

Monitoring System ALMS Instruction manual



Monitoring System ALMS

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2 User notifications

2.1 Warning / Danger symbols



These notes identify hazards that could result in moderate or minor injury if not avoided.



These notes identify hazards that could likely result in serious injury or death if not avoided.



These notes identify hazards with the potential for property damage.



Notes concerning use specifically in hazardous areas.

2.2 Symbol explanations

The following symbols are used in these instructions:
Perform actions in a specific order:

1. First action
2. Second action
3. ...
4. • written following a bullet

3 General information

This guide will give you all the necessary information for operating and installing an Air Liquide Monitoring System ALMS. In this notice, the monitoring system is called the ALMS.

3.1 Guidelines and general information

- ALMS complies to EU directives and standards for electrical safety and electromagnetic compatibility. Improper use can result in damage to persons and objects. Improper use, installation, or operation nullifies any guarantee.
- When used in installations and under environmental conditions requiring higher safety standards, the requirements and regulations of your country must be observed.
- Always keep the equipment and the ALMS freely accessible.
- Modifications to the equipment and the connection of additional devices fall under the responsibility of the operator. These steps must be checked and, if necessary, corrected by the operator.
- Accessories and options are optimally adapted to the device. Therefore, do not use custom solutions. Any modifications to the device and connection of auxiliary devices is the responsibility of the operator and must be checked by the user.
- For storage and transport, the unit should not be exposed to extreme temperatures, shock, or vibration.
- Notes and information on operating specifications can be provided on request.

3.2 Warranty and liability

Our „General Sales and Delivery Conditions“ apply as a rule. This is made available to the user at the latest at the time of contract signing. Warranty and liability claims for personal and property damage are excluded if they are due to one or more of the following causes:

- Improper use of the device.
- Improper installation, operation, use, and maintenance of the pressure equipment.
- Ignoring instructions in the manual with respect to transport, storage, mounting, installation, operation, maintenance, and upgrading of the pressure apparatus.
- Unauthorized alterations to the pressure apparatus.
- Inadequate monitoring of equipment which are subject to wear.
- Improper repairs.
- Exceeding or falling below the temperature range specified in the data sheet during operation or during storage.
- Disaster caused by foreign objects and forces of nature.

4 Safety instructions



The ALMS must not be used in explosion hazard zones.



The voltage value printed on the type plate must be respected.



Open the device only when no power is supplied to it.



The ALMS may only be connected by qualified personnel with appropriate specialist knowledge.



Check the electrical equipment for the equipment regularly. Correct loose connections and damaged cables immediately.



If work on parts supplied with power is necessary, a second person must be present to turn off the central power switch if necessary.



Only operate the ALMS if the housing including all connections are undamaged. Turn off power to a damaged instrument immediately.



Lay out cable that it does not present a trip hazard.



Clean using a slightly damp cloth with soap solution.

4.1 User responsibilities

The user agrees to only allow people to work at the pressure device, who

- have read and understood the safety chapter and the warnings in this manual. These employees are trained and instructed to work at the relaxation stations.
- The responsibilities of personnel for mounting, installation, and operation must be clearly defined.
- Trainees must work at the pressure device only under the supervision of an experienced person.
- All safety instructions and warnings must be kept in legible condition.

4.2 Personnel duties

All persons who are authorized to work at the pressure device must observe the basic regulations on workplace safety and accident prevention, and familiarize themselves with the safety data for the type of gas used before starting work.

5 Identification

5.1 Name plate

On the right side of the ALMS, you can find a type plate with information about:

Manufacturer, type, serial number, power supply, temperature range, IP protection, CE marking, and Ex marking (if the device has the appropriate equipment).

Air Liquide

MONITORING SYSTEM



www.airliquide.com

Type: ALMS 2/2K Ex
Serial No.: 010343

II (1)G [Ex ia Ga] IIC X

Input: 85 - 264VAC, 47 - 63Hz
0,18A/115VAC, 0,09A/230VAC

Temp.: -0°C / 30°C

IP65 **Ex** **CE** 

INAKON INAKON GmbH
D-68519 Viernheim

Made in Germany

6 Use

6.1 Function

The ALMS is a permanent, continuously operating control unit for transmitter to monitor the contents of pressurized containers. In conjunction with the pressure transmitters mounted at the relaxation stations or cylinder scales with a signal output of 4-20mA, up to 4 channels (optionally 8 channels) can be displayed. In addition, two preset thresholds trigger alarms; crossing threshold 1 changes the color of the channel concerned from green to yellow, threshold 2 changes the color from yellow red to with additional flashing. Also at threshold 2, an acoustic signal is sounded by the built-in horn.

Alarm output for use as a connection to further signaling systems such as sirens, flash lamps, or alarm messages to upstream systems.

Contact indicates a violation of the alarm limits or a broken cable in the sensors.

Floating switchover contact: Contact load
max. 240V / 2A.

6.2 Use in hazardous areas



The ALMS EX model series may only be connected to the pressure sensors of the companies BD-Sensors and Siemens (others on request).



These notes indicate hazards which cause with high probability injuries or even death if they are not avoided..



The ALMS monitoring system may only be installed in non EX zone.

7 Installation

7.1 General

Check equipment immediately after unpacking for any visible damage. If damage is evident, please contact the distributor.

Delivery includes:

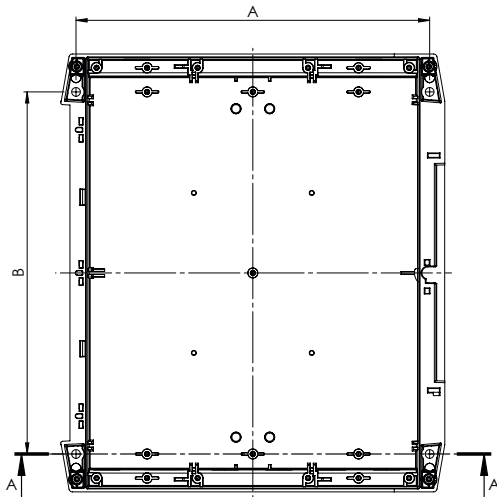
- ALMS monitoring system
- 4 x wall mount
- Instructions

When mounting the device, locations with the following negative conditions should be avoided:

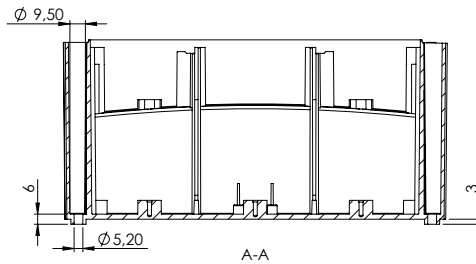
- Heat (heater or direct sunlight)

7.2 Wall mounting

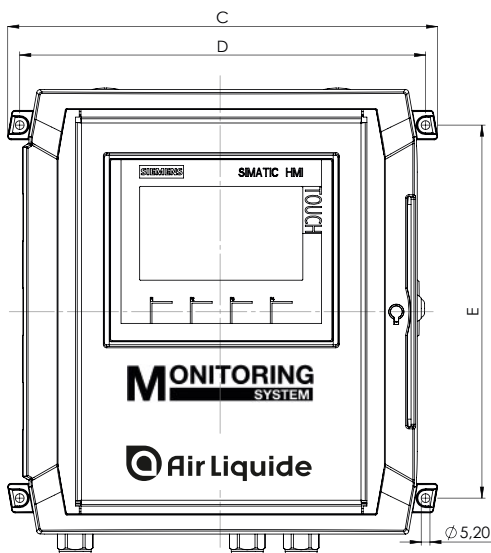
7.2.1 Wall mounting without bracket



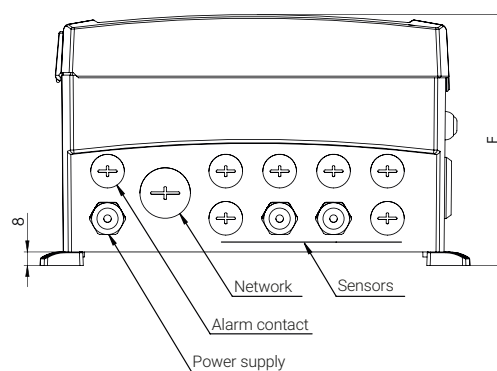
Device type	A	B
BCD 250	210	215
BCD 310	265	275
BCD 400	320	355



7.2.2 Wall mounting with bracket



Device type	C	D	E	F
BCD 250	251	236	222	152
BCD 310	306	291	282	152
BCD 400	361	346	362	164



7.3 Create mains connection



Connection of the mains power supply is made to the designated terminals.



The printed voltage rating (see type label) must match with the local voltage.



The mains connection may only be conducted by qualified personnel with the appropriate specialist knowledge.



The protective conductor must never be interrupted. It is important to ensure that only standard cable can be used with the protective conductor.

7.4 Sensor connections for non Ex models

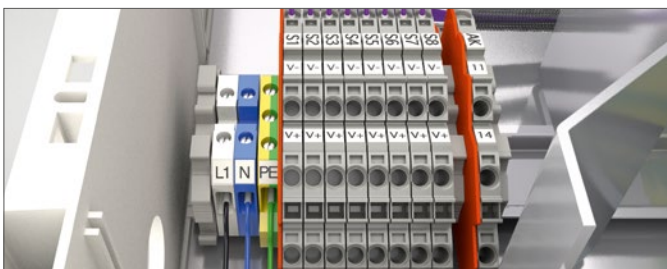
Connection of the pressure transducer takes place directly at plug-in terminals that are identified corresponding to the gas bottles.

S1 – S... (Different amount of sensors).



When connecting, switch off (disconnect power supply).

For electrical connections, use shielded cable with a conductor cross section of 0.5 mm² to 2.5 mm².



Pin assignment: V+ Sensor +, V- sensor -, screen



The pressure transmitter may only be connected by qualified personnel appropriate specialist knowledge. Installation instructions for the pressure transmitter must be adhered to.

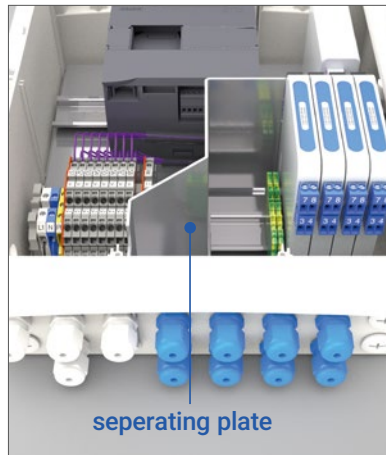
7.5 Sensor connection for Ex models



The monitoring system ALMS may only be installed in non-explosion hazard area!



The pressure transmitters are connected directly to the Zener barriers. The connections are marked with sensor (S1 – S...) and correspond to the gas cylinders (1 – x).



To comply with ATEX standards and thus to observe safety requirements, it is imperative that the cable feeds from the hazardous area are laid out through the provided blue cable feed-throughs. For devices which additionally offer the possibility of cable leads from the non-hazardous area with gray cable feed-throughs, only these

feedthroughs may be used. The installed plate for the Zener barriers are to be considered a separation point.



The pressure transmitter may be connected only by qualified personnel with the appropriate specialist knowledge. The installation instructions of the pressure transmitter must be adhered to.

If you use electrical equipment in installations and under environmental conditions requiring higher safety standards, this should observe applicable laws and regulations.



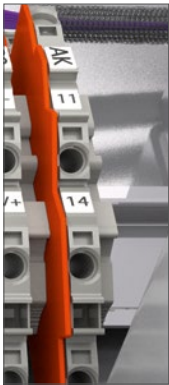
When connecting, shut down power (disconnect power supply).



The approved maximum cable length is 410 m. The cable cross-section must not be lower than 0.5 mm².

Connection: Mishandling (improper connection and installation) will invalidate the Ex approval and any guarantees.

7.6 Alarm contact output



Alarm output for use as a connection to further signaling systems such as sirens, flash lamps, or alarm messages to upstream systems.
 Contact indicates a violation of the alarm limits or a broken cable in the sensors.
 Floating switchover contact:
 Contact load max. 230 V / 3 A AC;
 24 V / 1 A DC

8 Putting into operation

8.1 Language choice and contact information

8.1.1 Start screen

After switching on or connecting supply voltage, the device boots up. As soon as the start screen is displayed, the boot process is complete. The unit is now ready for operation

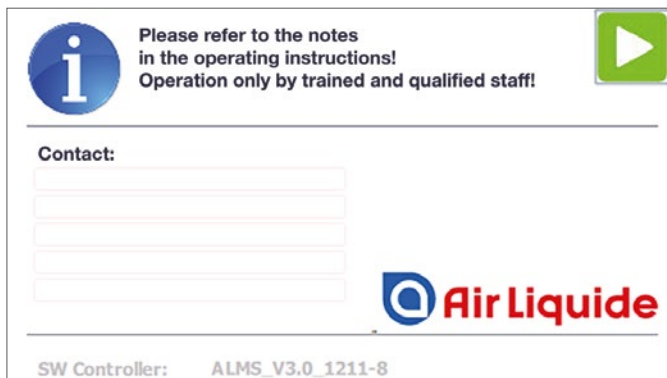


Clicking on a country's flag sets the language accordingly, and changes to the info screen.

