

Level gauge H520

user manual version 1.05



*Water level measurement in wells,
boreholes, tanks and sumps*

CONTE

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1

Safety instructions

- The installation of the level gauge must be carried out by a person with the necessary qualifications for the installation of electrical equipment. The person carrying out the installation must do so in accordance with all instructions, regulations and standards relating to safety and electromagnetic compatibility.
- If the safety or health of persons or serious damage to property could be endangered as a result of a malfunction of the equipment, independent measures must be taken or equipment installed to eliminate this risk.
- All connected downstream equipment must comply with the relevant standards and safety regulations and be equipped with suitable anti-interference filters and surge protection.
- Do not use in explosion hazardous areas!
- Do not use in areas of excessive vibration.
- The faulty equipment must be disconnected and handed over to the manufacturer for repair.
- For hygiene reasons, only clean and properly packaged products should be sent for repair.
- The manufacturer is not liable for damages resulting from improper installation, improper maintenance or use contrary to the recommendations in the operating instructions.



The external power supply must meet all safety standards and be appropriate for the environment in which the level gauge will be operated.



Connect the binary transistor output for switching a relay, solenoid valve or light or sound signal only when the supply voltage is disconnected.



When installing a submersible level sensor, make sure that even at the maximum possible water level, the permissible measuring range of the sensor is not exceeded.

2

Use

The H520 level gauge and TSH27 submersible pressure level transmitter assembly is designed for level measurement in rainwater tanks, cisterns and tanks, wells or boreholes. The assembly can be used wherever the measuring range of the level sensor from 0 m to 10 m water column (alternatively 0 m to 25 m water column) and the accuracy of the sensor $\pm 2.5\%$ of the measuring range are suitable.

Binary output Because the H520 also includes a binary output controlled by the actual measured level, the level gauge assembly can be used to easily control a pump or solenoid valve based on user-adjustable unit parameters in addition to displaying the level.

Location The mechanical design of the H520 display unit with IP66 protection allows the unit to be placed outdoors directly next to a well or rainwater sump. In this case, it is advisable to prevent direct sunlight from falling on the H520 to prolong the life of the unit, as UV radiation can cause the plastic materials used to be brittle.

OVERVIEW OF DATA DISPLAYED ON THE LEVEL GAUGE'S ARTICULATED PANEL

Level height [m]: the value of the measured level adjusted by the additive parameter.

Level percentage [%]: percentage of the measured level relative to the set maximum level.

Bargraph [%]: display percentage value on a bargraph display with 28 levels.

Signalling of binary output switching: red LED.

TYPICAL APPLICATIONS

- **Monitoring water levels in wells and boreholes**
- **Monitoring the level in stormwater sumps**
- **Automatic water supply to the tank**
- **Blocking the pump in the well from running on empty**
- **Signalling when limit levels are reached**

3

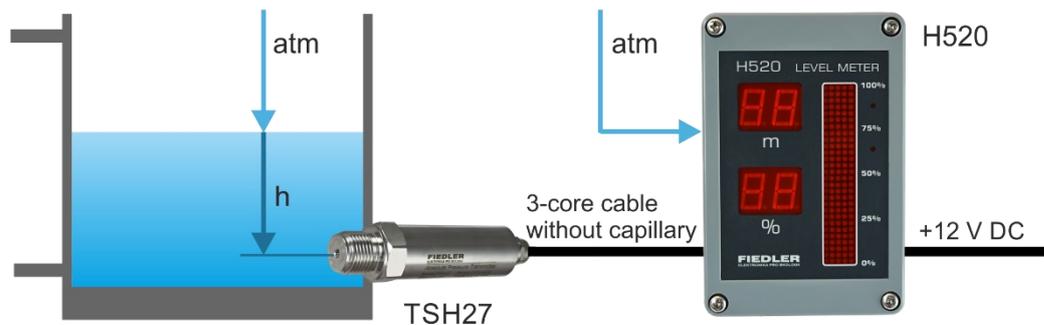
Basic description

3.1. The principle of measurement

The TSH27 submersible level sensor uses an absolute pressure sensor that measures the hydrostatic pressure of the water above the sensor (h) including atmospheric air pressure (atm) and converts the resulting pressure to a voltage output signal in the range of 0 to 5 V.

Sensor signal processing

In the H520 evaluation unit, the atmospheric air pressure measured by the H520 is subtracted from the sensor output signal and the resulting value, corresponding to the height of the water level above the sensor, is converted into both a numerical value displayed on the LED display of the H520 and a bar graph display of the percentage of the water level.



