment host/printer connection – Host Link NXA822 / Data Concentrator NXA821

This chapter is valid for Tankvision Host Link and Tankvision Data Concentrator with Printer Port option.

L00-NXA82xxx-04-00-00-xx-005
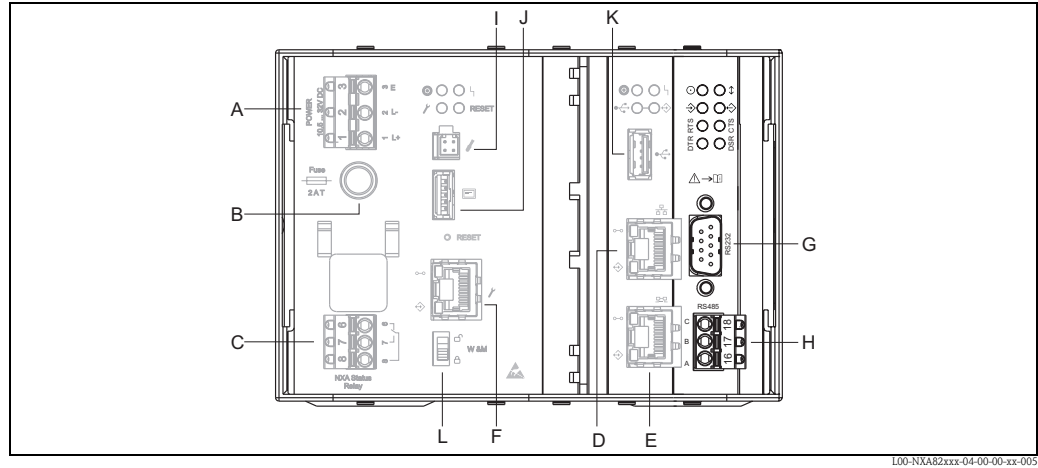
A: Power supply *B:* Fuse *C:* Status relay *D:* System LAN port *E:* Sync Link LAN port *F:* Service LAN port
G: RS232 Host connection (Host Link or Printer Connection Data Concentrator *H:* RS485 Host connection *I:* Endress+Hauser CDI port *J:* Display port *K:* USB port *L:* Weights & Measures locking switch

4.4.1 Host connection: Modbus Serial, EIA/TIA-232 (RS232)

The NXA822 Host Link is defined as a Data Terminal Equipment (DTE) device, and provides EIA/TIA-232 (RS232) interface through a male DB9 connector whose pin out complies with the EIA/TIA-574 standard:

Pin	RS232	Name	Remarks
1	CD	Carrier Detect	Signal from connected device
2	RxD	Receive Data	Signal from connected device
3	TxD	Transmit Data	Signal to connected device
4	DTR	Data Terminal Ready	Signal to connected device
5	G	Signal Ground	Common connection
6	DSR	Data Set Ready	Signal from connected device
7	RTS	Request To Send	Signal to connected device
8	CTS	Clear To Send	Signal from connected device
9	RI	Ring Indicator	Signal from connected device
Case	Shield	Shield	

Definition

EIA/TIA-232 (RS232) is a voltage mode digital communication using up to $\pm 12\ V_{DC}$, and requires a variety of signals depending on the operating mode (software selectable):

Signal	Basic RS232	Fully RS232 with Hardware Handshaking (in preparation)	Remarks
Shield	Required	Required	Copper braided or combined foil and braided shielding
G	Required	Required	
RxD	Required	Required	
TxD	Required	Required	
RTS		Required	Null Modem connection, these two pins can be linked together
CTS		Required	
DTR		Required	Null Modem connection, these three pins can be linked together
DSR		Required	
CD		Required	
RI		Optional	Not required

RS-232 Cable Specification

Cable capacitance	≤ 50 pF/m
Core cross-section	≥ 0.34 mm^2 (AWG 22) multi-strand cable is preferred
Cable type	Single cable or twisted pair
Cable resistance	$\leq 110\ \Omega$/km
Signal damping	Max. 9 dB over the entire length of the cable cross-section
Shielding	Copper braided shielding or combined foil and braided shielding

4.4.2 Host connection: Modbus Serial, EIA/TIA-485 (RS485)

Terminal	EIA/TIA-485 Modbus	Meaning	Remarks
18	C	Signal Common	
17	B	+ signal	Connector: Phoenix FKC 2,5HC/3-St-5,08
16	A	– signal	

Two-Wire Modbus Definition

As described in the "Modbus over serial line specification and implementation guide V1.02" published by the Modbus–IDA organisation (www.modbus.org) and based upon the EIA/TIA-485-A physical layer specification.

Modbus two-wire serial requires the following four electrical connections between each of the devices on the bus:

Signal	Purpose	Remarks
A	Data signal (–)	These signals must be connected using a balanced twisted pair cable.
B	Data signal (+)	
C	Signal Common	Must interconnect all devices on the bus.
Shield	EMC Protection	Copper braided or combined foil and braided shielding

Additional EIA/TIA-485 bus settings

- Bus biasing resistors (must be present a one point on the bus) (software selectable inside NXA822)
- Bus termination resistor (must be present a each end of the bus) (software selectable inside NXA822)

Cable Specification

Characteristic impedance	135 to 165 Ω at measuring frequency of 3 to 20 MHz
Cable capacitance	≤ 30 pF/m
Core cross-section	≥ 0.34 mm^2 (AWG 22) multi-strand cable is preferred
Cable type	Single twisted pair + third conductor (for common) or Dual twisted pair (common uses second pair with wire joined together)
Cable resistance	≤ 110 Ω/km
Signal damping	Max. 9 dB over the entire length of the cable cross-section
Shielding	Copper braided shielding or combined foil and braided shielding

4.4.3 Host connection: Modbus TCP/IP (via System LAN port)
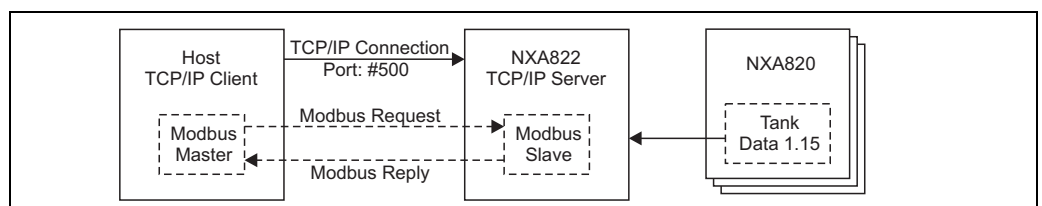
L00-NXA82xxx-04-00-00-yy-024

5 Operation station settings

Before configuring and using Tankvision, the following settings are necessary on the operator's computer:

- Deactivate proxy server usage
- Install Java Runtime Environment (JRE)

5.1 Deactivate proxy server usage

Before configuring and using Tankvision it is necessary to deactivate the proxy server usage on the user's computer. This can be configured in the web browser.

Note!
After deactivating the proxy server usage, it is no longer possible to access the internet. Only the Tankvision pages are available. If you need internet access on the operation station, it is possible to configure the browser in a way that it uses the proxy server for internet pages but not for Tankvision. For details please contact your local network administrator.

