



Level



Pressure



Flow



Temperature



Liquid
Analysis



Registration



Systems
Components



Services



Solutions

Installation Instructions

Tankvision NXA820, NXA821, NXA822

Inventory Control



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1 Safety Instructions

1.1 Designated use

Tankvision is a dedicated tank inventory system which is 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.

Tankvision consists of the following components:

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

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	
	<p>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</p>
	<p>Caution! Caution highlights actions or procedures which, if not performed correctly, may lead to personal injury or incorrect functioning of the instrument</p>
	<p>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</p>
Explosion protection	
	<p>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</p>
	<p>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.</p>
	<p>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</p>
Electrical symbols	
	<p>Direct voltage A terminal to which or from which a direct current or voltage may be applied or supplied</p>
	<p>Alternating voltage A terminal to which or from which an alternating (sine-wave) current or voltage may be applied or supplied</p>
	<p>Grounded terminal A grounded terminal, which as far as the operator is concerned, is already grounded by means of an earth grounding system</p>
	<p>Protective grounding (earth) terminal A terminal which must be connected to earth ground prior to making any other connection to the equipment</p>
	<p>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</p>
	<p>Temperature resistance of the connection cables States, that the connection cables must be resistant to a temperature of at least 85 °C.</p>

2 Identification

2.1 Nameplate

Made in Germany
D-79689 Maulburg

Endress+Hauser

Tankvision

Order Code:

Ser.-No.:

100 (Auto-MDIX)
MAC:

100 (Auto-MDIX)
MAC:

CE

250002393--

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

2.3 Supplied documentation

2.3.1 Operating instructions

Document number	Instrument	Type of Document
BA 339F	<ul style="list-style-type: none"> ▪ Tank Scanner NXA820 ▪ Data Concentrator NXA821 ▪ Host Link NXA822 	Description of Instrument Functions
BA 340F	<ul style="list-style-type: none"> ▪ 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.

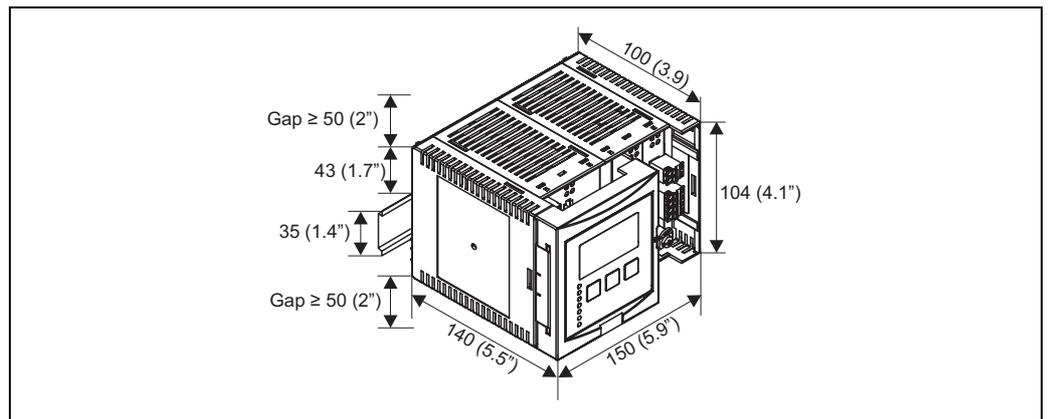
3.1.2 Transport, storage

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 ... +55 °C

3.2 Mounting

3.2.1 Dimensions

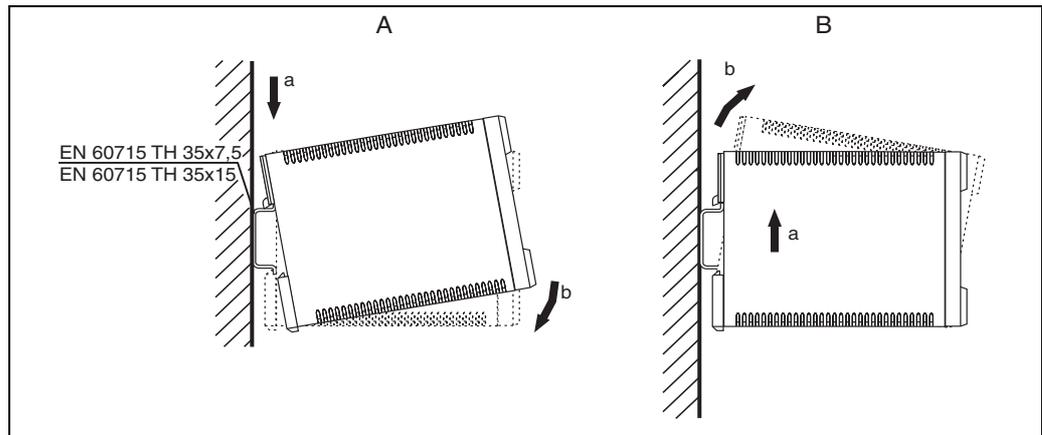


NXA82xxx-06-00-00-yy-002

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 should be kept between the instruments.