8.1.2 Info image

Below „Contact:“, 5 lines can be used to enter e.g. contact information for service. The lines can be edited by all operators. By default these lines are empty.

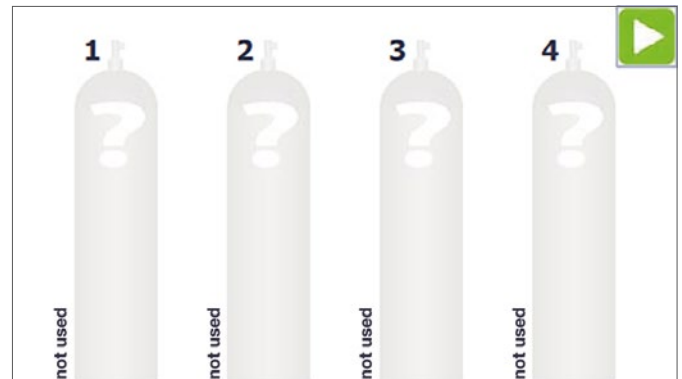
The software version is displayed at the bottom of the screen.




Clicking the arrow at the top right, will change the screen and the main screen appear, in which the cylinders 1...4 are displayed.

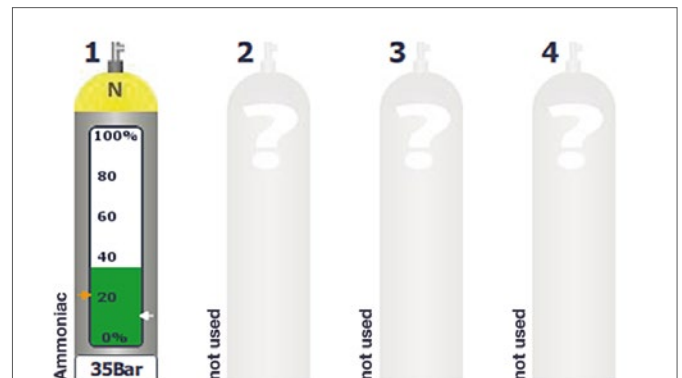
8.2 Main screen

8.2.1 The first 4 cylinders are displayed.

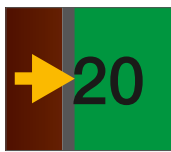


If the icon  is displayed here, the device version can support more than 4 cylinders. When clicking the green arrow the screen changes, and showing the cylinders 5...8.

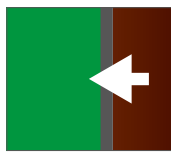
8.2.2 Cylinder display for the connected sensor, (here S1).



8.2.3 Warning and alarm limits



Left arrow displays warning limits.

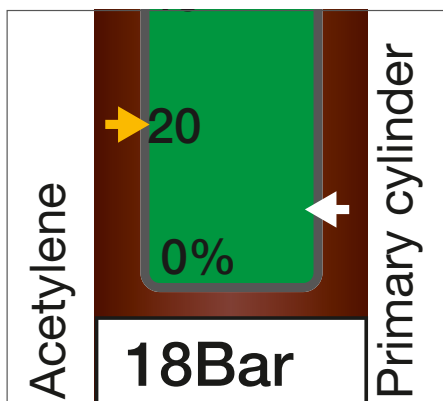


Right arrow displays alarm limits.

8.2.4 The absolute tank pressure is displayed at the bottom of the bottle.

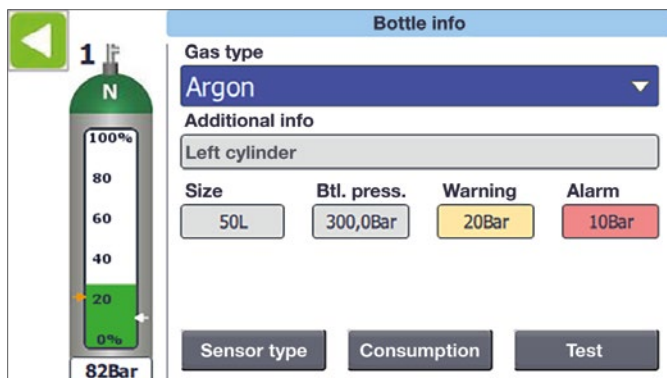
18Bar

8.2.5 The name of the gas is displayed on the left, and free text information is displayed to the right of the bottle.

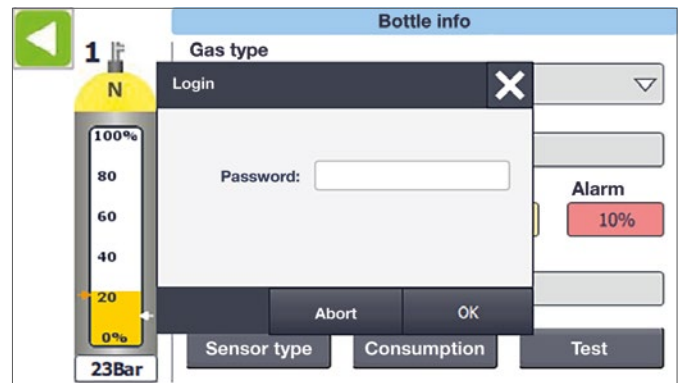


8.3 Enter basic values

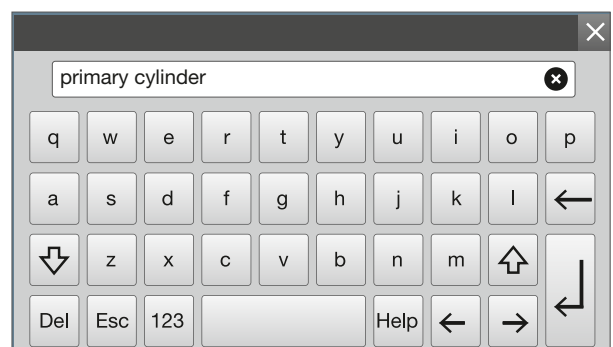
8.3.1 Clicking on the desired cylinder in the main menu will lead you to the "Parameter screen", where the necessary basic settings can be entered.



8.3.2 An input or change to the basic values is only possible with password entry. In the basic version, the default value is "0000" (for changing the password, see chapter 11.5). and confirmation can be made with the OK button. The user is automatically logged out after 15 minutes of inactivity.



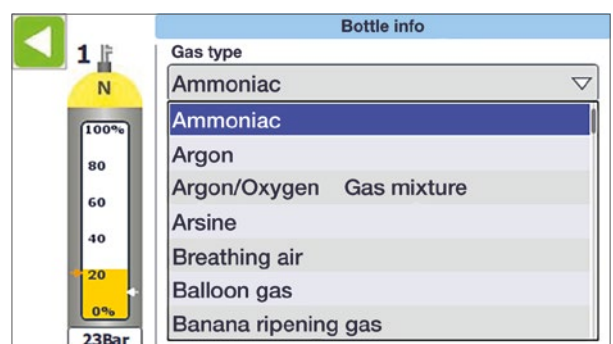
8.3.3 The alphanumeric keypad appears when entering text. Key "123" or „ABC" switches between the number view and symbol view

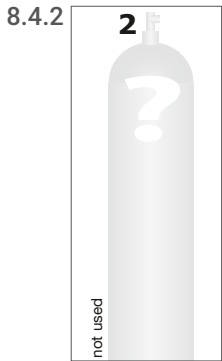


8.3.4 After entering the correct password, all basic values are adjustable.

8.4 Select the Gas type

8.4.1 After entering the correct password, all basic values are adjustable. Selecting the "Gas type" is possible via a drop-down menu. Scrolling up or down through the list or using the right scroll bar with your finger allows you to search the desired type of gas, selecting is done by clicking. A commercially available stylus can facilitate this operation.





8.4.2 If the term “not used” is entered under „Gas type” this channel is considered unused. No further values can be entered, and the bottle appears gray in the display. In this case, “not used” is displayed as the gas type.



If the value entered in the field “Fl. pressure” is higher than the value of the sensor type, the input will not be accepted. The value can not exceed the maximum pressure of the sensor.

8.8 Warnung and alarm

In the input fields “Warning” and “Alarm” enter the required reporting limits for alarm thresholds 1 and 2. These are shown as arrows on the bottle (see item 8.2.3). Percentages refer to the value entered in the field of “Fl. pressure”.

8.9 Sensor type, consumption and test

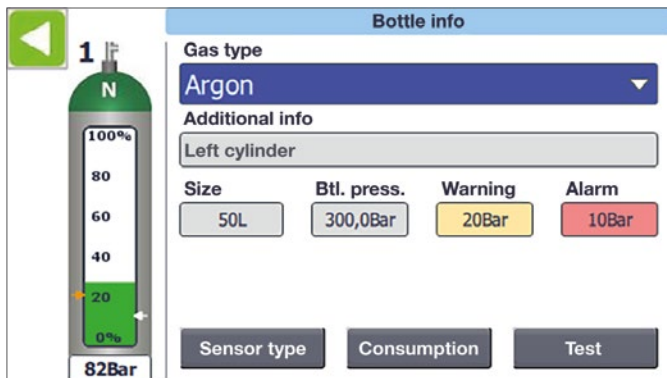
The buttons “Sensor type”, “Consumption” and “Test” are used to switch to the corresponding submenus (Consumption and Test will be explained in chapter 10).

8.10 Sensor type

Activating the “Sensor type” button opens the “Sensor type” window. Sensor type” window opens. In the field, enter the max. pressure of the connected sensor. The value can be found in the data sheet or on the type plate of the sensor, e.g. “400 bar”.



Exit with arrow button.



8.5 Additional information

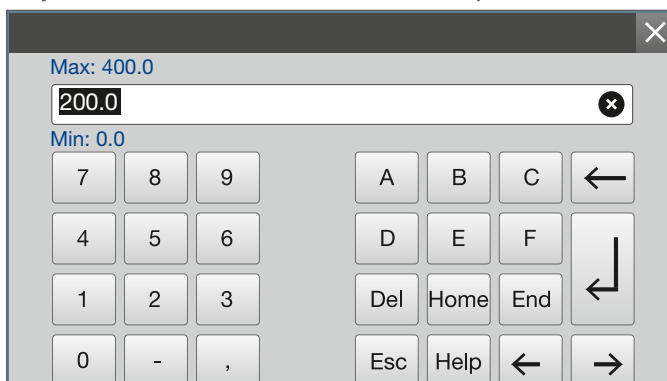
In the line “Additional info” you can enter any free text with the alphanumeric keyboard. This text is displayed vertically to the right of the cylinder (“Primary cylinder”).

8.6 Cylinder size

In the dropdown menu “Size” the number of liters of the connected bottle is entered (i. e. 50 l. This is important for calculations by the consumption monitor for compressed gases). The geometrical volume of the connected vessels can be requested at the gas manufacturer.

8.7 Cylinder pressure

“Btl. press.”: here, you can enter the actual filling pressure of gas cylinders used by this channel (for example, 200 or 300 bar) (This is important for calculations by the consumption meter for compressed gases). This is also the basis of the scaling of “Warning” and “Alarm”. Input is possible with the numeric keyboard, which will be displayed only when only numbers should be entered into an input field.



8.1.1 Installation Step by Step

8.11.1 Mount ALMS and install cables. Wiring according to the connection diagram in the appendix.

Cable:

- Non Ex:
- min. 2 x 0.5 mm² per sensor
 - Shielded cable e. g. LiYCY
 - Cable length max. 410 m, higher lengths possible
 - Bundling of sensor connection cables in one cable are allowed. Per sensor 2 cores.
 - Do not lay live lines under current in the cable in the cable or parallel to it.

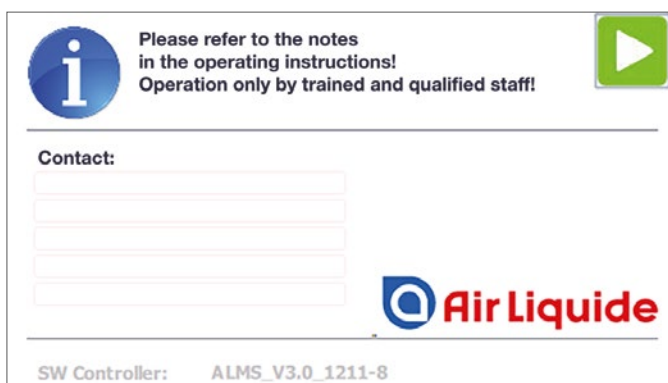
- Ex:
- min. 2 x 0.5 mm² LiYCY per sensor
 - Permissible up to 410 m
 - One cable for each sensor
 - Bundling of sensor cables in one cables are not allowed. Each sensor must be connected with one cable.
 - Cable identification blue
 - Only route through blue cable gland
 - Connect directly to Zener barrier



Pay attention to polarity!

8.11.2 Supply the ALMS with voltage and wait until the the device responds with the language selection. Select the language and continue with the green arrow key to the info screen.