5.1.1 Microsoft Internet Explorer

1. Open the "Tools" menu.

2. Select "Internet Options".

3. Select the "Connections" tab.

4. Select the "LAN Settings" button.

5. Deactivate the option "Use a proxy server for your LAN".

6. Confirm the setting by clicking the "OK" button.

5.1.2 Mozilla Fierefox

1. Open the "Tools" menu.

2. Select "Options".

3. Select the "Connection Settings" tab.

4. Activate the option "Manuals proxy configuration".

5. Delete the name in the "HTTP Proxy" field.

6. Enter '0' into the "Port" field.

7. Confirm the settings by clicking the "OK" button.

5.1.3 Opera

1. Open "Opera".

2. Press F12 on your keyboard.

3. Deactivate the option "Enable proxy servers".

5.2 Java Runtime Environment (JRE)

5.2.1 JRE installation

To operate Tankvision, version 6.0 (update 16) of the Java Runtime Environment (JRE) must be installed on the computer which serves as an operation station.
To install the Java Runtime Environment go to the following internet page:
http://java.sun.com/products/archive

There are two installation options:
- online installation (directly from the internet)
- offline installation (download of an installation file which can be distributed and executed on the operation stations.

Note!
Additional information files (e.g. installation instructions or release notes) are also available from the same internet page.

5.2.2 JRE settings

To operate Tankvision, the following settings of the Java Runtime Environment are required:
1. Go to "Start" -> "Settings" -> "Control Panel" -> "Java"

2. Go to the "Update" tab and deactivate the option "Check for Updates Automatically".

3. Go to "Settings for temporary internet files", unchek "Temp. internet files on Computer" and clear files.

6 The Tankvision User Interface

Tankvision provides an intuitive user interface allowing the user to quickly navigate through the system. The following sections illustrate various parts of the Tankvision user interface and their usage.

The Home Page

Field	Description
System Header	Displays the Customer Logo or Graphic.
Navigation Tree	Contains header bars corresponding to different functional objects or groups in the system. Refer to "Navigation Tree - detailed description" (→ 📄 24) for details.
Main Header	Displays the following information: ■ The site name, tank name, Tankvision tag name or product name – depending on what is displayed in the Main View below the header ■ The system date and time The main header is displayed with a background color depending on the access rights of the user logged into the system: ■ Grey: the user does not have configuration rights and can only view non-real time data. ■ Orange: the user has configuration rights and can view real time data.
Metadata Header	Displays the following information: ■ The user name and the user type ■ The language options link ■ The help link ■ The logout option
Main View	Displays the screens that the user has selected to configure the settings and view the operational information. Refer to "Main View Section- Colors in Edit Data" (→ 📄 25) for details.
Alarm and Event Panel	The Alarm and Event Panel displays the real time information about alarms and events. Refer to "Alarm and Event Panel Section- Description" (→ 📄 25) for details.
Page Status Bar	The Page Status Bar displays information related to the active content in the Main View section: 👤 Page information ✅ Page Loaded Completely

Navigation Tree – Detailed Description

The Navigation Tree is shown on the left side of the screen. Typically, the Navigation Tree allows the user to navigate down to the tanks. The image of the expanded Navigation Tree is as follows:

Field	Description
Header	The user can click on the text or the arrow of the Header to expand or collapse the branch. The Header name shows a number, which is dynamically appended. The number states the following: ■ Tanks: The number of tanks in the NXA820 ■ Products: The number of products defined in the system ■ Alarm Groups: The number of alarm groups defined in the system ■ Customized Groups: The number of tank groups defined in the system ■ Transfers: The number of product transfer stages (Waiting, In Progress, Finished, and Aborted) defined in the system ■ Users: The number of users defined in the system The text will appear in bold and black when the header is in the expanded form.
Collapsed Arrow	This type of arrow is displayed when the Header is in the collapsed position. Click on the collapsed arrow to expand the Header.
Expanded Arrow	This type of arrow is displayed when the Header is in the expanded position. Click on the expanded arrow to collapse the Header.
Node	The user can click on the Node to view the operational information on the Main View section. If a Node is selected, it will appear in red color. The number of tanks in the group is appended to the Node name.

Main View Section – Colors in the Edit Data Area
The system displays different colors in the Edit Data area, based on the access rights of the user:

1. If the user has access rights, then the edit data area has a light grey and light yellow background on alternate rows. The "Submit" button to save the settings is enabled.

Tank Capacity Table Summary:

Sump & Pipeline Volume: *	+0.000 m³		TCT Level Type:	Innage
Maximum Tank Capacity:	+0.000 m³		Minimum pump-able volume:	+0.000 m³
Volume Calculation Method:	Raw		Number of Straps:	2
Sub Table Present:	No		Water Table Present:	No
Product Density for FRA:	+0.0 kg/m³		Volumetric Floating Roof Correction:	+0.000 m³
Heel Volume:	+0.000 m³		TCT File Downloaded:	None

Submit

2. If the user does not have access rights, then the edit data area has a light grey and dark grey background on alternate rows. The "Submit" button to save the settings is disabled.

Tank Capacity Table Summary:

Sump & Pipeline Volume: *	+10.000 m³		TCT Level Type:	Innage
Maximum Tank Capacity:	+3'031.000 m³		Minimum pump-able volume:	+40.000 m³
Volume Calculation Method:	Raw		Number of Straps:	31
Sub Table Present:	No		Water Table Present:	No
Product Density for FRA:	+0.0 kg/m³		Volumetric Floating Roof Correction:	+0.000 m³
Heel Volume:	+45.000 m³		TCT File Downloaded:	TOVsandeeep6.xml

Submit

Alarm and Event Panel – Description
The Alarm and Event Panel displays the alarm and event information, which is dynamically generated by the system.

Date	Event	Status	Ack	Element	Sub Type	Object	Value	Email	UserID	FGTagName	Event ID	Option
04/18/2006...	System	N/A	N/A	N/A	Bad Config...	/dev/shme...	N/A	Fail	N/A	X86_KAUS...	278	
04/18/2006...	System	N/A	N/A	N/A	Bad Config...	/dev/shme...	N/A	Fail	N/A	X86_KAUS...	277	
04/18/2006...	System	N/A	N/A	N/A	Bad Config...	/dev/shme...	N/A	Fail	N/A	X86_KAUS...	276	
04/18/2006...	System	N/A	N/A	N/A	Bad Config...	/dev/shme...	N/A	Fail	N/A	X86_KAUS...	275	
04/18/2006...	System	N/A	N/A	N/A	Bad Config...	/dev/shme...	N/A	Fail	N/A	X86_KAUS...	274	

Tab	Description
Alarm	Displays details of the alarms generated by the system.
Events	Displays details of the events generated by the system.
Alarm & Events	Displays details of the alarms and events generated by the system.