3.2.3 Mounting



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

3.3 Installation check

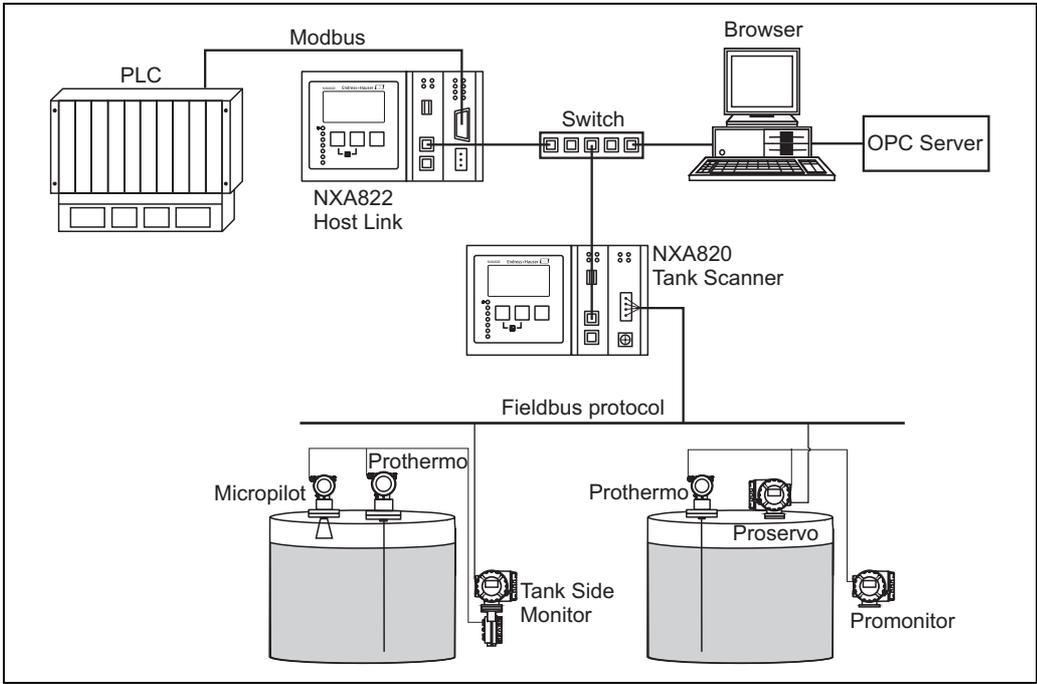
After installing the device, carry out the following checks:

- 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

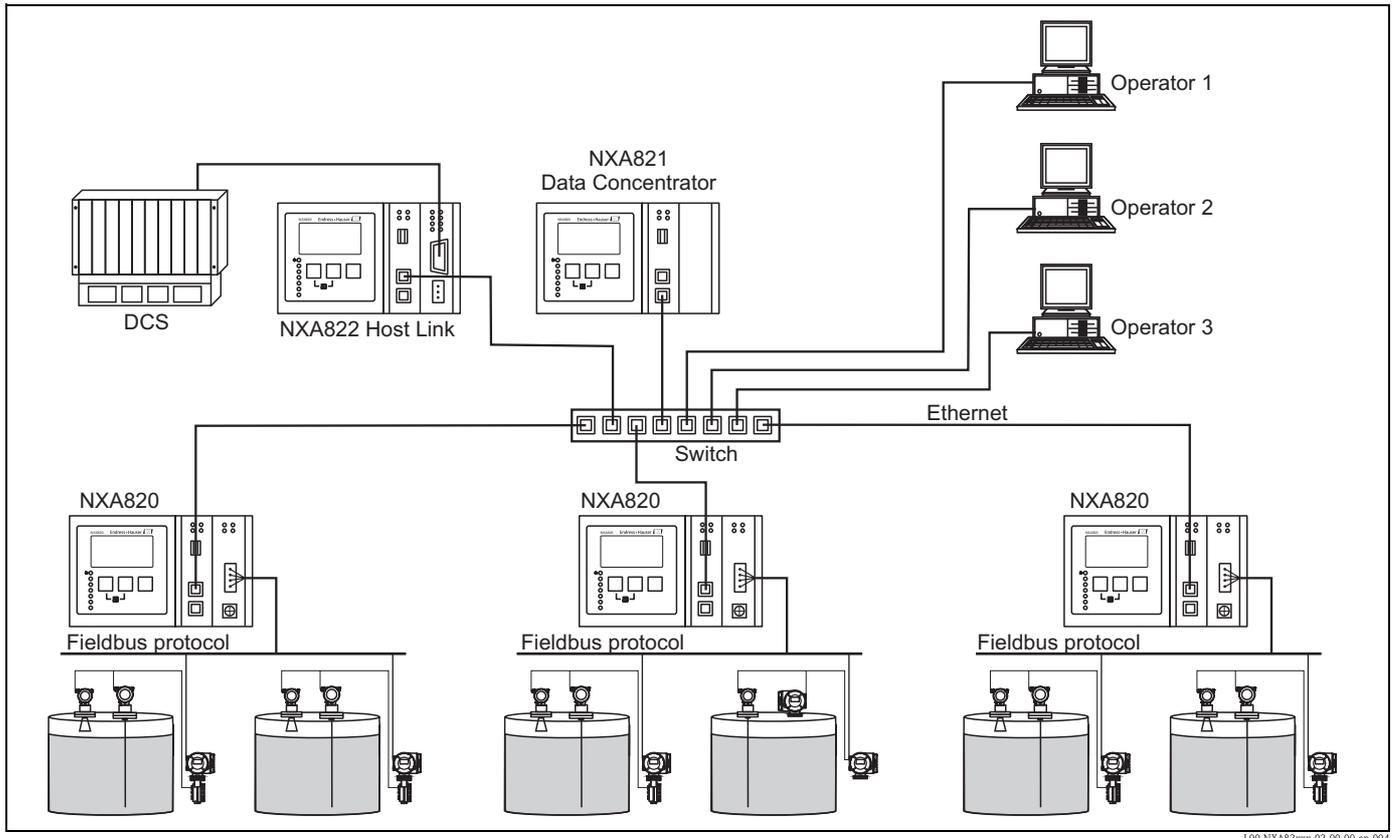
4.1 Wiring examples

4.1.1 Small tank farm

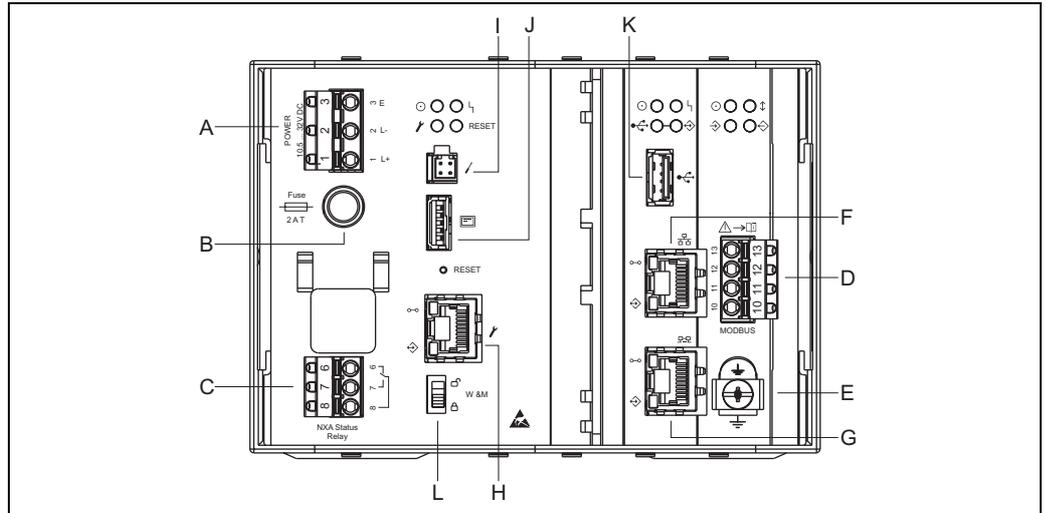


L00-NXA82xxx-02-00-00-en-003

4.1.2 Refinery (up to 225 tanks)



4.2 Terminal assignment for Tank Scanner NXA820



L00-NXA82xxx-04-00-00-yy-019

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:** Endress+Hauser CDI port; **J:** Display port; **K:** USB port; **L:** Weights & Measures locking switch

4.2.1 Power supply

Terminal	Meaning for AC version (90-250 V _{AC}) NXA820 - **1*****	Meaning for DC version (10.5-32 V _{DC}) NXA820 - **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

4.2.2 Status Relay

Terminal	Meaning	Remarks
6	normally open contact	<ul style="list-style-type: none"> NXA operating normally: terminals 7 & 8 are interconnected NXA powered off or fault status condition: terminals 6 & 8 are interconnected
7	normally closed contact	
8	switching contact	

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 Field connection

Terminal	Modbus EIA485 ¹⁾ NXA820 - *4*****		Sakura V1 ²⁾ NXA820 - *g*****	
10	A	Data signal (-)	B	Data signal (+)
11	B	Data signal (+)	A	Data signal (-)
12	C	Signal Common	not connected	
13	S	Capacitive Shield	S	capacitive shield
	Ground		Ground	

1) For details → Page 17

2) For details → Page 18

4.2.4 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.

4.2.5 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 & Measure Switch	<ul style="list-style-type: none"> ■  :W&M parameters are unlocked and can be changed. ■  :W&M parameters are locked and cannot be changed.

4.2.6 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	≤ 30 pF/m
Core cross-section	≥ 0.34 mm ² , corresponds to 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

4.2.7 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

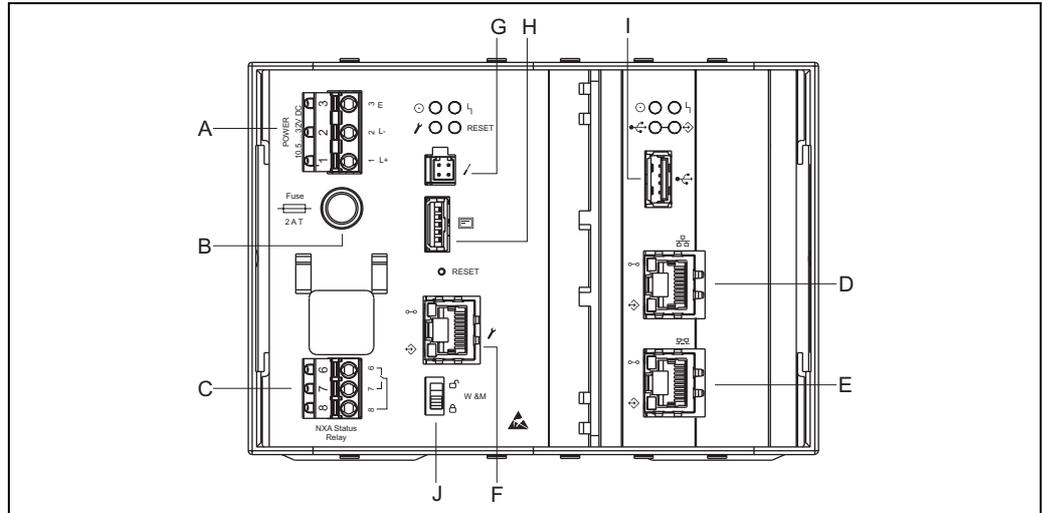
V1 fieldbus is a voltage mode digital communication using up to $\pm 30 V_{DC}$, and requires the following three electrical connections between each of the devices on the bus:

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	$\leq 50 \text{ nF/m}$
Core cross-section	$\geq 0.9 \text{ mm}^2$, corresponds to AWG 17, multi-strand cable is preferred
Cable type	twisted pair
Cable resistance	$\leq 30 \text{ } \Omega/\text{km}$
Shielding	Copper braided shielding or combined foil and braided shielding
Insulation	$\geq 60 V_{DC}$

4.3 Terminal assignment for Data Concentrator NXA821



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

4.3.1 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

4.3.2 Status Relay

Terminal	Meaning	Remarks
6	normally open contact	<ul style="list-style-type: none"> NXA operating normally: terminals 7 & 8 are interconnected NXA powered off or fault status condition: terminals 6 & 8 are interconnected
7	normally closed contact	
8	switching contact	

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



Note!

The depicted switching state of the relay refers to the de-energized state.