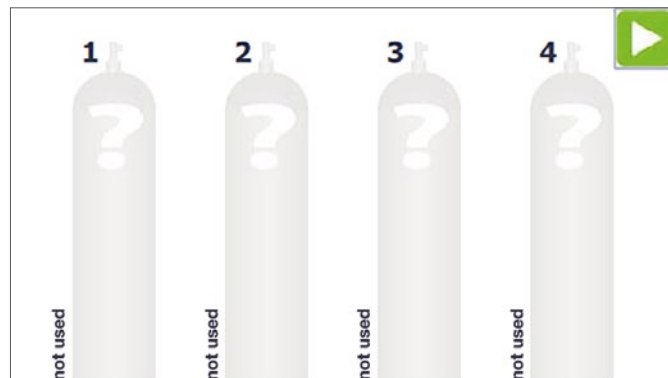
Info: In the bottom line of the info screen the version no. is displayed.



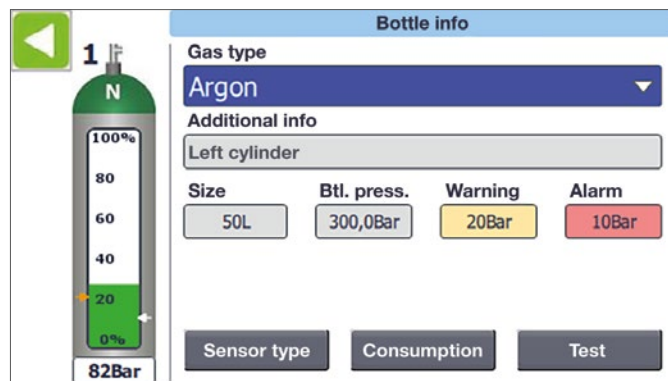
Continue to the main menu with the green arrow key.

In the delivery state, no sensor inputs are configured (gray display).

The connected sensors must now be configured.



8.11.3 Select the cylinder via the touchpad which that needs to be set. The window „Port Configuration“ opens.



The first time an input field is tapped the password 0000 needs to be entered. All entries can be changed at any time.

Type of gas

After tapping, a selection field of all possible gas types that are shown. Use your finger or the stylus to select and confirm the gas type. The designation is displayed in the main menu on the left, vertically next to the gas cylinder and the gas cylinder changes to the color code of the gas type.

Additional information

This text is displayed vertically, to the right of the cylinder e. g. "right cylinder".

Sensor type

In the Type field, enter the max. pressure of the connected sensor. The value can be found in the data sheet or on the type plate of the sensor, e.g. "400 Bar".

Size

Enter nominal capacity of connected cylinder. E.g. 50 l for a single cylinder or 600 l for a bundle.

Cyl. pressure

Enter the pressure of the cylinder or bundle as specified by Air Liquide.

Example: Enter "300 bar", then the max. bottle content is calculated to 300 bar. The pressure inside the bottle is set to 300 bar for 100 % and is displayed according to the cylinder content. In the field below the cylinder, the current absolute pressure is displayed.

Warning

When the warning limit is reached, the cylinder content are highlighted in yellow.

Alarm

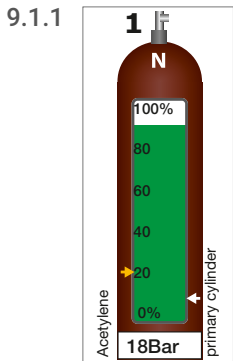
When the alarm limit is reached, the cylinder content is marked in red color. An audible signal is emitted, the AK contact is set and a message "Acknowledge horn" appears on the screen.

By pressing the button next to the signal transmitter, or the "Acknowledge horn" field, the alarm signal is canceled. The alarm contact AK remains set until the cylinder pressure cylinder pressure rises above the alarm limit again.

All necessary parameters for this connection are now already entered. After exiting with the green arrow key the main screen immediately shows continuously the pressure on the main menu and monitoring is started. The above settings must be entered for all connected ports and remain stored in a fail-safe manner until changing the values.

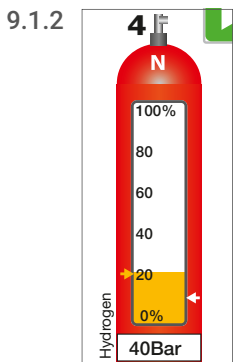
9 Operation

9.1 Level indicator and alarm

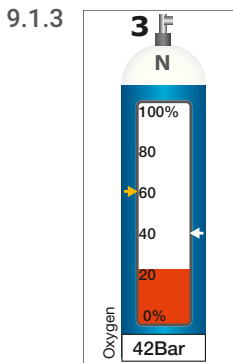


The level of the bottle will be displayed as an actual pressure value (in bar) at the bottom of the bottle symbol.

In addition, the colored bar indicates the percentage content of the gas cylinder; in the normal state, the bar color is green.

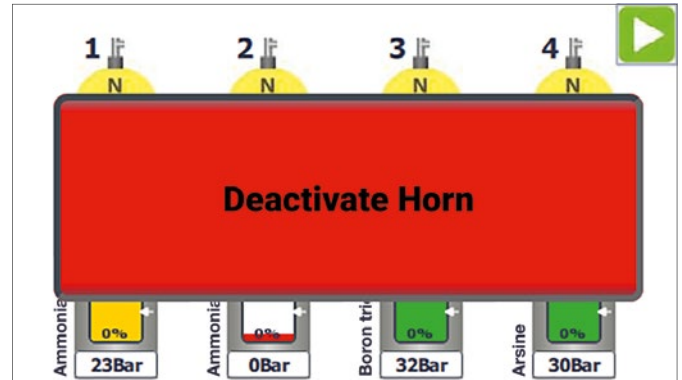


If the level indication falls below the set warning value, the color changes from green to yellow.



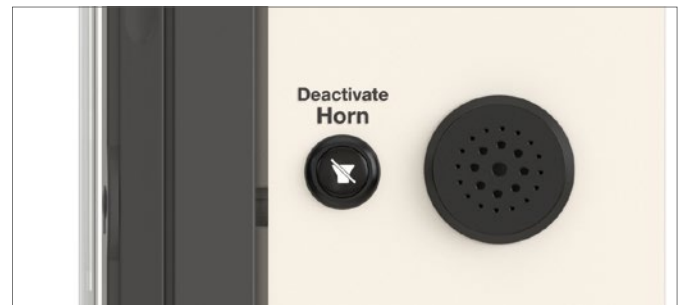
If the level falls below the set alarm value, the color changes from yellow to red and flashes. In addition, the built-in horn emits an acoustic signal.

9.2 Bottle change – Alarm clearing



9.2.1 After falling below the set alarm value, the display will show the display “deactivate horn”. In addition, the signal transmitter is activated and the Alarm contact AK is closed.

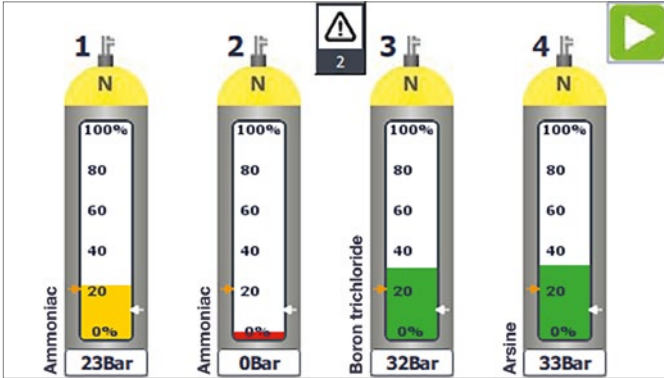
By clicking on “Acknowledge horn”, the horn contact is switched off again and the message disappears. Alternatively, the horn can be acknowledged via the button mounted on the right side.



The alarm contact remains activated as long as a cylinder filling level is the alarm limit or an unrectified fault is present. The red flashing bar in the cylinder also remains on the display until the gas shortage is eliminated. After a new cylinder has been connected, the color bar first changes to yellow and then to green. When the pressure compensation has taken place, over 80 % of the filling quantity and 2 minutes have elapsed, the alarm control is restarted.

9.3 Alarm indicator / Alarm window

9.3.1 If a problem is present in the device, a message window opens in the foreground with a corresponding message indicator. Below are the number of active errors and the message status.

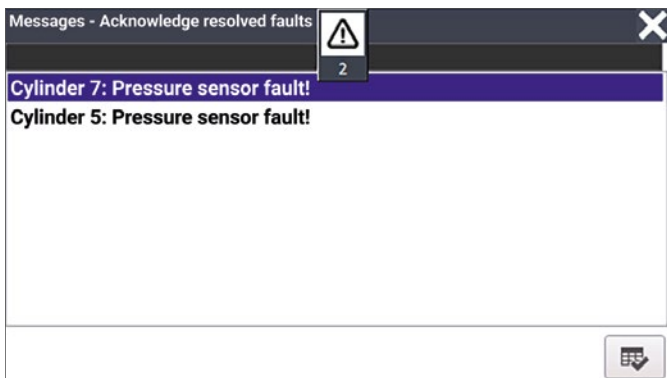


9.3.2 Message status:

1. Warning triangle flashes white/yellow: unacknowledged error.
2. Warning triangle white: error has been acknowledged, but has not yet been fixed.




9.3.3 Clicking on the warning symbol opens the message window.




9.3.4 Errors are displayed in the message window.

- Red: Error not repaired. Unacknowledged
- White: Error not repaired. Acknowledged
- Bright Red: Repaired error. Unacknowledged
- Blue: Selected message

9.3.5  All occurring errors must be acknowledged. For this, click message and acknowledge with button.

9.3.6 Fixed and acknowledged errors disappear from the list.

9.3.7  By clicking the message indicator again or clicking the close button, the alarm window can be closed again.

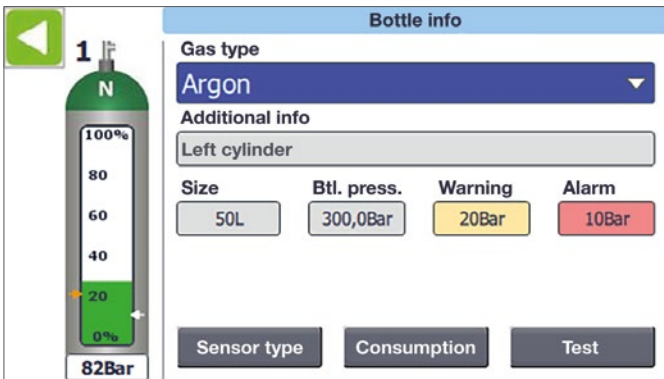
9.4 Taking out of operation

Take out of operation by breaking the main power supply. The instructions of the connected transducer must be observed.

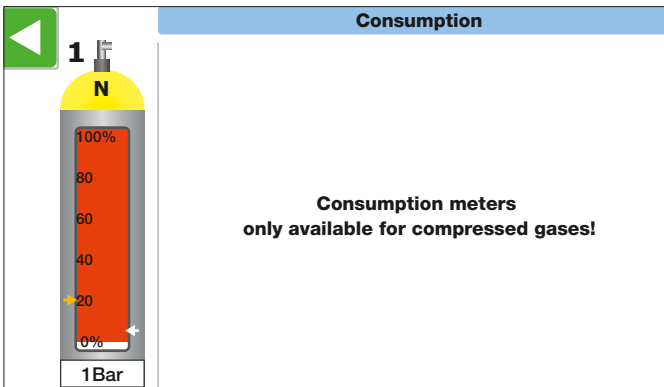
10 Additional functions

10.1 Consumption Measurement

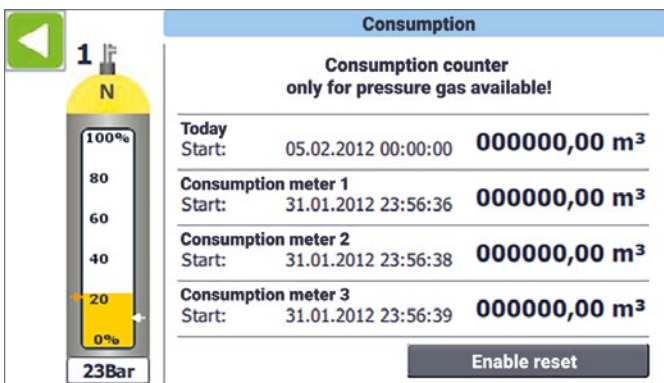
Clicking the button "Consumption" takes you to the corresponding submenu.



If the selected channel has not been set as compressed gas previously, a window appears with the message "Consumption counter only for pressure gaz available!".



If a compressed gas was entered, the window below appears.

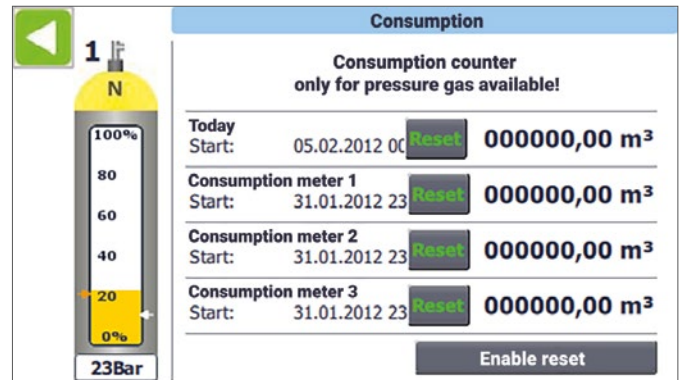


"Since connection" is automatically reset when a new bottle is connected. Reconnection of a new gas cylinder is detected when bottle filling and pressure is greater than the set warning limit for 2 minutes.