7 Tankvision configuration

7.1 Loggin into the Tankvision system

To integrate a Tankvision unit (i.e. a Tank Scanner NXA820, Data Concentrator NXA821 or Host Link NXA822) into the network, proceed as follows:

1. Connect a laptop to the service port of the Tankvision unit. Make sure that the laptop is configured to get a dynamic IP addresses from a DHCP server.
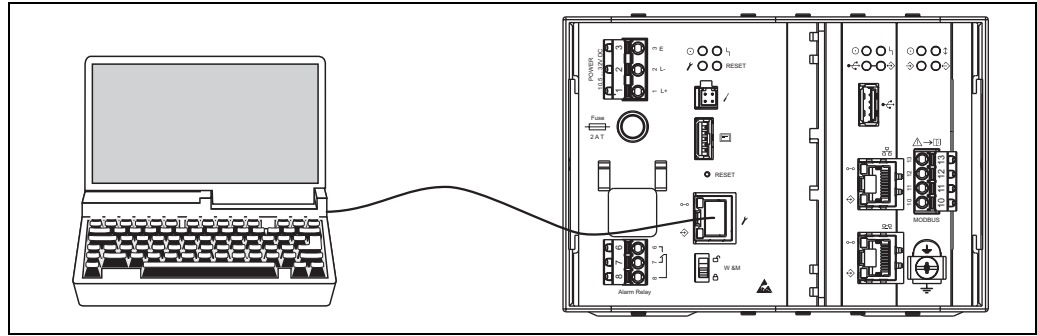
L00-NXA82xxx-04-00-00-yy-025

2. Open the internet browser and enter the following URL: http://192.168.1.1
   The Tankvision login screen appears. The user ID (= User Login Name) and passwort are defined by the system administrator when adding a user to the system (see BA339F/00/EN).

3. Login as Supervisor.

Field	Description
User ID	Enter the appropriate user login name . The user login name is alphanumeric and case sensitive.
Password	Enter the appropriate password. The user password is alphanumeric and case sensitive. It consists of 3 to 8 characters.
Options	Click the "Options" button to display the connection options. Available options are "Local" and "Remote". By default, the system selects the "Local" option. This allows the user to log into the Tankvision system within the network (LAN). The "Remote" option allows the user to log into the Tankvision system outside the network (Internet).

Enter ...
- ... "Super" into "User ID".
- ... "Super" into "Password".
- Click the "Login" button.

Tankvision displays the Home Page as follows:
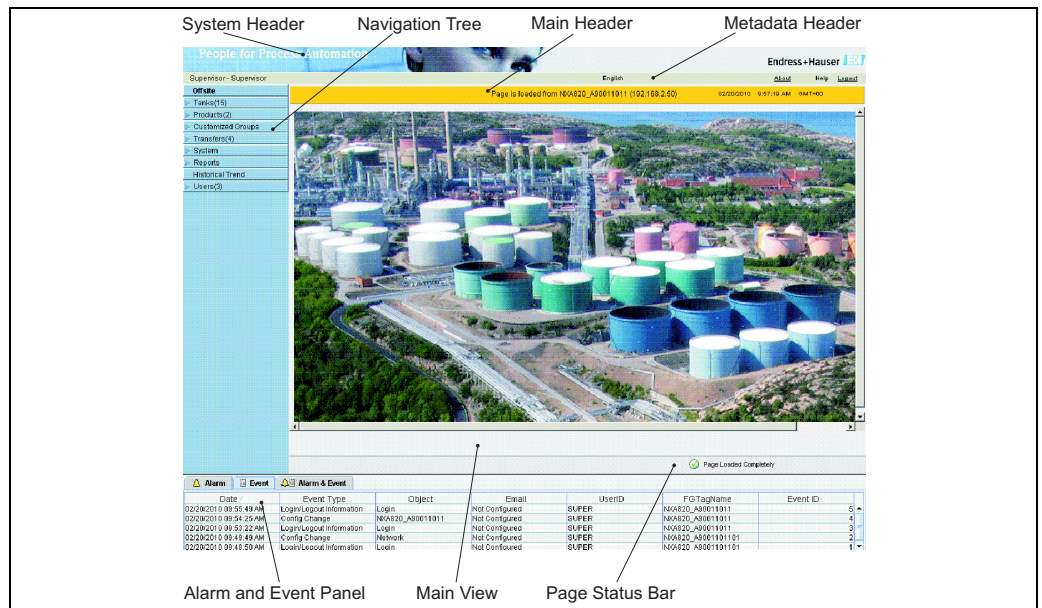
7.2   Common settings – Tankvision system

L00-NXA82xxx-16-00-00-en-001
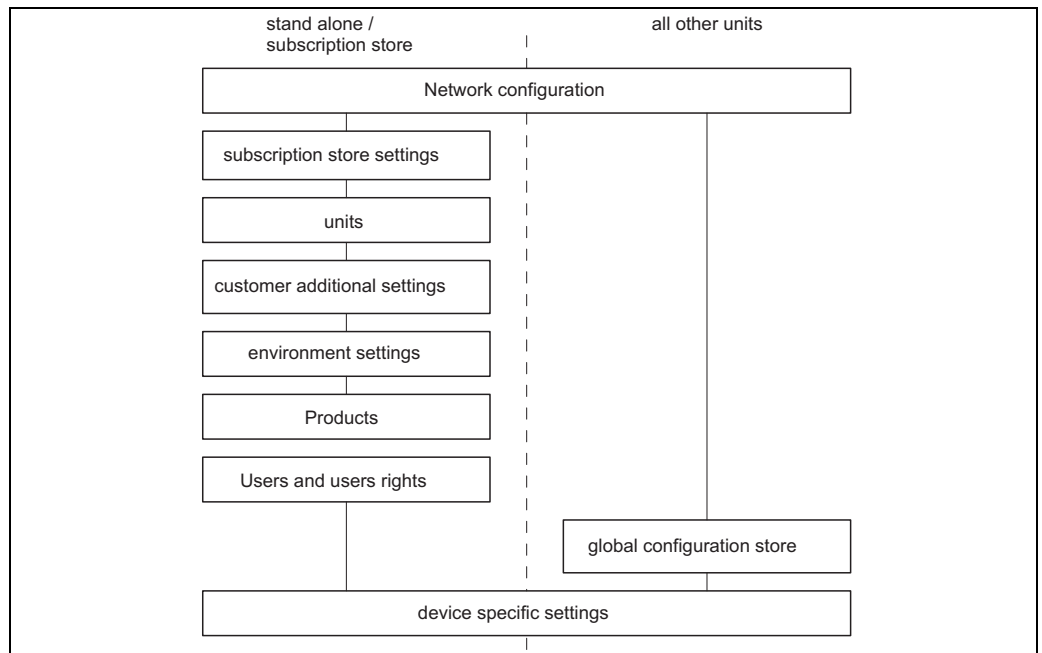
7.2.1 Network settings

You are logged in as "Supervisor".