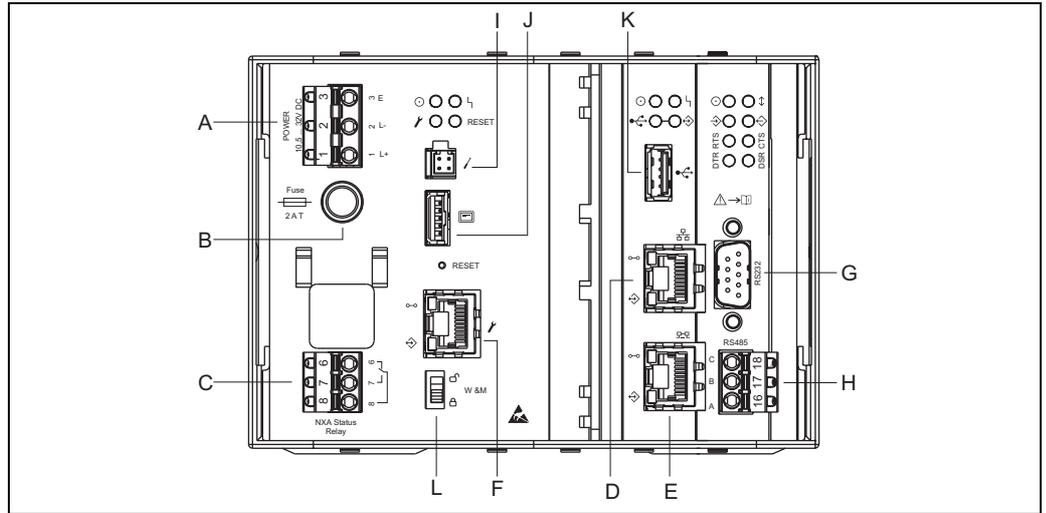
4.3.3 LAN connection

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.

4.3.4 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	<ul style="list-style-type: none"> ▪  :W&M parameters are unlocked and can be changed. ▪  :W&M parameters are locked and cannot be changed.

4.4 Terminal assignment for Host Link NXA822



L00-NXA82xxx-04-00-00-yy-021

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; **H:** RS485 Host connection; **I:** Endress+Hauser CDI port; **J:** Display port; **K:** USB port; **L:** Weights & Measures locking switch

4.4.1 Power supply

Terminal	Meaning for AC version (90-250 VAC) NXA822 - **1*****	Meaning for DC version (10.5-32 VDC) NXA822 - **2***** (in preparation)
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

4.4.2 Status Relay

Terminal	Meaning	Remarks
6	normally open contact	<ul style="list-style-type: none"> NXA operating normally: terminals 7 & 8 are interconnected NXA powered off or fault status condition: terminals 6 & 8 are interconnected
7	normally closed contact	
8	switching contact	

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



Note!

The depicted switching state of the relay refers to the de-energized state.

4.4.3 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.

4.4.4 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	<ul style="list-style-type: none"> ▪  :W&M parameters are unlocked and can be changed. ▪  :W&M parameters are locked and cannot be changed.

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

The NXA822 Data Concentrator 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	$\leq 50 \text{ pF/m}$
Core cross-section	$\geq 0.34 \text{ mm}^2$, corresponds to AWG 22, multi-strand cable is preferred
Cable type	Single cable or twisted pair
Cable resistance	$\leq 110 \text{ } \Omega/\text{km}$
Signal damping	Max. 9 dB over the entire length of the cable cross-section
Shielding	Copper braided shielding or combined foil and braided shielding

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

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

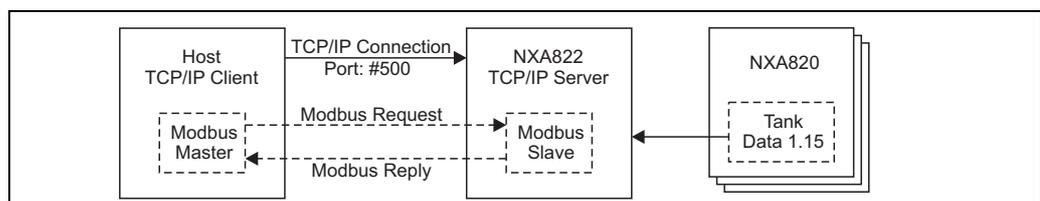
Additional EIA/TIA-485 bus settings

- 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 , corresponds to 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

4.4.7 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 Firefox

1. Open the 'Tools' menu.
2. Select 'Options'.
3. Select the 'Connection Settings' tab.
4. Activate the option 'Manual 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 5.0 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/javase/downloads/index_jdk5.jsp

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:

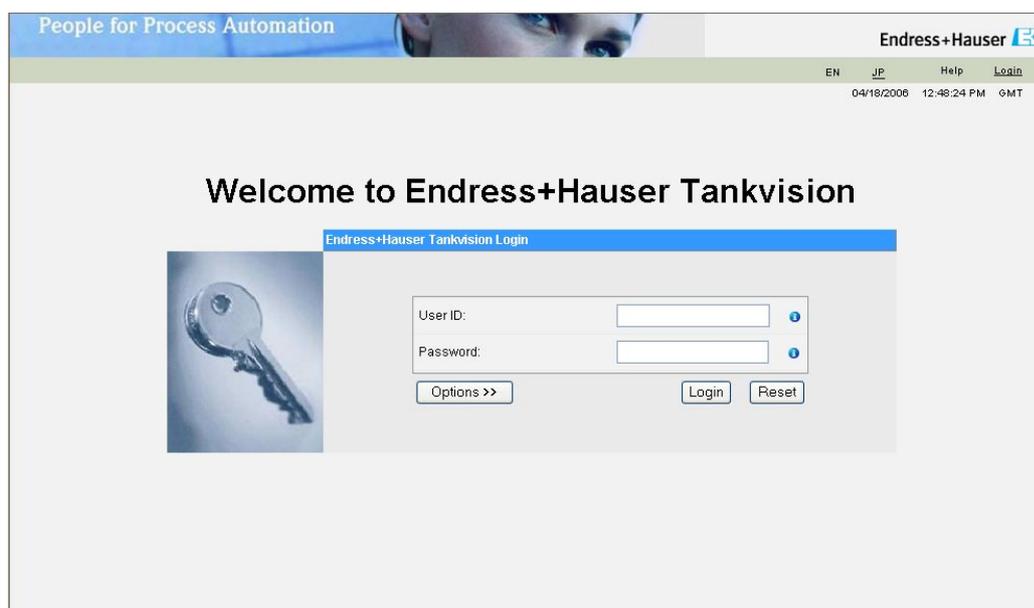
1. Go to "Start" -> "Settings" -> "Control Panel" -> "Java"
2. Go to the "Update" tab and deactivate the option "Check for Updates Automatically".

6 The Tankvision operating concept

6.1 Logging into the Tankvision system

To log into the Tankvision system

1. In the web browser, enter the Tankvision URL or the IP address of the Tankvision unit¹⁾, and press ENTER on the keyboard. Tankvision displays the login screen as follows:



Field	Description
User ID	Enter the appropriate user login name. ¹⁾ The user login name is alphanumeric and case sensitive.
Password	Enter the appropriate password. ¹⁾ 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).