"Today" is always reset at 00:00:00 AM.

All three "Consumption" meters are free counters that can be reset at any time. It also displays when the consumption counter was activated.

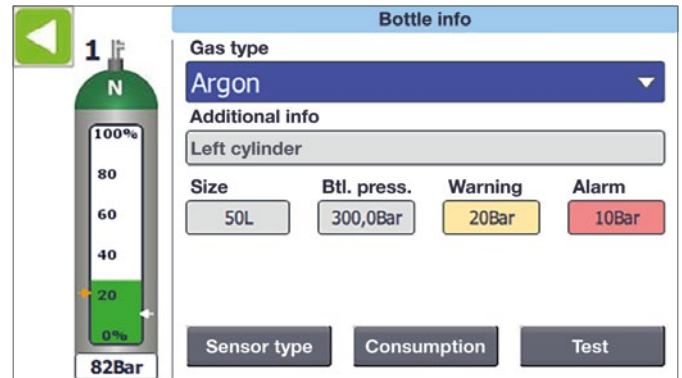
Resetting the display "Today" and "Consumption" meter is done with the button "enable reset". When clicking this button, individual reset buttons are displayed for a few seconds in the image, which enable manual reset by further clicking.



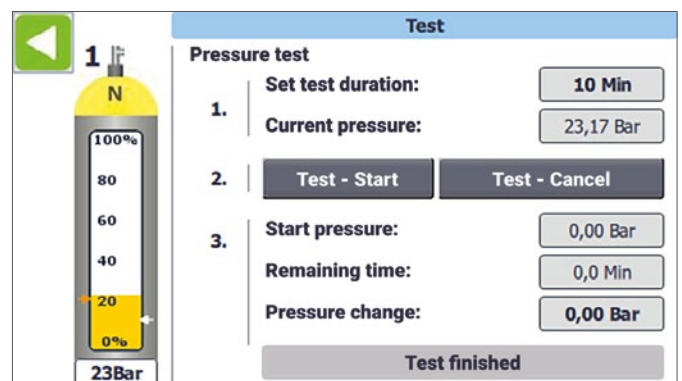
▶ Back to the origin menu.

10.2 Pressure test

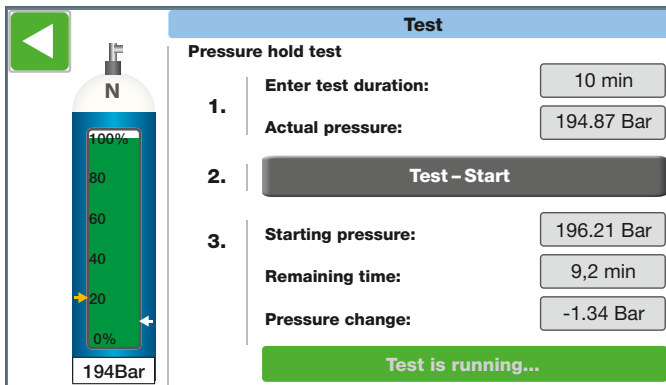
10.2.1 Pressing the button "Test" opens the submenu.



10.2.2 First, a time must be entered in the box "Set test duration." By clicking the button "Start Test" the test is activated.



The fields shown in the window have the following meaning:



Current pressure

displays the current tank pressure.

Start pressure

is the pressure at which the test was started.

Remaining time

indicates the remaining duration of the test.

Pressure Change

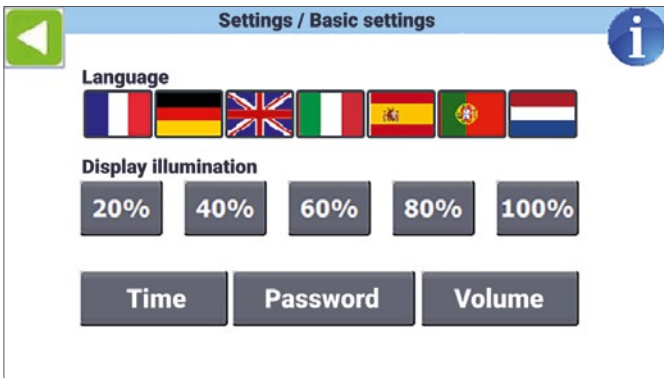
is the difference in current actual pressure – starting pressure. Once the test is over, the last difference remains here.

The test can be restarted during the test run with “Test Start”.

11 Device setup / basic settings

11.1 Language

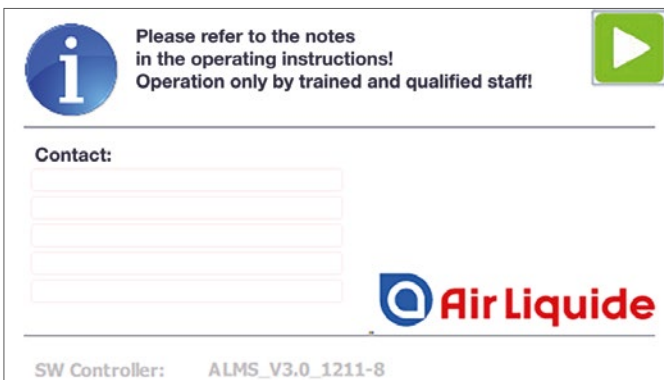
Press the F1 key to go from any screen in the device Settings / Basic settings window.



The language can be set here by clicking the appropriate flag. In addition, dimming the backlight is also possible.

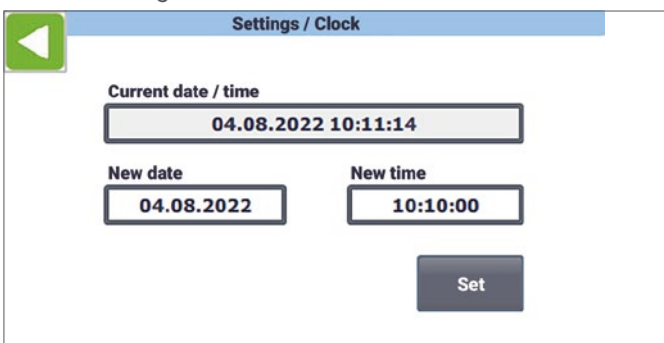
11.2 Info

Clicking on “i” opens the info screen, which is displayed also when the device is started (see item 8.1.2 too).



11.3 Time

11.3.1 By pressing the button “Time” you can open the “Settings / Clock” window.



11.3.2 The system time can be set here. To do this, enter the date and time in the field “New time” in the specified format, and then apply by pressing “Set”.

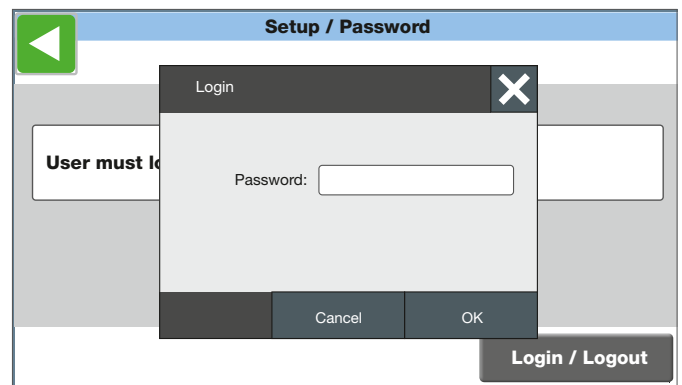
11.3.3 The current time is displayed in the field above. The time is used to store the reset time-point of consumption meters.

11.4 Password

11.4.1 Using the button “Password” you can open the image screen for changing the password. Here, you can change the user password, which is “0000” by default.

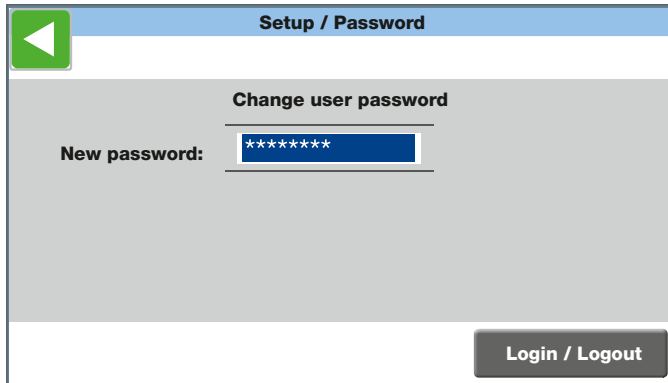


11.4.2 If the user is not yet registered, an image appears above. You must first enter the current password by clicking on “Login- / out” so that it can subsequently be changed. Enter password (keyboard window) and click OK to confirm.

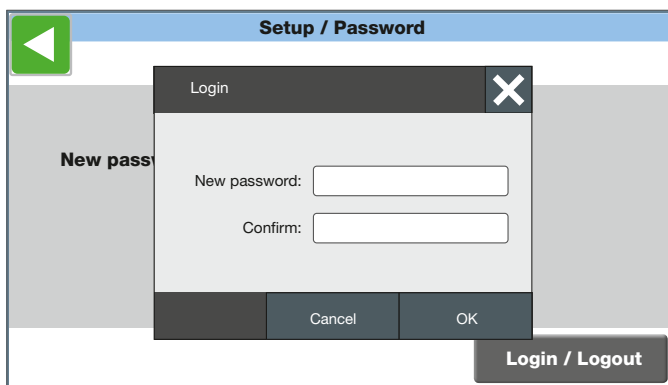


11.4.3 If the password is correct, the image “Change user-password” appears. In the field “New Password” you can now enter the new password.

11.4.4 After clicking on the blue input box, another window opens, here, the same password must be entered twice and confirmed with OK. The password is changed immediately. Test the change using the log on / logoff button.

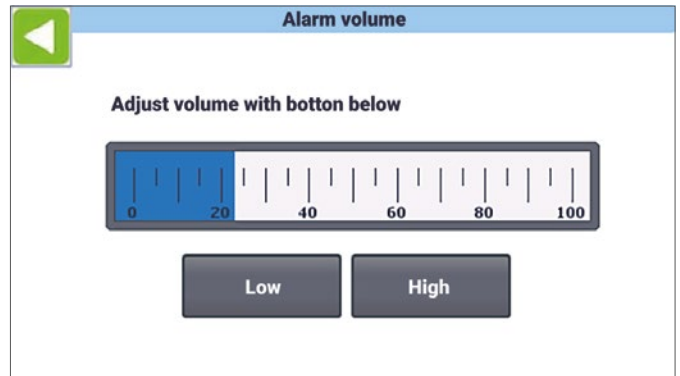


11.4.5 If the user's password is lost, you can log in temporarily with "9999" onto the device and then enter a new user password as described as above.



11.5 Set alarm volume

The volume can be adjusted by tapping the Volume Low or High Up keys. When exiting, the setting is saved in a fail-safe manner.



12 Care and Maintenance



Do not clean the ALMS using solvents or harsh cleaning products.

Clean only using a cloth gently dampened with soapy water.


13 Disposal



Do not dispose of the device or its accessories via household refuse. Take to a recycling station for electronic or electrical waste.

14 Technical Data

Technical documents on request

Line voltage		85 to 264 V AC, 47 to 63 Hz
Performance recording		180 mA at 120 V AC 90 mA at 240 V Ac
Operating environment temperature		-10 °C to 60 °C
Protection type		IP65
Measurements for plastic wall housing	Typ 250 Typ 310 Typ 400	264 x 234 x 144 mm (height x width x depth) 324 x 289 x 145 mm (height x width x depth) 344 x 404 x 161 mm (height x width x depth)
Weight / Basic enclosure with maximum configuration	Typ 250 Typ 310 Typ 400	3.2 kg (non-Ex-models) to 3.6 kg (Ex-models) 5.6 kg (non-Ex-models) to 6.0 kg (Ex-models) from 8.2 kg
Number of sensors	Typ 250 Typ 310 Typ 400	4 (max. 8) non-Ex models, 2 (max. 8) Ex-models 4 (max. 8) non-Ex models, 2 (max. 8) Ex models 4 (max. 32) non-Ex models, 2 (max. 32) Ex models
Voltage supply for measurement instrument		24 V DC
Sensor signal input		4 – 20 mA
Display accuracy		Depends on sensor
Alarm contact		Voltage-free changeover contact at a maximum contact load of 230 V / A AC; 24 V / 1 A DC
Housing material		ABS RAL7035
Transparent lid frame		Polycarbonate RAL7024
Signal generator		90 dB
Applied norms		
Electromagnetic tolerance		Guideline 2014 / 30 / EU EN
Low voltage guidelines		Guideline 2014 / 35 / EU
Explosion hazard zones		Guideline 2014 / 35 / EU EN 60079-0 EN 60079-15
EX classification for use of sensor in EX zones		 II (1) G [Ex ia Ga] IIC X
Allowed pressure transducer EX		Model BDS 17.600 Ex Further upon request

Cable layout

Ex version

Barriers									
No.1	Manufacturer / type	Certificate	U ₀ [V]	I ₀ [mA]	P ₀ [mW]	L ₀ [mH]	C ₀ [nF]	Group	T class
	REG. GEORGIN / BZG 789+	INERIS11ATEX0024 X	28	89,31	0,625 2	4,457 2	83	IIC	T6

Sensors									
	Manufacturer / type	Certificate	P _i [mW]	L _i [mH]	C _i [nF]	L _k [mH]m	C _k [nF / m]	U _i [V]	I _i [mA]
	Siemens AG / SITRANS P220	SEV10ATEX0146	≤ 750	0	0	0.001	0.2	≤ 30	≤ 100
	BD SENSORS / 17.600G Ex	IBExU10ATEX1068 X	660	0.01	1	0.001	0.2	28	93

TYPE LiCY min. 2 x 0.5 mm² per sensor. Each sensor must be connected separately with one cable. The permitted maximum cable length is 410 m. The cable cross-section shall not be lower than 0.5 mm².