1. In the navigation tree, click the "System" Header. It expands as follows:
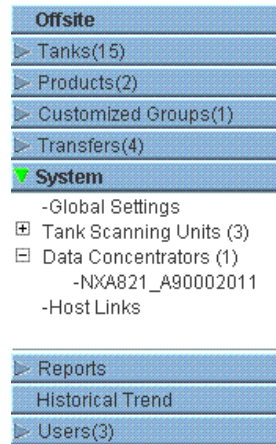
2. Click "Global Settings". Tankvision displays the screen as follows:
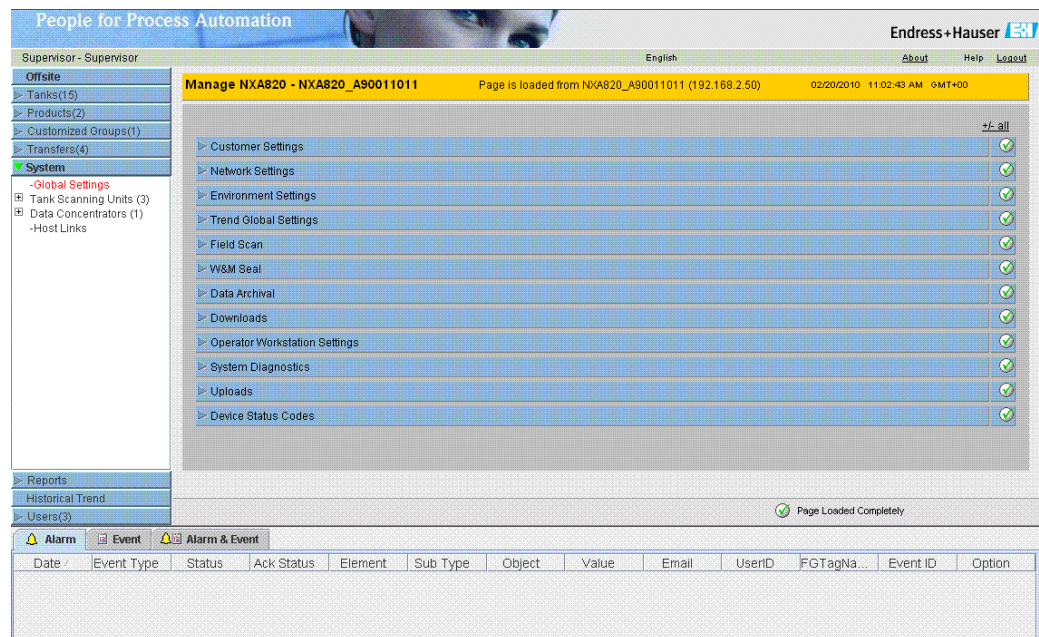
3. Click ▷ on "Network Settings". Tankvision displays the screen as follows:
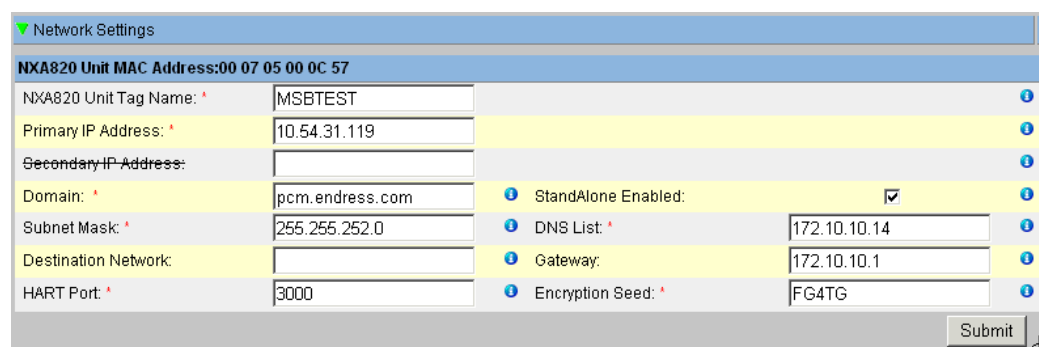
4. Enter the appropriate information in the relevant fields.

✎ Note!
– Parameters marked by an asterisk are mandatory.
– The required values of the parameters depend on your local network configuration. For more information please contact your local network administrator.
– Detailed information on the individual fields can be found in BA339F, "Tankvision NXA820, NXA821, NXA822 – Description of Instrument Functions".

5. Click the "Submit" button to proceed. The system displays a confirmation box as follows:
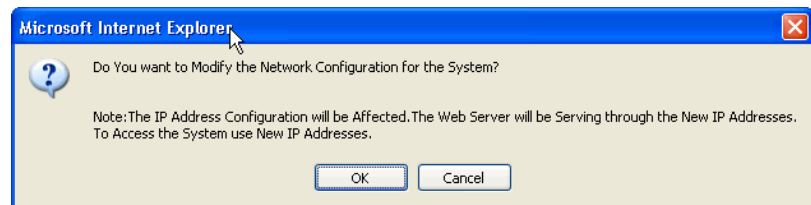
6. Click the "OK" button to proceed, or click the "Cancel" button to exit.

7. After saving the settings, Tankvision displays a confirmation message.

8. Disconnect the laptop and connect the Tankvision unit to the network using the System LAN port. The Tankvision unit can now be operated from a computer within the LAN.
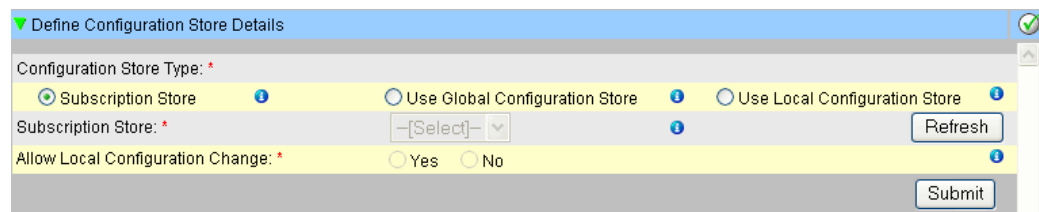
7.2.2 Subscription Store definition

In a typical Tankvision system, most configuration settings are common for all Tankvision units within the network. Therefore, the time required for the configuration of the system can be minimized by defining one of the units to be a Subscription Store. The configuration settings are only performed on this Subscription Store. These settings are then distributed to the other units within the network.

For each Tankvision unit (i.e. Tank Scanner NXA820, Data Concentrator NXA821 or Host Link NXA822) within the network it is necessary to define if it is a Subscription Store or if it receives its configuration from a Subscription Store.

To do so, proceed as follows:

1. Login to the Tankvision unit as "Supervisor" and navigate to the "Global Settings" screen as described in Section 7.2.1.
    Click ▷ on "Customer Settings".

2. Click ▷ on "Define Configuration Store Details". Tankvision displays the screen as follows:

3. **for the Subscription Store:**
    – in "Configuration Store Type" select the option "Subscription Store" (Default)

    for the other units
    – in "Configuration Store Type" select the option "Use Global Configuration Store"
    – In "Subscription Store" select the Subscription Store to which this unit is to be linked
    – in "Allow Local Configuration Change" define whether local configuration changes of this unit are allowed in case the Subscription Store is not available.