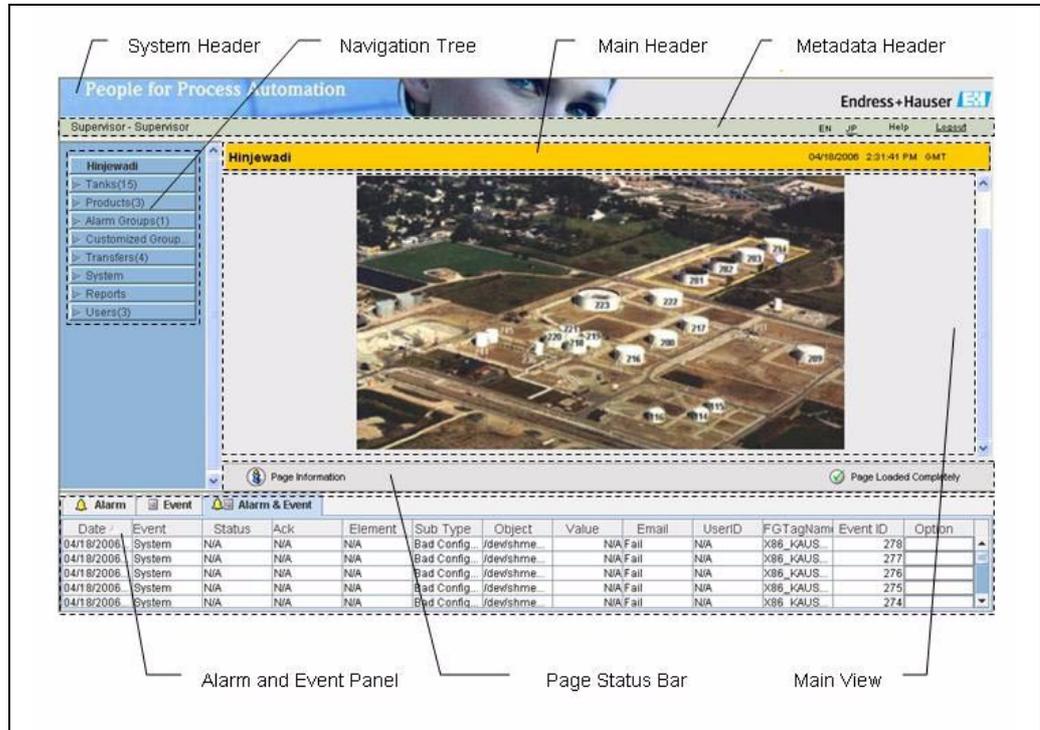
- 1) The user ID (= User Login Name) and password are defined by the system administrator when adding a user to the system (see BA237F).
2. Enter the appropriate information into the relevant fields and click the LOGIN button.
To correct the User ID or Password click the RESET button.

1) For the first configuration of a Tankvision unit use the Service LAN port. Its IP address is 192.168.1.1. When the unit has been integrated into the network it can be accessed via the LAN using the System IP address. The system IP address is defined in the network settings of the Tankvision unit (System/Global Settings/Network Settings/Primary IP address).

6.2 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.

6.2.1 The Home Page

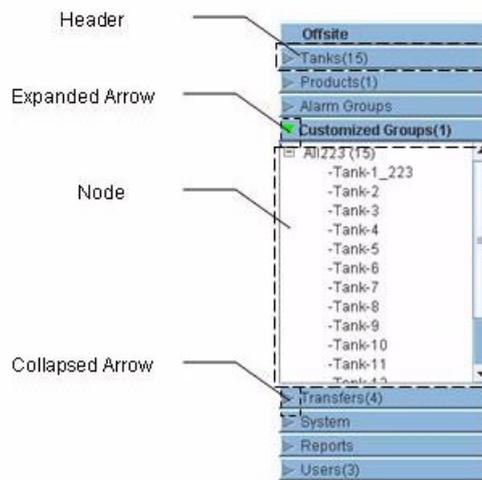


Field	Description
System Header	Displays the Customer Logo or Graphic.
Navigation Tree	Contains header bars corresponding to different functional objects or groups in the system. Refer to "Navigation Tree - detailed description" (page 29) for details.
Metadata Header	Displays the following information: <ul style="list-style-type: none"> ■ The user name and the user type ■ The language options link ■ The help link ■ The logout option
Main Header	Displays the following information: <ul style="list-style-type: none"> ■ 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 <p>The main header is displayed with a background color depending on the access rights of the user logged into the system:</p> <ul style="list-style-type: none"> ■ 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.
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" (page 30) 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" (page 30) for details.

Field	Description
Page Status Bar	<p>The Page Status Bar displays information related to the active content in the Main View section:</p> <ul style="list-style-type: none">  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	<p>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:</p> <ul style="list-style-type: none"> ■ 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 <p>The text will appear in bold and black when the header is in the expanded form.</p>
Collapsed Arrow	<p>This type of arrow is displayed when the Header is in the collapsed position. Click on the collapsed arrow to expand the Header.</p>
Expanded Arrow	<p>This type of arrow is displayed when the Header is in the expanded position. Click on the expanded arrow to collapse the Header.</p>
Node	<p>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.</p>

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: *	<input type="text" value="0.000"/>	m ³	TCT Level Type: Innage
Maximum Tank Capacity:	+0.000 m ³		Minimum pump-able volume: +0.000 m ³
Volume Calculation Method:	Raw		Number of Straps: 2
Sub Table Present:	No		Water Table Present: No
Product Density for FRA:	+0.0 kg/m ³		Volumetric Floating Roof Correction: +0.000 m ³
Heel Volume:	+0.000 m ³		TCT File Downloaded: None

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

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	FGTagNam	Event ID	Option
04/18/2006...	System	N/A	N/A	N/A	Bad Config...	/dewshme...	N/A Fail	N/A	N/A	X86_KAUS...	278	
04/18/2006...	System	N/A	N/A	N/A	Bad Config...	/dewshme...	N/A Fail	N/A	N/A	X86_KAUS...	277	
04/18/2006...	System	N/A	N/A	N/A	Bad Config...	/dewshme...	N/A Fail	N/A	N/A	X86_KAUS...	276	
04/18/2006...	System	N/A	N/A	N/A	Bad Config...	/dewshme...	N/A Fail	N/A	N/A	X86_KAUS...	275	
04/18/2006...	System	N/A	N/A	N/A	Bad Config...	/dewshme...	N/A Fail	N/A	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.