Non-Ex version

TYPE min. LiCY 2 x 0.5 mm² per sensor. Each sensor must be connected with one cable. The approved maximum cable length is 410 m. The cable cross-section shall not be lower than 0.5 mm². The cable length can be extended by increasing the cable cross-section. Several sensor lines may be routed in one master cable: Do not include live lines in the trunk cable and do not install them in parallel.

15 Product overview AIR LIQUIDE Monitoring System

Device component / Device type	Part number AL	Drawing number AL	Enclosure (wxhxd) 234x264x144	Enclosure (wxhxd) 289x324x145	Alarm contact output	Expansion module 4K	GPRS/GSM module (without antenna enclosure)	Zener barrier for 2 Sensors
ALMS 4K+AK	184351	78005107	1x		1x			
ALMS 4K+AK+GPRS	184352	78005109	1x		1x		1x	
ALMS 8K+AK	184353	78005111	1x		1x	1x		
ALMS 8K+AK+GPRS	184354	78005113		1x	1x	1x	1x	
ALMS 2 / 2K Ex+AK	184355	78005114	1x		1x			1x
ALMS 2 / 2K Ex+AK+GPRS	184356	78005116	1x		1x		1x	1x
ALMS 2 / 6K Ex+AK	184357	78005118		1x	1x	1x		3x
ALMS 2 / 6K Ex+AK+GPRS	184358	78005120		1x	1x	1x	1x	3x
ALMS 6 / 2K Ex+AK	184359	78005122		1x	1x	1x		1x
ALMS 6 / 2K Ex+AK+GPRS	184360	78005124		1x	1x	1x	1x	1x
ALMS 4K Ex+AK	184361	78005125	1x		1x			2x
ALMS 4K Ex+AK+GPRS	184362	78005127	1x		1x		1x	2x
ALMS 4 / 4K Ex+AK	184363	78005129		1x	1x	1x		2x
ALMS 4 / 4K Ex+AK+GPRS	184364	78005131		1x	1x	1x	1x	2x
ALMS 8K Ex+AK	184365	78005133		1x	1x	1x		4x
ALMS 8K Ex+AK+GPRS	184366	78005135		1x	1x	1x	1x	4x
ALMS Customized version	upon request	78005136						

16 Spare parts and options for ALMS

Pos.	Article no.	Article	Description
1	78005140	Housing lower part size 250	Housing lower part for ALMS series size 250 in light gray, with processing as well as cable screw contacts and blind cover
2	78005141	Housing lower part size 310	Housing lower part for ALMS series size 310 in light gray, with processing as well as cable screw contacts and blind cover
3	78005142	Front hinged lid, clear, size 250	Front hinged lid, clear for ALMS series in graphite gray, with view window, size 250
4	78005143	Front hinged lid, clear, size 310	Front hinged lid, clear for ALMS series in graphite gray, with view window, size 310
5	78005144	Fixation set	Wall holder for ALMS series in light gray, for fixation of display terminal for mounting the display terminal without opening the enclosure. Assembly from outside on the back.
6	78005145	Signal generator / buzzer	Acoustic element with O-Ring (without connection cable)
7	184369	Signal multiplexer SIM4	Signal multiplexer for connection of up to 4 pressure sensors or contact manometers (without connection cable)
8	184370	Signal multiplexer SIM8	Signal multiplexer for connection of up to 8 pressure sensors or contact manometers (without connection cable)
9	184367	Controlled with software	Siemens CPU-1211C suitable for ALMS, with software
10	184368	HMI Display 4"	HMI KTP400 Basic suitable for ALMS, with software
11	184371	Zener barriers for pressure sensors Ex	2-channel Zener barriers suitable for pressure sensors including Air Liquide connection cable
12	78005151	Beep button	Button with imprint and connector plug
13	78005152	Alarm contact	Alarm contact output for use as connection to further signaling systems such as sirens, flash lamps, or alarm messages to upstream systems. The contact indicates a violation of the alarm limits or a broken cable in the sensors.
14	184373	Cylinder lock for front cover with 2 keys	Cylinder lock for retro-fitting. The lock can be retro-fitted to the existing input opening. The blind plug or blocker which may be mounted can be easily pushed out from the back side. The key is removable only in the locked state.
15	184375	Antenna enclosure	Antenna enclosure for GPRS antenna
16	184376	Profibus DP Slave module	Module for Profibus connection
17	184377	Profibus DP jack	for connecting the cable to the Profibus module
18	78005160	Memory upgrade	Memory upgrade for larger software applications
19	187925	Volume control	Volume control of the beep button



EU-Konformitätserklärung

Hiermit erklärt der Hersteller: **INAKON GmbH**
Werner-Heisenberg-Straße 28
D-68519 Viernheim

für das Produkt:

Produktbezeichnung ALMS...
Produktreihe Monitoring System
Kennzeichnung  II (1) G [Ex ia Ga] IIC X

die Übereinstimmung mit den wesentlichen Anforderungen der nachfolgenden Richtlinie(n) und deren Änderungsrichtlinien.

Leistungsmerkmal	Erklärte Leistung	Angewandte Normen
Elektromagnetische Verträglichkeit	Richtlinie 2014/30/EU	DIN EN 50270:2015-10 DIN EN IEC 61000-6-2:2019-11
Niederspannungsrichtlinie	Richtlinie 2014/35/EU	DIN EN 61204:2001-11
Explosionsgefährdete Bereiche	Richtlinie 2014/34/EU	DIN EN IEC 60079-0:2019-09 + Berichtigung 1:2021-04 DIN EN 60079-11:2012-06 DIN EN IEC 60079-15:2020-03 DIN EN 60079-25:2011-06

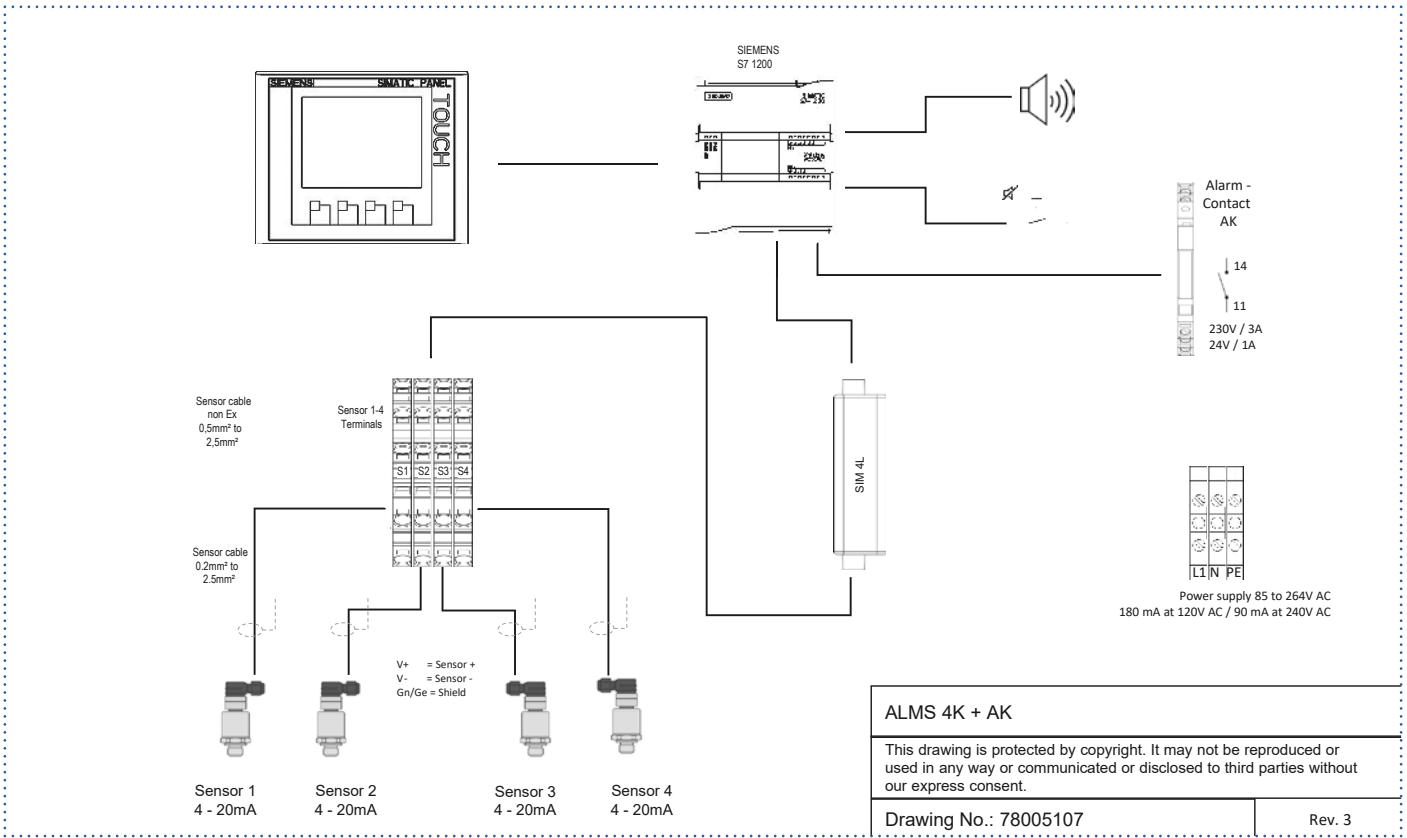
Diese Erklärung bescheinigt die Übereinstimmung mit den Anforderungen der genannten Richtlinie(n), enthält jedoch keine Zusicherung von Eigenschaften. Die Sicherheits- und Einbauhinweise der mitgelieferten Produktdokumentation sind zu beachten.

Das „X“ hinter der ATEX-Kennzeichnung weist darauf hin, dass das Produkt besonderen Bedingungen für die Verwendung unterliegt. Diese sind der Betriebsanleitung zu entnehmen und zwingend einzuhalten.

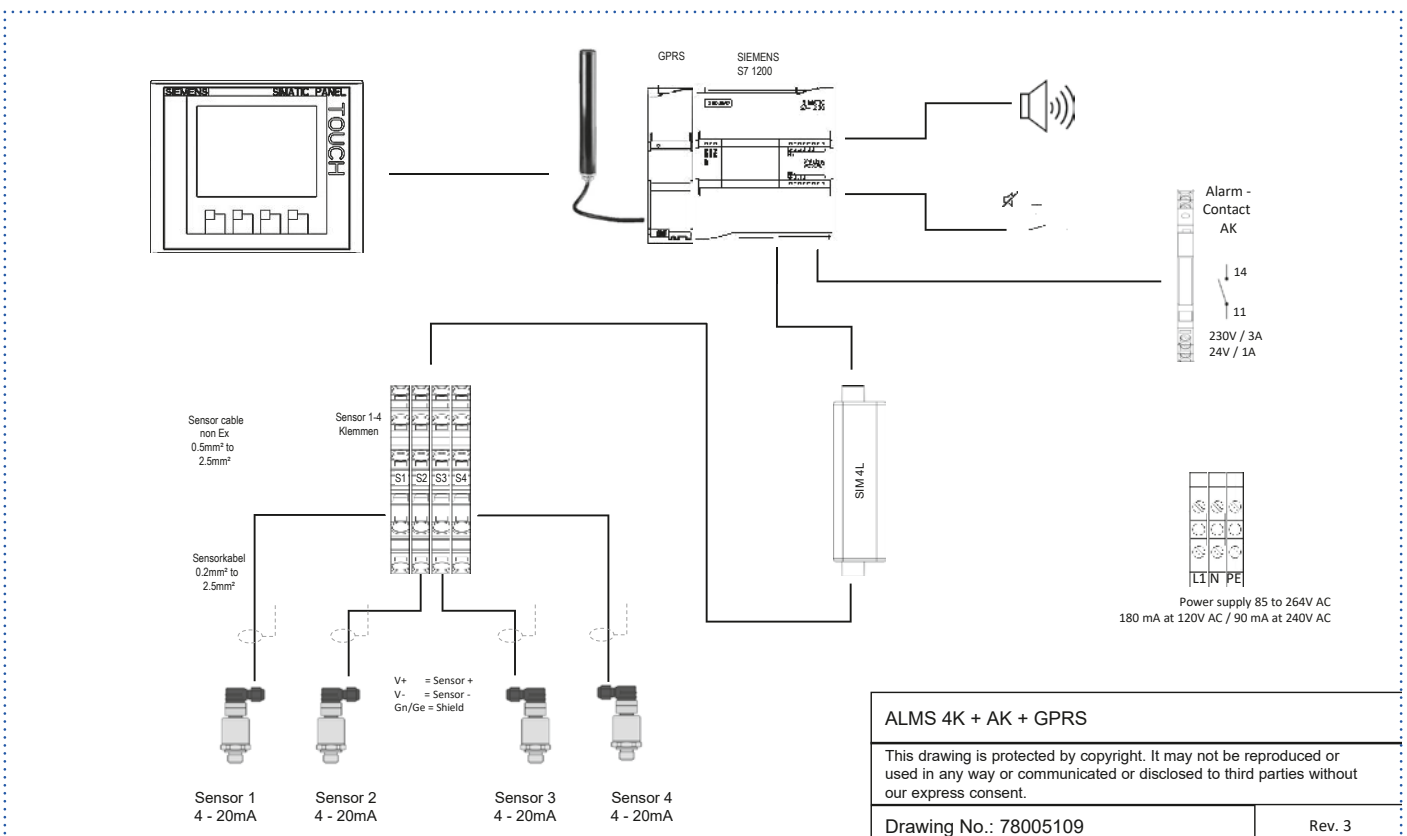
Ralf Findeisen, Geschäftsführer
Viernheim, den 08.08.2022