Using a cheap cable

The principle of absolute pressure measurement allows the TSH27 sensor to be connected to the H520 level gauge via a standard 3-core cable without the usual atmospheric pressure compensation capillary, thus significantly reducing the cost of the measuring set-up.

Using other level sensors

Alternatively, other types of strain gauges or ultrasonic level sensors with 4-20 or 0-20 mA output can be connected to the H520. The type of sensor output signal is selected by switches located on the back of the H520 display board.

The automatic compensation of atmospheric air pressure in the H520 unit is only active when the TSH27 sensor is connected. For alternative sensors connected via the 4-20 mA or 0-20 mA current output, the automatic reading of the atmospheric air pressure is assumed to be already in the sensor by bringing it through a special capillary in the cable to the sensor's measuring sensor.

3.2. H520 imaging unit

DESCRIPTION OF THE H520 DISPLAY PANEL



1	Top of the H520 unit with display panel and built-in electronics board
2	Display to show the measured level or the value of the parameter being set
3	Display to show the percentage level value or parameter serial number
4	Signalling LED for indication of transistor binary output switching
5	Bargraph for displaying the percentage value of the measured level

Mechanical arrangement The display unit of the H520 is housed in a box with dimensions 80 x 120 x 55 mm, which has 2 M12 cable glands on the bottom side for connecting the immersion sensor and for supplying the power supply. In addition to the cable glands, the bottom part of the unit contains a semi-permeable filter, which on the one hand allows the atmospheric air pressure to be equalized between the outside environment and the inside of the box, but on the other hand prevents the penetration of air moisture to the electronics of the H520 unit.

All the electronics of the H520 are built into the 15 mm high box lid. Therefore, in some applications, only this electronics cap can be used, which is fixed for example on the front wall of the power distribution box, and the bottom part of the box with the pins is not used. Such a solution can be used, for example, in applications using the transistor binary output of the H520 unit to switch an auxiliary relay in the mains substation, which will then control the downstream power element (pump or solenoid valve).

LED displays The display panel of the level gauge contains two red LED displays to show the level in metres with a resolution of 0.1 m and the percentage of the level relative to the set maximum possible level. The percentage value is also clearly displayed on the bar graph. The display panel also contains a signal LED which indicates when the transistor binary output of the unit is switched on.

Power supply for the level gauge The H520 does not have its own power supply battery and therefore requires an external power supply in the range of 8 to 28 V DC (typically 12 V DC / 300 mA).

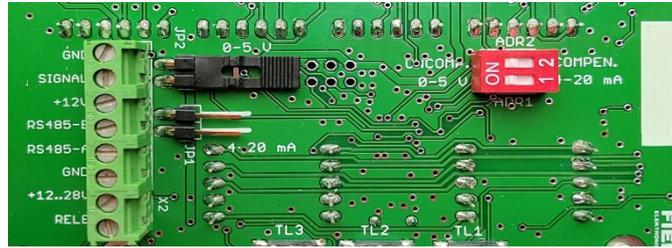
A suitable power supply can be ordered together with the level gauge:

- **ESPE-0312-W2E**
Socket adapter 12 V DC / 300 mA
- **DR-15-12**
DIN rail power supply 12 V DC / 1.25 A

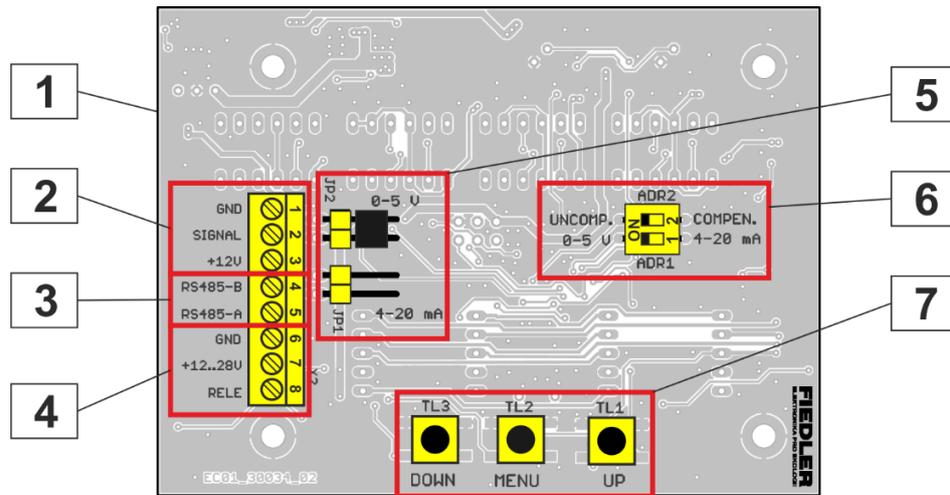


3.2.1. Description of the control buttons and jumpers of the H520 unit

The circuit board, which is located inside the lid of the H520, contains a connection terminal block, 3 buttons for setting or changing parameters and jumpers for selecting the level sensor used.