4. Click the "Submit" button to proceed, or click the "Refresh" button to reset the screen.

5. After saving the settings, Tankvision displays a confirmation message.

With the (recommended) use of global configuration store the following information is transfered to the subscription units:

▪ Customer settings like site information (without customer specific logo), unit, email server and day and time settings (configurations of languages and printer agent must be done for every single device)
▪ Environment settings
▪ Products
▪ Users incl. user access rights

Global settings could be changed later on, also after assigning other units. Its highly recommended to use a NXA820 as subscription store.

7.2.3 Further common steps (stand alone or subscription store)

Login to the Tank Scanner NXA820 as "Supervisor" and perform the following configurations (for details refer to BA339F/00/EN "Tankvision NXA820, NXA821, NXA822 – Description of Instrument Functions"):

1. **Customer Settings and Environment Settings**
   a. In the navigation tree, click the "System" header.

   b. Click "Global Settings" (below the "System" header).

   c. In the main screen click the "Customer Settings" header and configure the parameters. For a description of the parameters refer to BA339F/00/EN. At least units, site information, day and time and Email server (if required).

   d. In the main screen, click the "Environment Settings" header and configure the parameters. For a description of the parameters refer to BA339F/00/EN.

2. **Product Configuration**
   a. In the navigation tree, click the "Products" header.

   b. Click the "Add" button to add a new product.

   c. Click the individual headers of the "Product" menu ("General Details", Volume Correction Factor", ...) and define the product properties.
   For a description of the parameters refer to BA339F/00/EN.

3. **Users and user access rights**
   a. In the navigation tree, click the "Users" header.

   b. Click on "Group rights" tab and define the rights of the different users.

   c. Click on "User view" and create the required users.

7.2.4 Tank Scanner NXA820 specific settings

Login to the Tank Scanner NXA820 as "Supervisor" and perform the following configurations (for details refer to BA339F "Tankvision NXA820, NXA821, NXA822 – Description of Instrument Functions"):

1. **Field Scan Configuration**
   a. In the navigation tree, click the "System" header.

   b. Click "Global Settings" (below the "System" header).

   c. In the main screen, click the "Field Scan" header.

   d. Click the individual headers of the Field Scan menu and configure the parameters[2].
      For a description of the parameters refer to
      – BA339F, Chapter 11.5 (Modbus)
      – BA339F, Chapter 11.6 (V1)
      – BA339F, Chapter 11.7 (WM550)

2. **Tank Configuration**
   a. In the navigation tree, click the 'Tanks' header.

   b. In the main screen, select the tank you are going to configure and click the "Modify" button.

   c. Click the individual headers of the tanks menu ("General Details", "Capacity Details", ...) and configure the parameters. For a description of the parameters refer to BA339F/00/EN.

3. **Product-tank assignment**
   a. In the navigation tree, click the "Tanks" header.

   b. In the list below the "Tanks" header select a tank.

   c. In the main screen click the "Assignment Product" tab (if necessary use the "<<" or ">>" button to find the "Assign Product" tab.

   d. Select the product from the drop-down list.

   e. Click "Submit" to save the settings.

   ✎ Note!
   For details about tank–product assignment refer to BA339F/00/EN.

4. **Additional Settings**
   Depending on your requirements, you can perform numerous further settings. For details refer to BA339F.

5. **Start Field Scan**
   a. In the navigation tree, click the "System" header.

   b. Click "Global Settings" (below the "System" header).

   c. In the main screen, click the "Fiel Scan" header.

   d. Click the "Start/Stop Field Scan" tab and then click on "Start". Field Scanning is now active.

---

2) The parameters can only be edited if the field scan is not currently active. If necessary, go to the 'Start/Stop Field Scan' tab and stop the field scan.

7.2.5 Data Concentrator NXA821 specific settings

1. **Associate Tank Scanner**
   Assign the Tank Scanner NXA820 to the Data Concentrator NXA821:
   a. Login to the Data Concentrator NXA821 as "Supervisor".

   b. In the navigation tree, click the "System" header.

   c. Click "Global Settings" (below the "System" header).

   d. In the main screen, click the header "Tank Scanner Unit And Tank Assignment".

   e. Select all Tank Scanner units you want to assign to the Data Concentrator from the "Available Units" list and move them to the "Selected Units" list using the arrow buttons. All units in the "Selected Units" list will be assigned to the Data Concentrator.

   f. Click the "Submit" button to save the settings.

2. **Additional Settings (like groups)**
   Depending on your requirements, you can perform numerous further settings. For details refer to BA339F/00/EN.

✎ Note!
For details refer to BA339F/00/EN, "Tankvision NXA820, NXA821, NXA822 – Description of Instrument Functions"

7.2.6 Host Link NXA822 specific settings

The Host Link NXA822 provides an interface for a host system to access inventory data from the NXA820 unit.
To configure the Host Link settings, proceed as follows:

1. Login to the Host Link NXA822 as "Supervisor".

2. In the navigation tree, click the "System" header.

3. Click "Global Settings" (below the "System" header).

4. In the main screen, click the "Field Scan" header.
   It contains the following subheaders which are used to configure the Host Link settings and to start the Host Link:
   – Host Link Configuration
   – Modbus TCP Configuration (if the Modbus TCP protocol has been selected).
   – Modbus Serial (if the Modbus Serial protocol has been selected).
   – Entis+ (if the Entis+ serial protocol has been selected)
   – Start/Stop Host Link
   For details please refer to BA339F/00/EN, "Tankvision NXA820, NXA821, NXA822 – Description of Instrument Functions"

7.2.7 Configuration of W+M systems

Description of the sealing process

Locking mechanisms in Tankvision:

Connected PCs are registered in the system by assigning the MAC address. Once the system has been locked, only these PCs are accepted and can display calibrated data.
When the W+M switch is flipped, a checksum is calculated and set.
This calculation is repeated every 8 hours. If this checksum deviates from that at the time of sealing, changes have been made to the system. It is no longer possible to modify W+M parameters, such as tank tables, units and print templates, once the W+M switch has been flipped.

Recommended procedure:

It is recommended to start calibrating the tank gauging system from the field devices via possible protocol converters and finish the process with the Tankvision inventory management system. When calibrating the Tankvision Tank Scanner or Data Concentrator, it is recommended to start with the unit used as the Global Configuration Store since the engineering units are configured centrally here. These units would then not have to be checked separately in the boxes assigned (see Section "Units").

Initial calibration and system modifications

Initial calibration and changes to the Tankvision Tank Scanner NXA820

Units

The units do not have to be configured if "Use Global Configuration Store" (Section) is selected. The units can be checked under "System → Tank Scanner Unit → Customer Settings → Units". This view allows the user to choose between the unit schemes.

Selecting the Unit

The exact settings of the unit scheme selected can be checked under "Advanced"..

Checking the Units

✎ Note!
- An apostrophe may not be chosen as the thousand separator for W&M applications.
- If the Tankvision device retrieves the basic settings from another Tankvision device (Global Configuration Store), the units of this Tankvision device do not have to be checked. The name of the box (Subscription Store) that provides the basic settings can be found under "System → Global Settings → Customer Settings → Define Configuration Store Details" (Fig. Configuration Store Details).

Configuration Store Details

Field device assignment

The field device assignment must be checked under "System → Tank Scanner Unit → Field Scan → Manage Field Scan Configuration–Modbus EIA485".