6.3 Exit the Tankvision system

The user can exit the Tankvision system from any screen.

To exit the Tankvision system

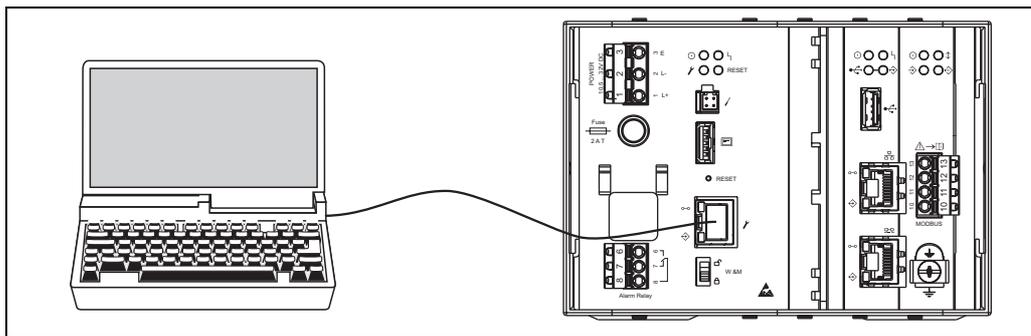
1. Click the 'Logout' link on the Metadata Header. Tankvision displays the login screen.

7 Tankvision configuration

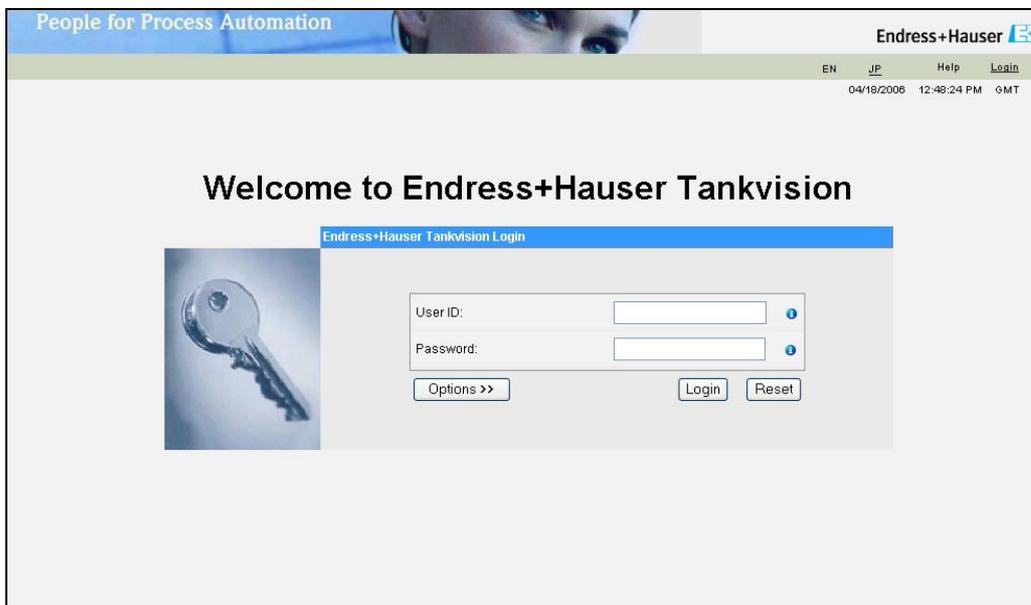
7.1 Network configuration

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.