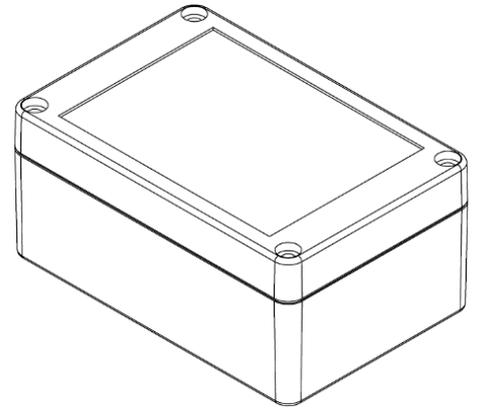
The following figure shows the location of the connection and control elements:



1	The circuit board is located on the underside of the H520 level gauge lid
2	Group of terminals for connecting the cable from the level sensor 1 - Negative supply voltage of the level sensor, shielding of the sensor cable 2 - Connecting a 0 to 5 V or 4(0)-20 mA signal wire from the level sensor 3 - Positive supply voltage of the +12 V DC level sensor generated in the H520 unit
3	Clamps for connection of the higher-level system via RS485 (PLC, datalogger, ...)
4	Clamps for connecting external power cable and binary transistor output 6 - Negative supply voltage of H520 unit, common potential with terminal 1 7 - Positive supply voltage of the H520 unit in the range of 8 to 28 V DC (typically 12 V DC) 8 - Transistor binary output - open collector, U _{max} 28 V DC, I _{max} 300 mA
5	Connectors for selecting the type of level sensor JP2 - sensor with 0-5 V output (= TSH27 type) JP1 - sensor with 4-20 mA or 0-20 mA output (specify in H520 parameters)
6	Switches for selecting the type of analogue level sensor signal and the method of atmospheric air pressure compensation 1-ON = sensor with 0-5 V output (= TSH27 type) 1-OFF = sensor with 4-20 mA or 0-20 mA output 2-ON = absolute level sensors without atm compensation type TSH27 2-OFF = level sensors with self-compensating atm and capillary in the cable
7	Buttons for changing the software settings of the H520 unit TL1 (UP) - incrementing the set parameter, moving in the menu to a higher item TL2 (MENU) - enter the menu, confirm the selection and parameter value by long press TL3 (DOWN) - decrementing the set parameter, moving the menu lower

4

Installation



4.1. Mechanical installation

Installation behind the cable

INSTALLATION OF THE TSH27 LEVEL SENSOR

The submersible level sensor can be simply lowered by cable into the measured object (well, sump, etc.) to such a position that even at the expected minimum level the sensor is still submerged and at the maximum level in the measured object the measuring range of the sensor does not exceed 10 m water column (25 m a.s. for the TSH27-25 sensor).

TSH27-10 sensors can be ordered with 10 m and 25 m cable lengths. TSH27-25 sensors are available with a 30 m cable.

If necessary, the sensor connection cable can be extended. However, for reliability of operation, we recommend that the H520 unit be placed close to the measurement to prevent inducing overvoltages in the interconnecting cable during storms or to compensate for ground potential differences between the sensor and the H520 unit.

Since the TSH27 sensor cable does not include a capillary to compensate for atmospheric air pressure (atm), this cable can be clamped tightly into the supplied cable grommet to fix the sensor in position.

Installation in the trailer

The TSH27 level sensor can also be installed outside the tank or sump in a baffle located at the bottom of the measured vessel. For this reason, the TSH27 is fitted with a standard 1/2" thread.