18 Wiring diagrams

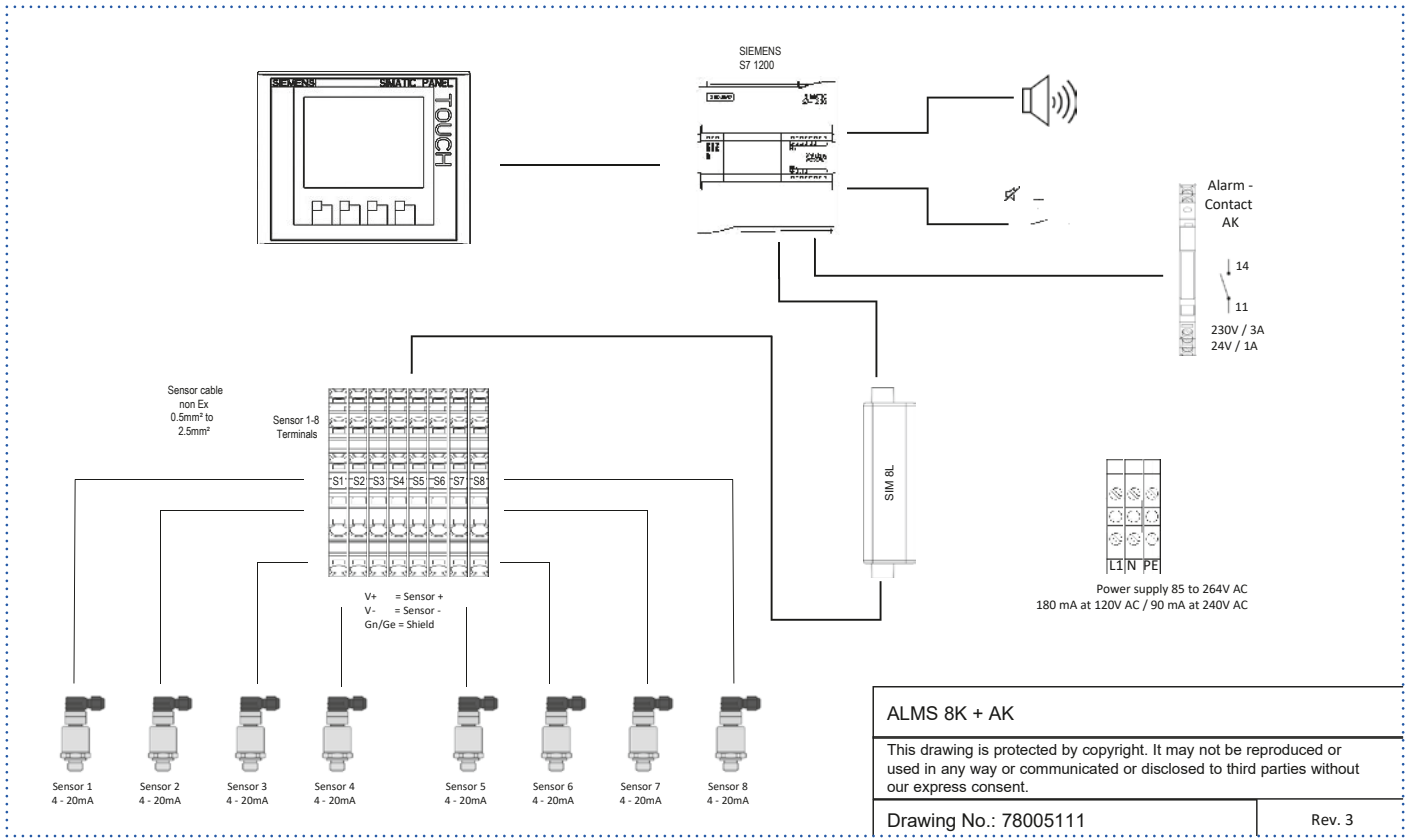
18.1 ALMS 4K + AK wiring diagram



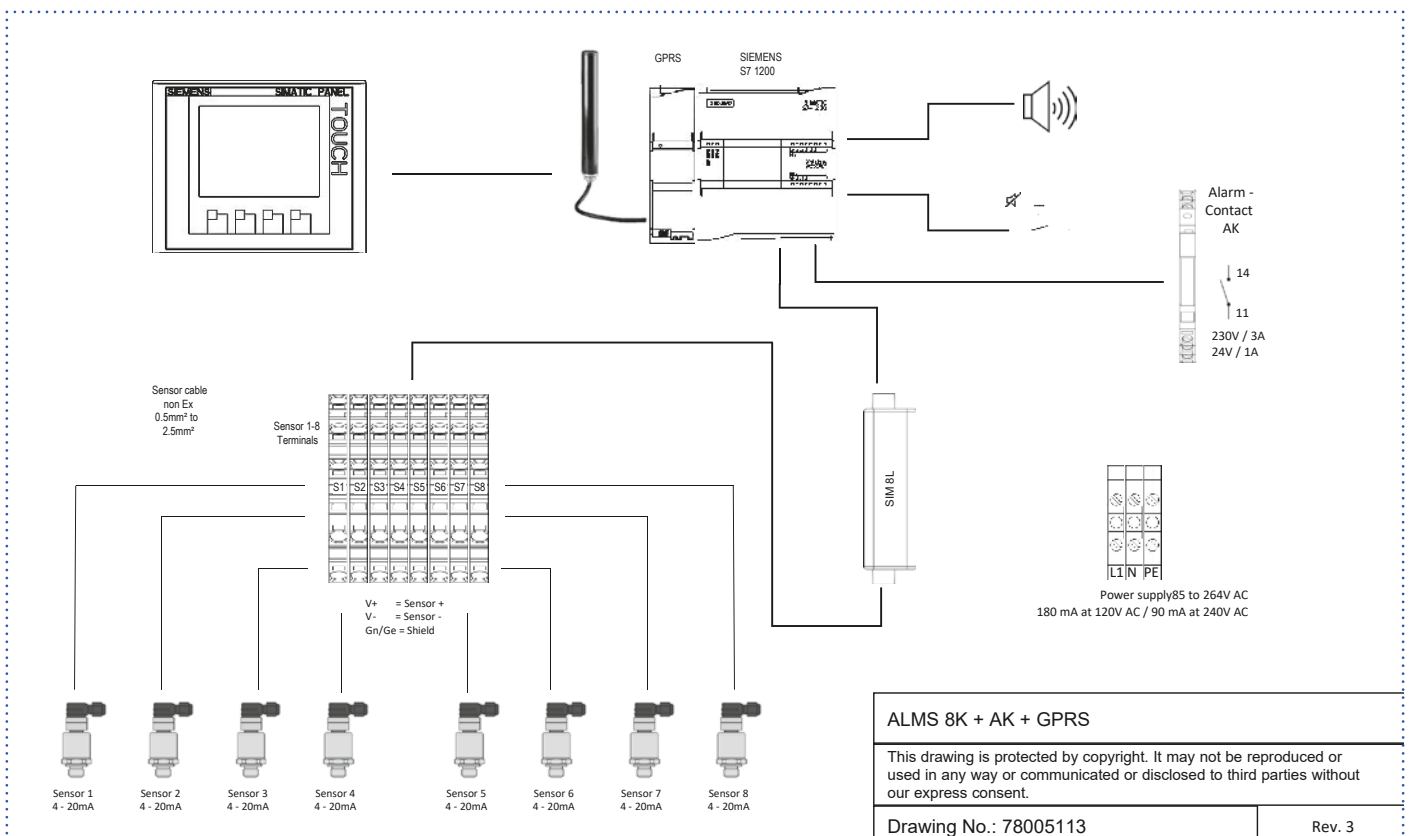
18.2 ALMS 4K + AK + GPRS wiring diagram



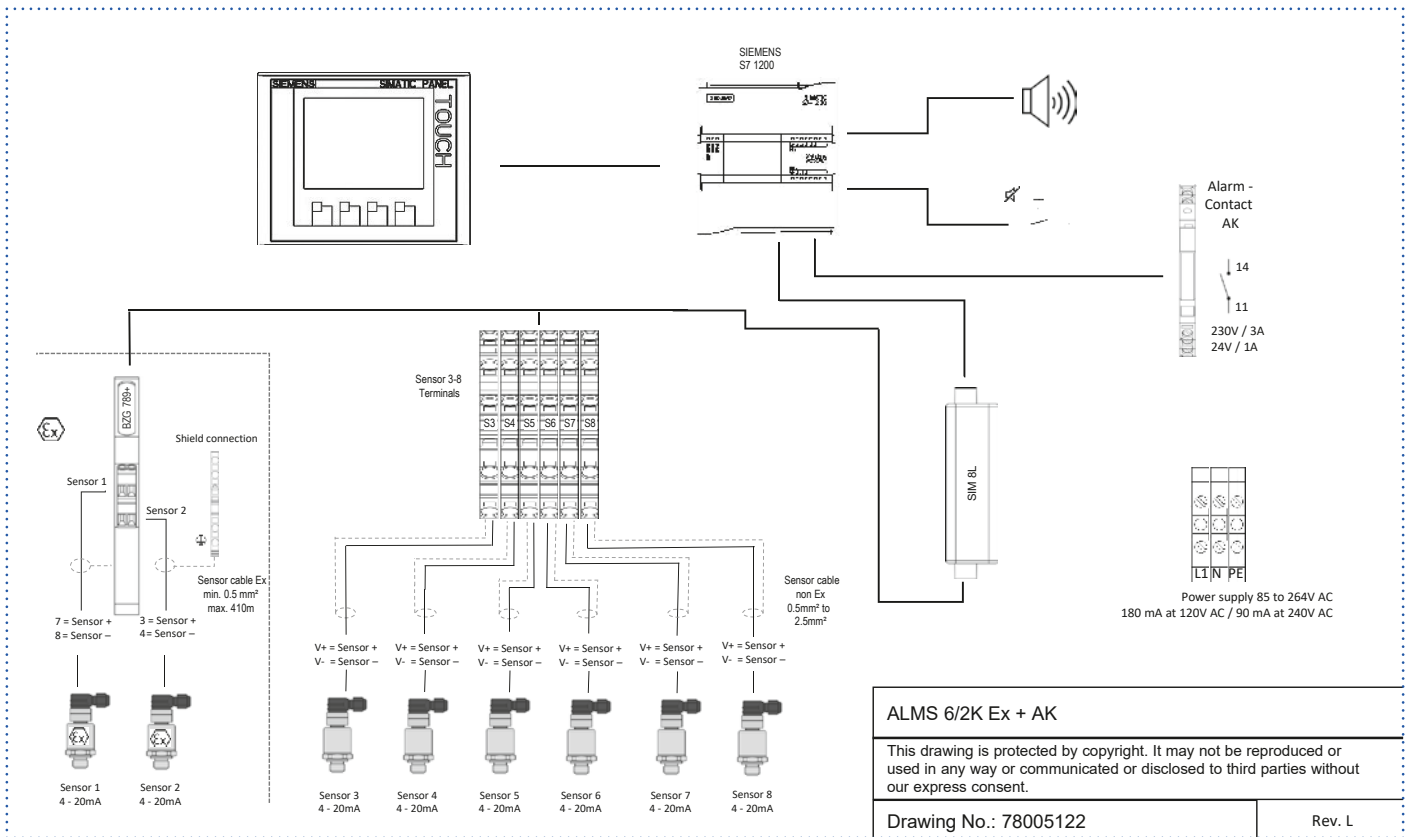
18.3 ALMS 8K + AK wiring diagram