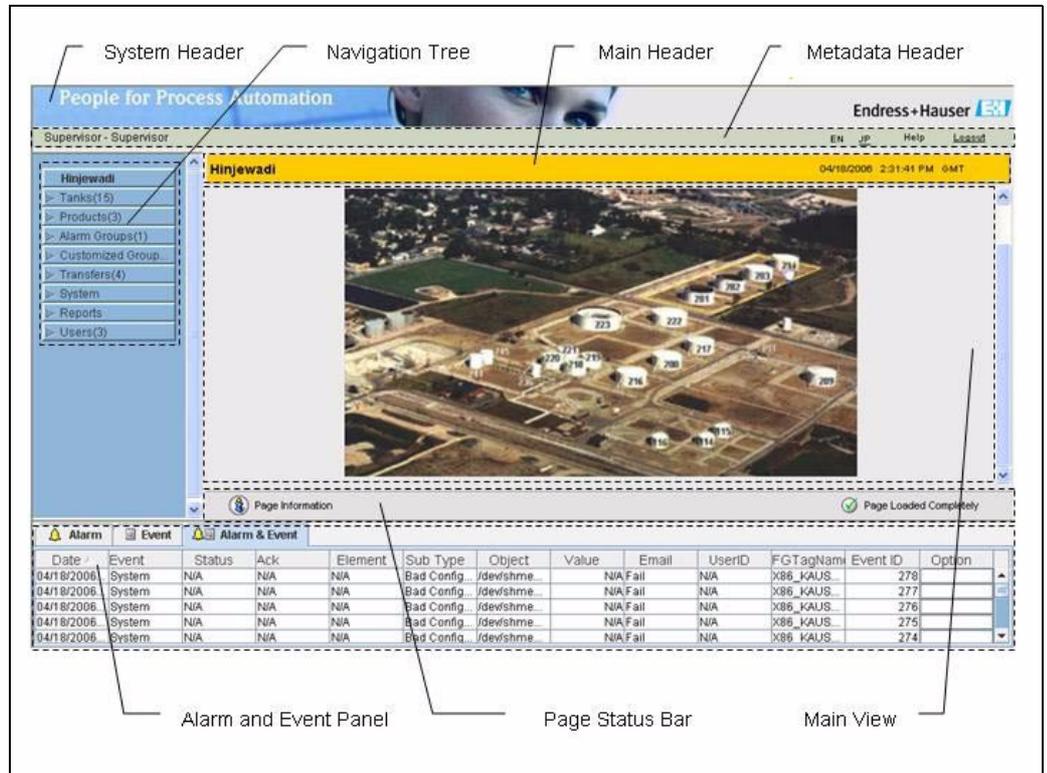


2. Open the internet browser and enter the following URL:
`http://192.168.1.1`
The Tankvision login screen appears.

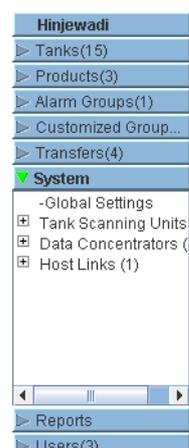


3. Login to Tankvision.
 - a. Enter 'super' into USER ID.
 - b. Enter 'super' into PASSWORD.
 - c. Click the LOGIN button.

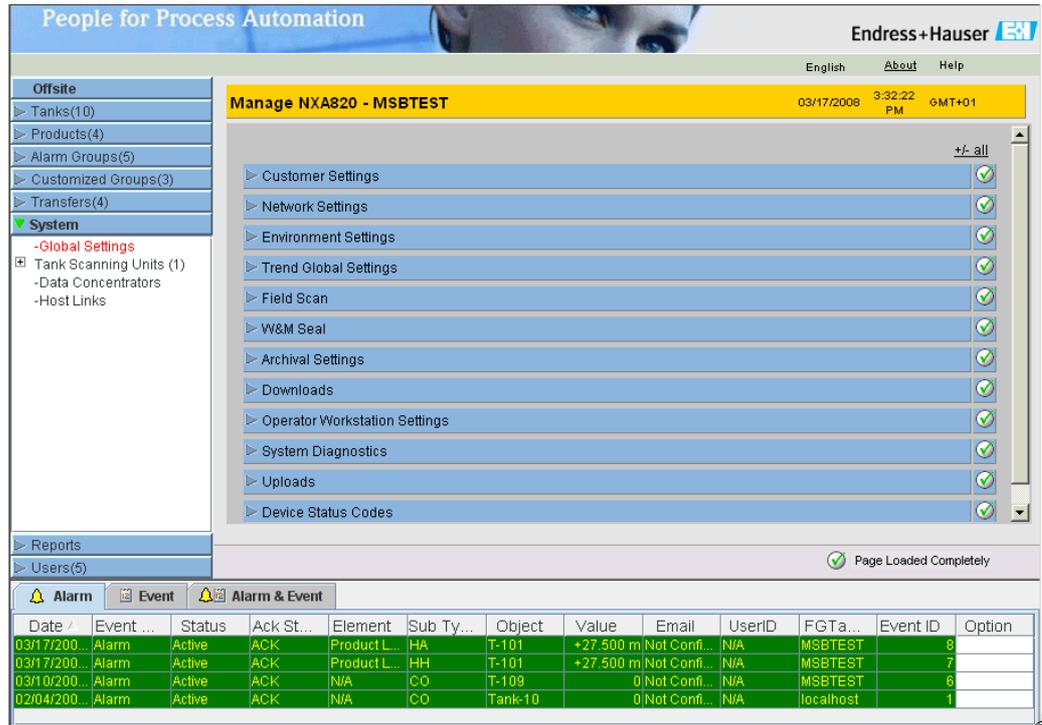
Tankvision displays the Home Page as follows:



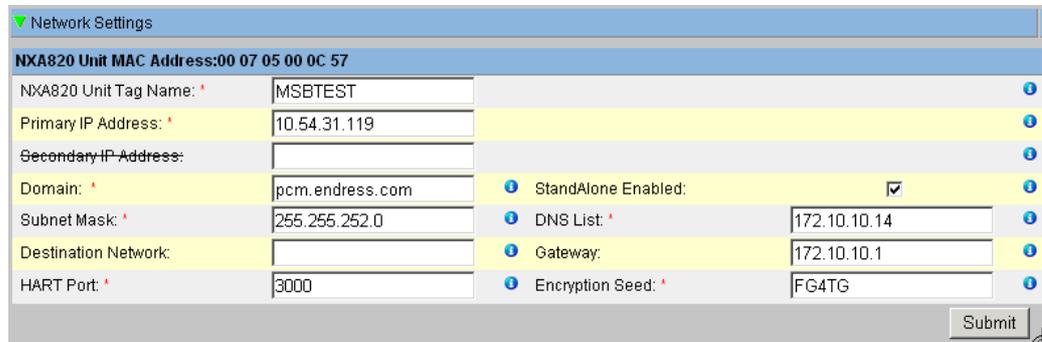
4. In the navigation tree, click the SYSTEM Header. It expands as follows:



- Click 'Global Settings'. Tankvision displays the screen as follows:



- Click on 'Network Settings'. Tankvision displays the screen as follows:

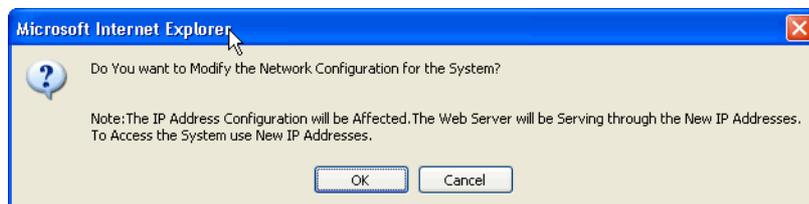


- Enter the appropriate information in the relevant fields.

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".

- Click the SUBMIT button to proceed. The system displays a confirmation box as follows:



9. Click the OK button to proceed, or click the CANCEL button to exit.
10. After saving the settings, Tankvision displays a confirmation message.
11. 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.