The following parameters have to be checked for Modbus EIA485:
- Baud rate
- Parity
- Gauge slave address: assignment to the tank ID / tank name
- Gauge type: assignment to the tank ID / tank name
- Modbus register map: assignment to the field device type (gauge type)

▼ Manage Field Scan Configuration - Modbus EIA485

Baud Rate:	4] 9600				ⓘ
Parity:	1] No Parity				ⓘ
EIA485 Termination Resistor:	☐				ⓘ

Tank ID ⓘ	Tank Name ⓘ	Enabled ⓘ	Gauge Slave Address ⓘ	Gauge type ⓘ	Modbus Register Map ⓘ
1	Tank-1	☐	0	ProServo NMS53	servomm.xml
2	Tank-2	☐	0	ProServo NMS53	servomm.xml
3	Tank-3	☐	0	ProServo NMS53	servomm.xml
4	Tank-4	☐	0	ProServo NMS53	servomm.xml
5	Tank-5	☐	0	ProServo NMS53	servomm.xml
6	Tank-6	☐	0	ProServo NMS53	servomm.xml
7	Tank-7	☐	0	ProServo NMS53	servomm.xml
8	Tank-8	☐	0	ProServo NMS53	servomm.xml
9	Tank-9	☐	0	ProServo NMS53	servomm.xml
10	Tank-10	☐	0	ProServo NMS53	servomm.xml
11	Tank-11	☐	0	ProServo NMS53	servomm.xml
12	Tank-12	☐	0	ProServo NMS53	servomm.xml
13	Tank-13	☐	0	ProServo NMS53	servomm.xml
14	Tank-14	☐	0	ProServo NMS53	servomm.xml
15	Tank-15	☐	0	ProServo NMS53	servomm.xml

Ambient Temperature Configuration

Enabled ⓘ	Gauge Slave Address ⓘ	Gauge type ⓘ	Modbus Register Map ⓘ
☐	0	ProServo NMS53	servomm.xml

Submit

Field Scan Configuration – Modbus

The following parameters have to be checked for the V1 protocol:
- Gauge slave address (DEC) assignment to the tank ID / tank name
- Gauge type assignment to the tank ID / tank name
- V1 map file assignment to the gauge type

Field Scan Configuration – V1 Protocol

The following parameters have to be checked for the WM550 protocol:
- Baud rate
- Loop current
- Gauge slave address assignment to the tank ID / tank name
- Gauge type assignment to the tank ID / tank name
- WM550 map file assignment to the field device type (gauge type)

Field Scan Configuration – WM550 Protocol

Tank table

The tank capacity details have to be loaded to check the tank table (Tanks → Select the tank under "Select" – select and confirm with "Modify" (see Fig. "Tank Selection") → Select "Capacity Details" (see Fig. "Tank Capacity Table Summary")).

Select	Tank Name	Location	Tank Shape	Product
⦿	Tank-1	Terminal-1	Tank with Fixed Roof, without Stilling	No Product
○	Tank-2	Terminal-1	Tank with Fixed Roof, without Stilling	No Product
○	Tank-3	Terminal-1	Tank with Fixed Roof, without Stilling	No Product
○	Tank-4	Terminal-1	Tank with Fixed Roof, without Stilling	No Product
○	Tank-5	Terminal-1	Tank with Fixed Roof, without Stilling	No Product
○	Tank-6	Terminal-1	Tank with Fixed Roof, without Stilling	No Product
○	Tank-7	Terminal-1	Tank with Fixed Roof, without Stilling	No Product
○	Tank-8	Terminal-1	Tank with Fixed Roof, without Stilling	No Product
○	Tank-9	Terminal-1	Tank with Fixed Roof, without Stilling	No Product
○	Tank-10	Terminal-1	Tank with Fixed Roof, without Stilling	No Product

Modify

Tank Selection

▼ Capacity Details

Import Tank Capacity Table:

| Select TCT file to Download: * | | Browse... | ⓘ |

Download TCT XML File

Tank Capacity Table Summary:

| Sump & Pipeline Volume: * | +0.000 m³ | ⓘ | TCT Level Type: | Innage | ⓘ |
Maximum Tank Capacity:	+0.000 m³	ⓘ	Minimum pump-able volume:	+0.000 m³	ⓘ
Volume Calculation Method:	Raw	ⓘ	Number of Straps:	2	ⓘ
Sub Table Present:	No	ⓘ	Water Table Present:	No	ⓘ
Product Density for FRA:	+0.0 kg/m³	ⓘ	Volumetric Floating Roof Correction:	+0.000 m³	ⓘ
Heel Volume:	+0.000 m³	ⓘ	TCT File Downloaded:	Default	ⓘ

Submit

Tank Capacity Table Summary

Steps for checking the tank table:
- Check that the information in the Tank Capacity Table Summary is correct for the selected tank.
- Check whether the TCT is suitable for the relevant tank. Clicking the XML file under TCT File Download opens a browser window that shows the TCT in XML format. The data in the TCT XML file are displayed in the "Table in XML Format" graphic.

```
- <Tankvision CRC="12345">
  - <TCT TCT_Date="07.01.2010" TCT_CalDate="07.01.2010" Sub_TCT="N" WATER_TCT="N">
      <Level_Type>Innage</Level_Type>
    - <Units>
        <Level>mm</Level>
        <Volume>l</Volume>
        <P_Density_FRA_Unit>kg/m3</P_Density_FRA_Unit>
      </Units>
    - <FRA_TCT>
        <P_Density_FRA>1000</P_Density_FRA>
        <V_FRC>1</V_FRC>
      </FRA_TCT>
      <Heel_Volume>0</Heel_Volume>
```

Table in XML Format

PC assignment
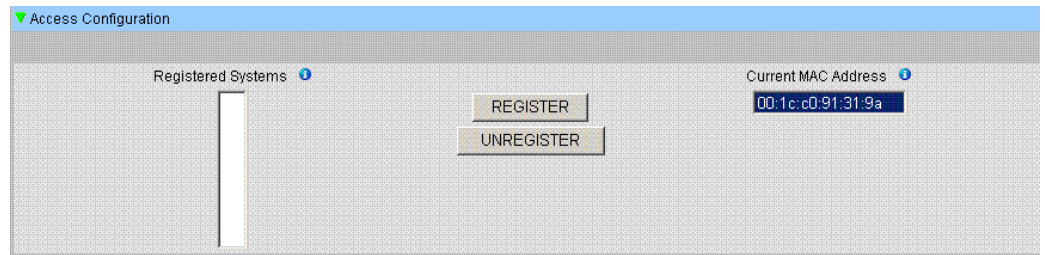
Tankvision Tank Scanner – PC Assignment