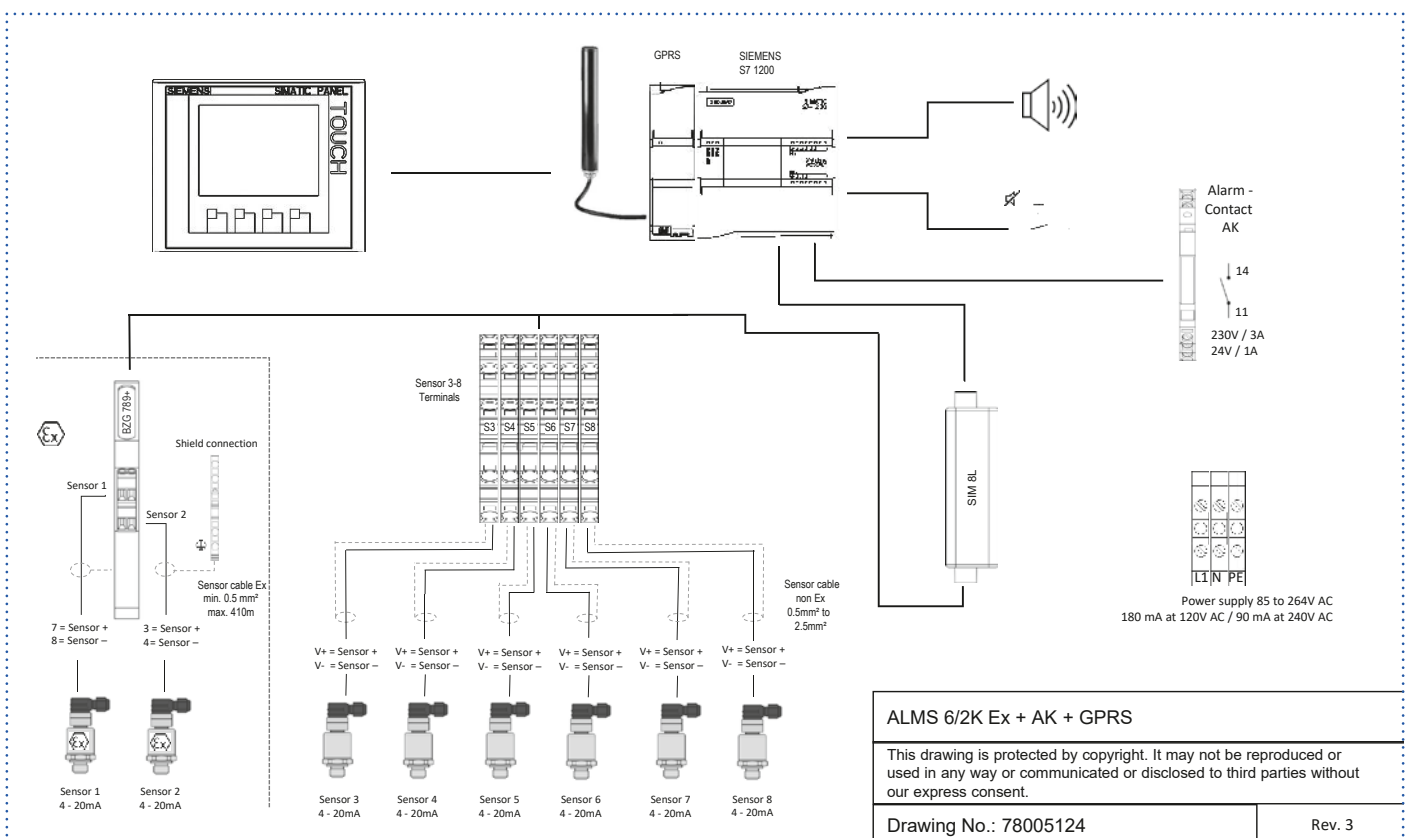
18.4 ALMS 8K + AK + GPRS wiring diagram



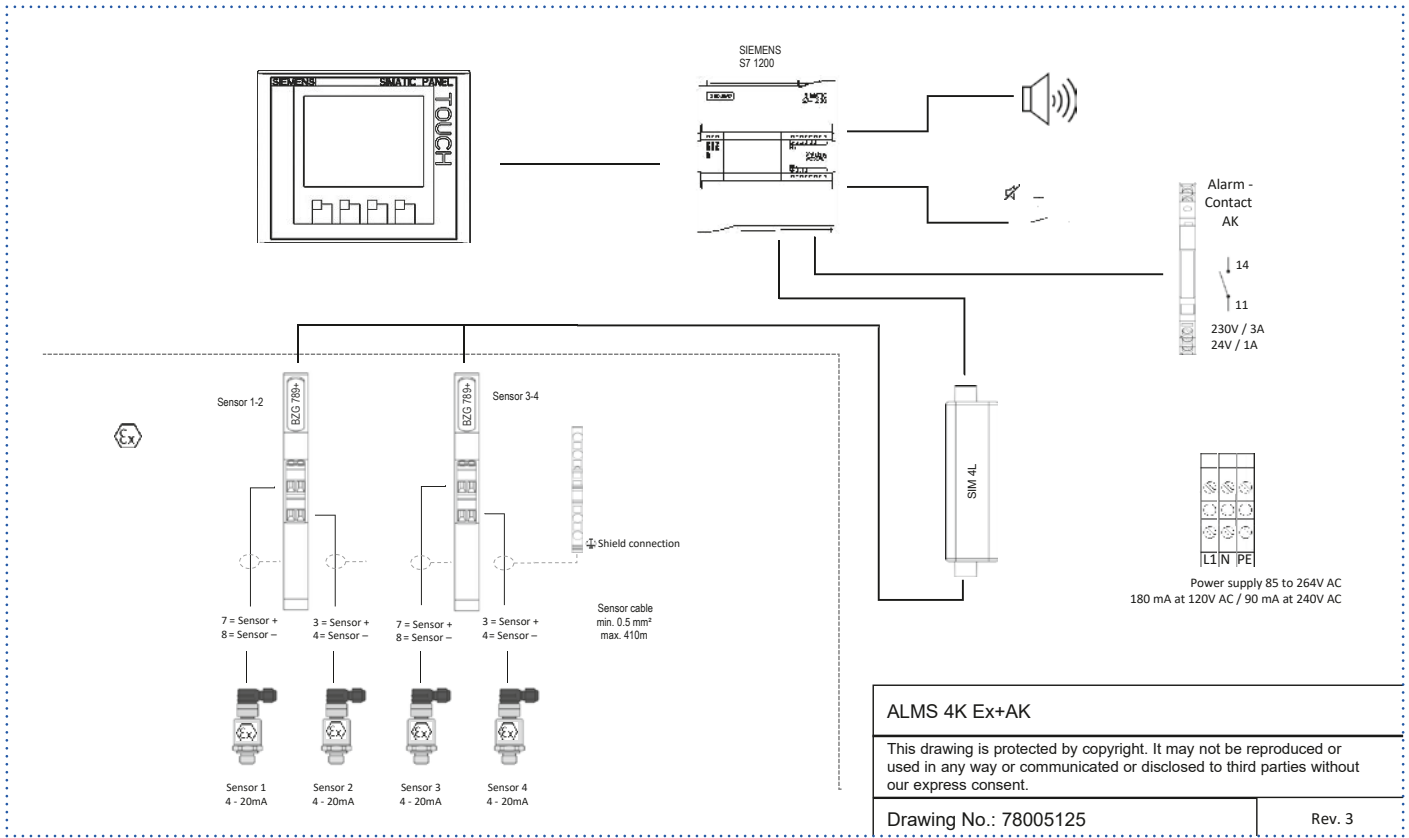
18.9 ALMS 6 / 2K Ex + AK wiring diagram



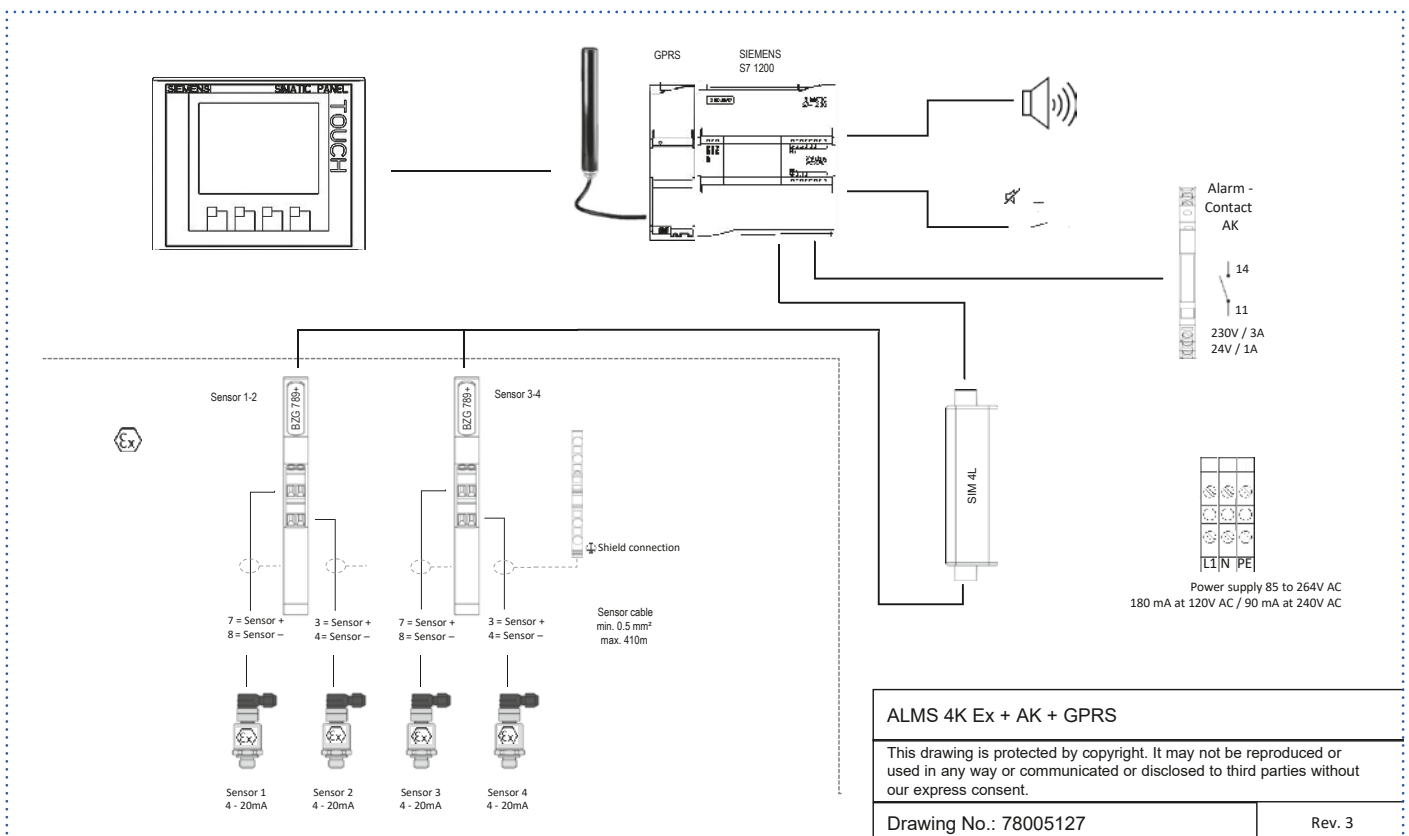
18.10 ALMS 6 / 2K Ex + AK + GPRS wiring diagram