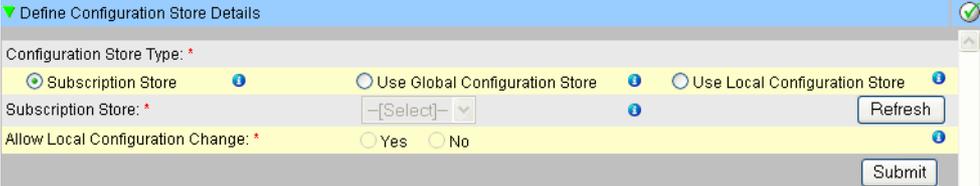
7.2 Subscription Store definition

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 and navigate to the 'Global Settings' screen as described in Section 7.1.
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.

7.3 Configuration of an isolated Tank Scanner NXA820

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

1. **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 BA337, Chapter 3.
2. **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 parameters²⁾.
For a description of the parameters refer to
 - BA339F, Chapter 12.5 (Modbus)
 - BA339F, Chapter 12.6 (V1)
 - e. Click the 'Start/Stop Field Scan' tab and then click on START. Field Scanning is now active.
3. **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 'Products' menu ('General Details', 'Volume Correction Factor', ...) and define the product properties.
For a description of the parameters refer to BA337, Chapter 7.
4. **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, Chapter 12.1)
 - d. In the main screen, click the 'Environment Settings' header and configure the parameters.
For a description of the parameters refer to BA339F, Chapter 12.3)
5. **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 ASSIGN 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, Chapter 7.8
6. **Additional Settings**
Depending on your requirements, you can perform numerous further settings. For details refer to BA339F.

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.

7.4 Configuration of a group of Tank Scanners NXA820 including a Data Concentrator NXA821

1. Define the Data Concentrator NXA821 to be a Subscription Store (see page 36).
2. Define each Tank Scanner NXA820 to use the Data Scanner NXA821 as Subscription Store (see page 36).
3. Assign the Tank Scanners NXA820 to the Data Concentrator NXA821:
 - a. Login to the Data Concentrator NXA821.
 - 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.
4. Login to each Tank Scanner NXA820 and perform the following configurations as described in Section 7.3:
 - a. Tank Configuration
 - b. Field Scan configuration.
5. Login to the Data Concentrator NXA821 and perform the following settings as described in Section 7.3:
 - a. Product Configuration
 - b. Customer Settings and Environment Settings
 - c. Product-Tank assignment
 - d. Additional settings



Note!

For details refer to BA339F, "Tankvision NXA820, NXA821, NXA822 - Description of Instrument Functions"

7.5 Configuration of the Host Link (NXA822)

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.
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).
 - Start/Stop Host Link

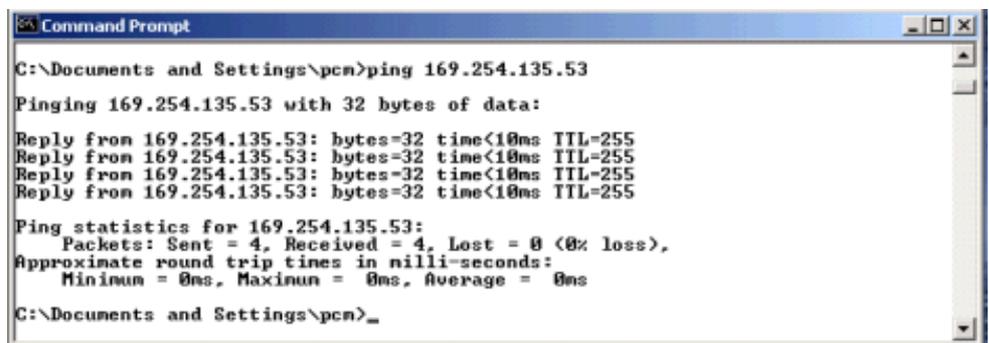
For details please refer to BA339F, "Tankvision NXA820, NXA821, NXA822 - Description of Instrument Functions"

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:



```

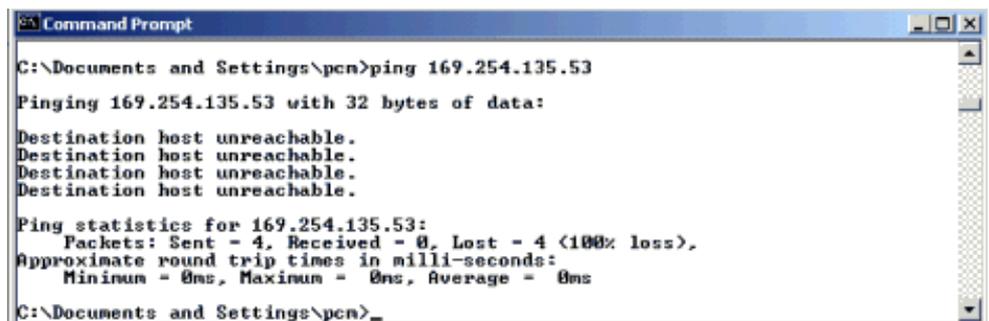
C:\Documents and Settings\pcn>ping 169.254.135.53
Pinging 169.254.135.53 with 32 bytes of data:
Reply from 169.254.135.53: bytes=32 time<10ms TTL=255

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\pcn>_

```

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.



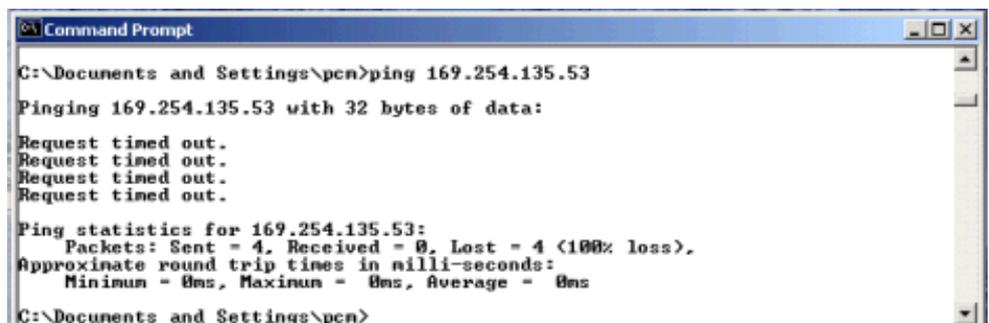
```

C:\Documents and Settings\pcn>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\pcn>_

```



```

C:\Documents and Settings\pcn>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\pcn>

```

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

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