Every PC to be connected to the sealed system has to be registered. The PCs are registered under "System → Global Settings → W&M Seal → Access Configuration".
The registered devices are listed with their MAC address in the column on the left. The MAC address of the PC currently used is displayed in the column on the right.
Each PC has to be registered individually on every Tankvision box. If no PC is registered in the system, an error message is shown on the display of the Tankvision box once the W+M switch has been flipped.
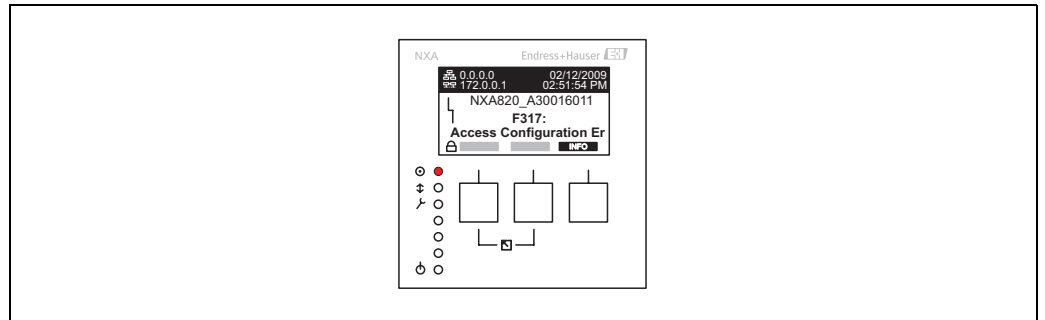
Error Message – No PC Registered in the System

During calibration acceptance, the list must be checked to ensure it only contains the MAC addresses of the Tankvision boxes and the PCs that should access the system. The PCs can be checked, for example, by loading the page above from every PC that should have access to the system and then comparing the MAC addresses (Registered Systems against Current MAC Address). The MAC addresses of the Tankvision box are provided on the nameplate.

Sealing tank data

The tank data are sealed individually for every tank. The W+M values are selected under "Tanks →
Select the Tank (Select + Modify) → Put Tank into Calibrated Status".

| Put Tank into Calibrated status		Auto	Manual
Tank Name : Tank-1			
Tank:	☐		ℹ
Product Level:		☐	☐
Product Temperature:		☐	☐
Total Observed Volume:		☐	☐
			Reset Submit

Sealing Tank Data

✎ Note!
If the W+M switch is flipped, tanks can be removed from the calibrated status. This changes the
calibration checksum. Removing a tank from the sealed system is equivalent to a system
modification and must be accepted by an official from the Standards Authority.

Locking

The unit is locked by flipping the W+M switch on the Tankvision Tank Scanner NXA820.

L00-NXA82xxx-04-00-00-xx-002
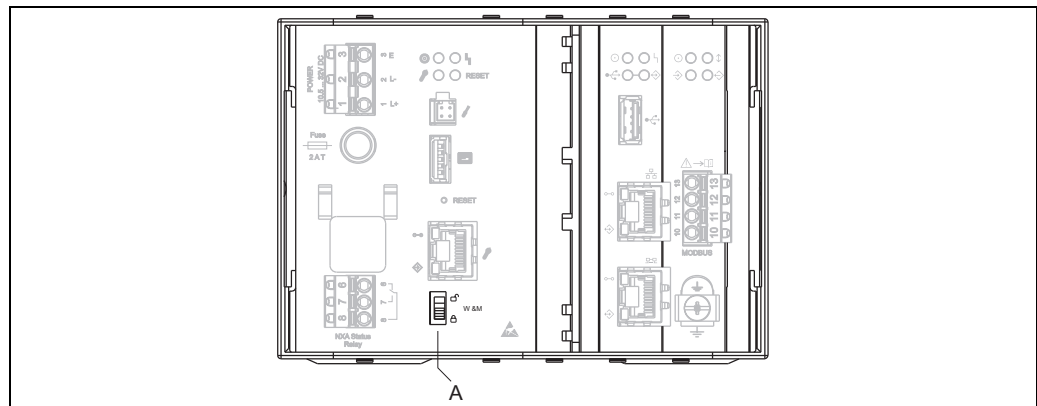
A:*Tankvision W+M Switch*

Flipping the switch means that the settings checked under Section to "Sealing tank data" are fixed
and can no longer be modified, and that the values specified under "Sealing Tank Data" are displayed
as calibrated values by the computers specified under "PC Assignment". A master checksum is
calculated approx. 2 minutes after the W+M switch is flipped. This master checksum can be called
up under "System → Tank Scanner Unit → W&M Seal". After approximately 2 more minutes, the
system performs the first check calculation. The subsequent calculations are then performed every
8 hours.

The following information is displayed:
- Date and time the page was loaded
- W&M switch status
- W&M CRC at sealing time
- Last calculated W&M CRC
- Last calculated CRC's time stamp

W&M Information			
This page is static and is loaded at:	04/25/2010	8:07:30 AM	GMT+00
W&M Switch status:	Sealed		
W&M CRC At Sealing Time:	31d506bd		
Time Of Sealing:	04/25/2010 07:47:43 AM		
Last Calculated W&M CRC:	31d506bd		
Last Calculated CRC's Time Stamp:	04/25/2010 08:07:22 AM		

Tankvision W&M Seal

A modified checksum indicates that changes have been made to the system. The checksum must be documented (e.g. by printing out the screenshot, see Figure "Tankvision W&M Seal") and recorded in the acceptance report (e.g. by attaching the printout).

✎ Note!
The checksum can be recalculated by switching the Field Scan off and then on again.

Checking the W&M display

The following steps must be taken to check the weights and measures display:
- The settings listed under Section to "Sealing tank data" can no longer be modified.
- A "WM" in front of the values for the "Product Level", "Product Temperature" and "Total Observed Volume" indicates that the values are calibrated.
- The level and temperature information has to match that of the field devices.

Checking the printouts

All printouts from connected printers that cannot be officially verified must bear the annotation "Measured values not calibrated" and no measured values may appear as calibrated.

Initial calibration and changes to the Tankvision Data Concentrator NXA821

Tank Scanner assignment

The assignment between the Tank Scanner units and the Data Concentrator must be checked under "System → Data Concentrator Unit → Tank Scanner Unit and Tank Assignment".

Tankvision Data Concentrator – Tank Scanner Assignment

PC assignment

The locking procedure is the same as for the tank scanner (see "Locking").

Stamp points for Tankvision Tank Scanner NXA820 and Data Concentrator NXA821

The stamp points are listed under Point 6 in type approval 4.454/08.10.