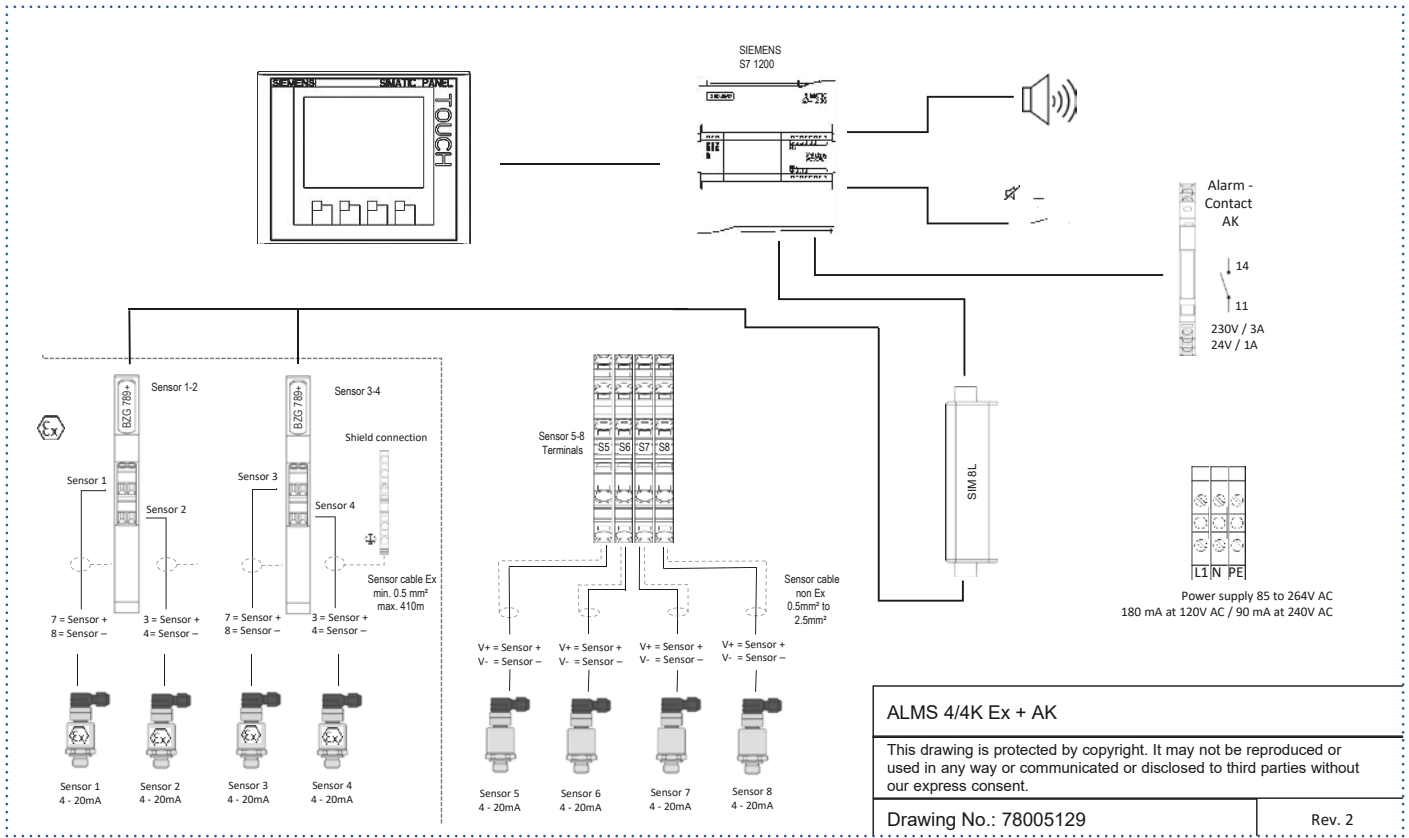
18.11 ALMS 4K Ex + AK wiring diagram



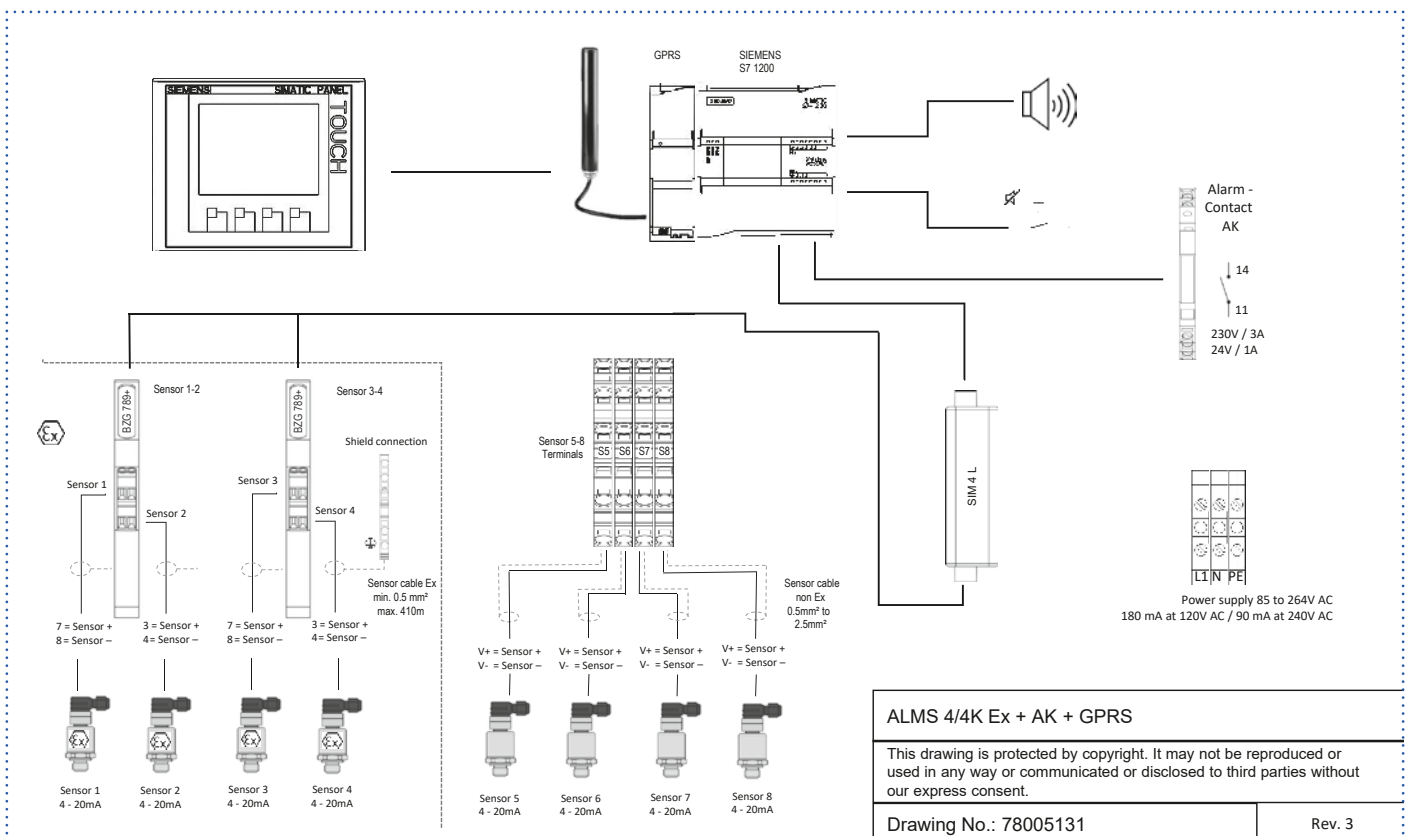
18.12 ALMS 4K Ex + AK + GPRS wiring diagram



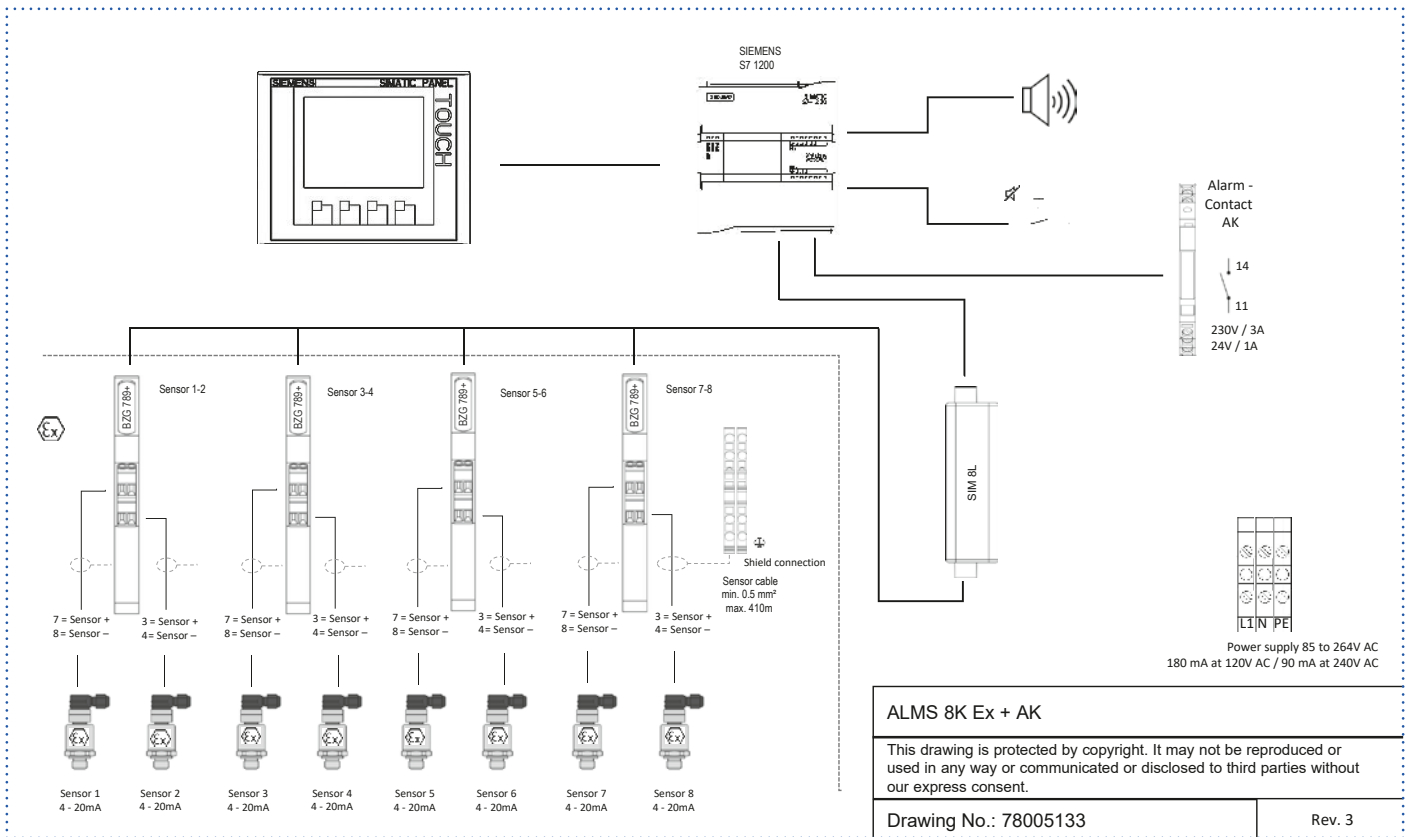
18.13 ALMS 4 / 4K Ex + AK wiring diagram



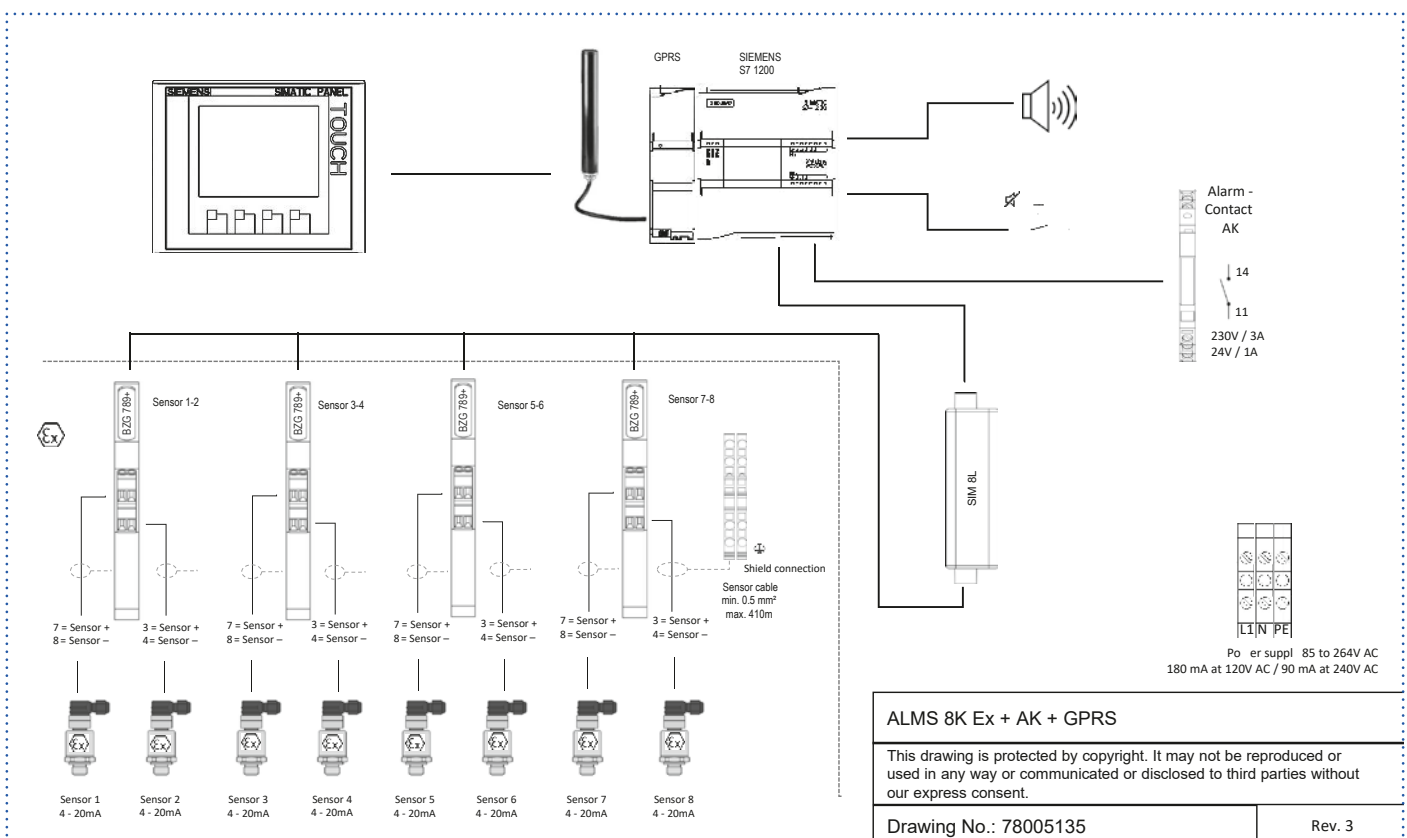
18.14 ALMS 4 / 4K Ex + AK + GPRS wiring diagram



18.15 ALMS 8K Ex + AK wiring diagram



18.16 ALMS 8K Ex + AK + GPRS wiring diagram





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Gebrauchsanleitung / Operating Instructions / Manuel d'utilisation / Istruzioni per l'uso

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