7.3 Exit the Tankvision system

The user can exit the Tankvision system from any screen.
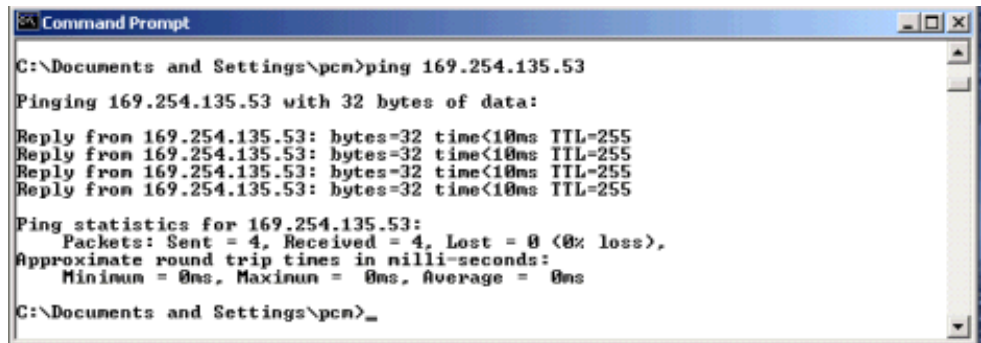
To exit the Tankvision system

1. Click the "Logout" link on the Metadata Header. Tankvision displays the login screen.

8 Trouble shooting

8.1 Test network connection

If a Tankvision unit can not be accessed from the operators computer you can test the network connection using the 'ping' command:

1. Click the Window 'Start' button and select 'Execute'. The 'Run' dialog window appears.

2. Enter cmd into the 'Open' field. The Windows Command Prompt window appears.

3. Try to ping the Tankvision until by typing the following into the command prompt line:
   ping xxx.xxx.xxx.xx
   Here xxx.xxx.xxx.xx is the IP address of the Tankvision unit.

4. If the pinging is successful and the computer receives an answer from the Tankvision unit, a message appears as follows:
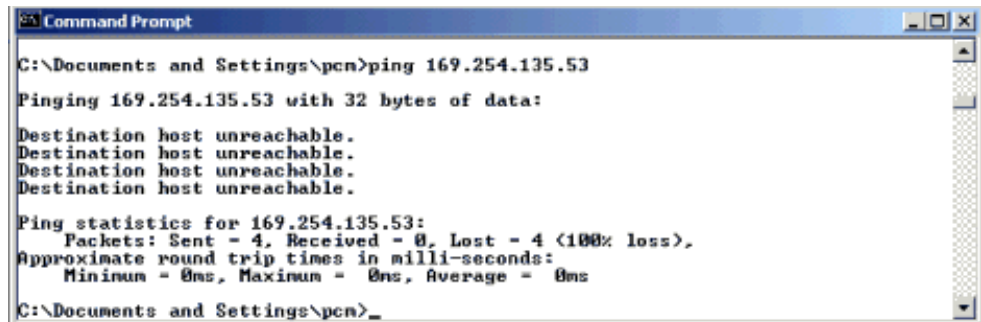
```
Command Prompt                                              _|□|x|

C:\Documents and Settings\pcm>ping 169.254.135.53

Pinging 169.254.135.53 with 32 bytes of data:

Reply from 169.254.135.53: bytes=32 time<10ms TTL=255
Reply from 169.254.135.53: bytes=32 time<10ms TTL=255
Reply from 169.254.135.53: bytes=32 time<10ms TTL=255
Reply from 169.254.135.53: bytes=32 time<10ms TTL=255

Ping statistics for 169.254.135.53:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum =  0ms, Average =  0ms

C:\Documents and Settings\pcm>_
```

5. If the pinging fails the message 'Destination host unreachable' or 'Request timed out' will appear: This means that the network is not working properly.
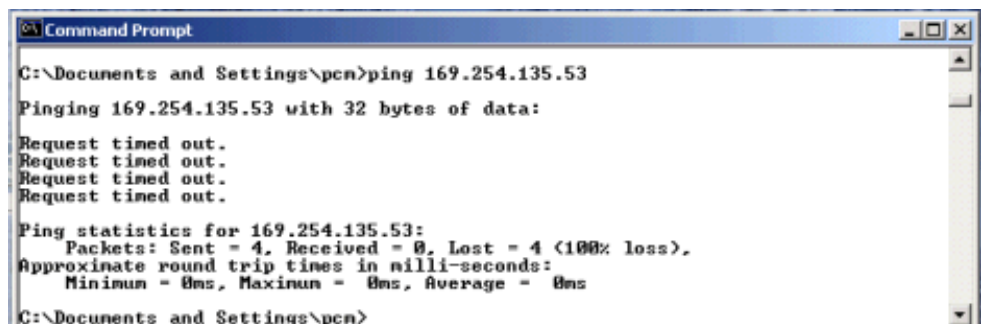
```
Command Prompt                                              _|□|x|

C:\Documents and Settings\pcm>ping 169.254.135.53

Pinging 169.254.135.53 with 32 bytes of data:

Destination host unreachable.
Destination host unreachable.
Destination host unreachable.
Destination host unreachable.

Ping statistics for 169.254.135.53:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum =  0ms, Average =  0ms

C:\Documents and Settings\pcm>_
```

```
Command Prompt                                              _|□|x|

C:\Documents and Settings\pcm>ping 169.254.135.53

Pinging 169.254.135.53 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 169.254.135.53:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum =  0ms, Average =  0ms

C:\Documents and Settings\pcm>
```

Possible causes are:
– Wrong network settings (e.g. wrong IP address) in the Tankvision unit or the computer.
– Hardware problems (e.g. cable break or improper plugging of the cables)
– Missing power supply of the Tankvision unit

8.2 Resets

8.2.1 Types of Resets

- Reset:
  restart the system without any additional action.
- Cleanup:
  resets achival data, alarms and events without changing the configuration.
- Factory:
  resets the software to factory default settings, all data is getting lost including network settings.

8.2.2 Hardware Reset

- Push the reset button on the front panel of the device and release it in one of the following specified reset windows indicated by the Reset LED.
- Releasing the button in a LED ON window has no effect at all, the system keeps on running.

Reset		Cleanup		Factory	
LED flash 5Hz	LED ON	LED flash 2,5Hz	LED ON	LED flash 1,25Hz	LED ON
0...5 sec	5...10 sec	10...15 sec	15...20 sec	20...25 sec	> 25 sec

8.2.3 User Interface Reset

- Use a Service Code script to perform a reset
- Path: Global Settings / System Diagnostics / Service Code
- Enter one of the given Service Codes and press submit
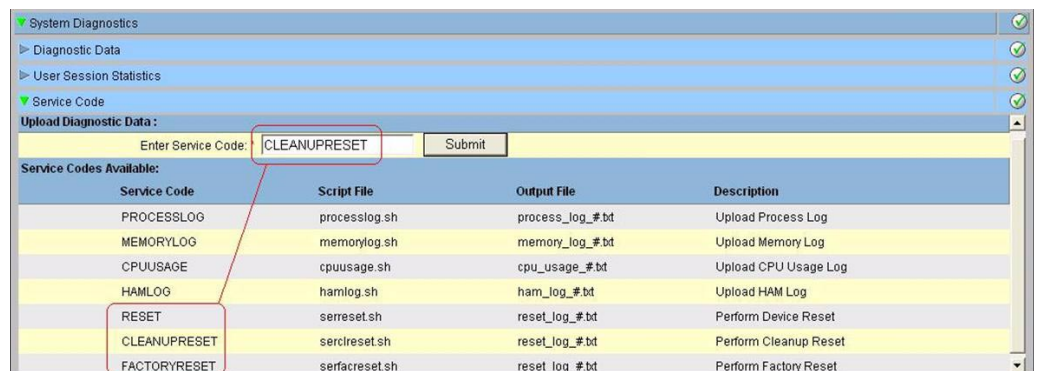
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