When installing the sensor, it is recommended to place a shut-off valve between the sensor and the measured vessel, which will allow the sensor to be replaced without emptying the measured vessel. In this case, however, it is necessary to use a suitable type of valve that does not increase the pressure on the

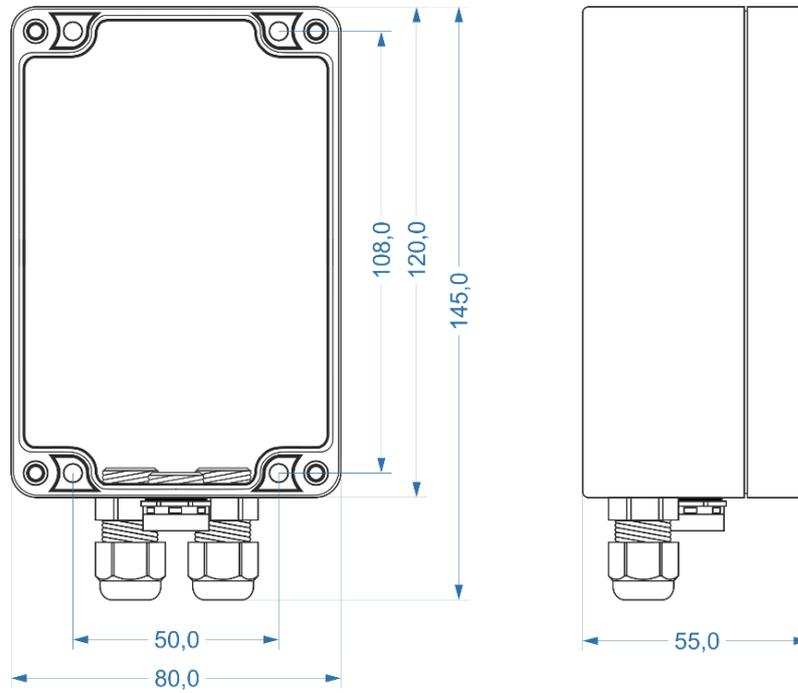
measuring diaphragm of the sensor when closing, which could lead to overloading and subsequent destruction of the sensor.

INSTALLING THE H520 DISPLAY UNIT

The H520 unit is usually placed in close proximity to the measurement. The mechanical design of the unit allows it to be placed outdoors, it is only necessary to protect the unit with a suitable cover from direct sunlight to prevent the gradual degradation of the unit's plastic display panel due to UV radiation.

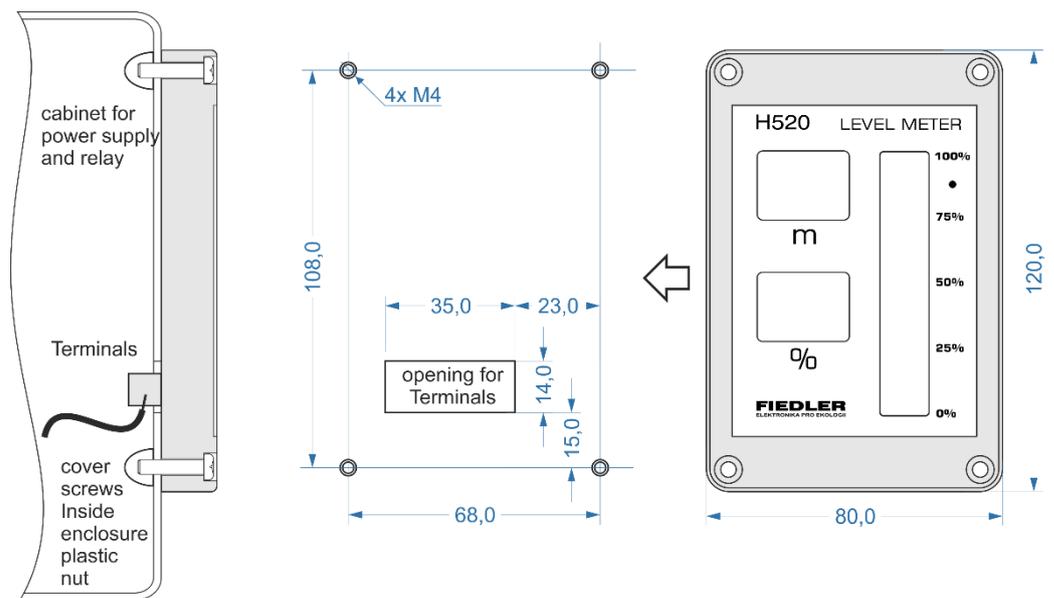
The four mounting holes with a diameter of 4.1 mm have a pitch of 50 x 108 mm.

Mechanical dimensions H520



Installing H520 on the door of a power distribution cabinet

In some cases, it may be advantageous to use the H520 unit with only a lid with a display panel and measuring electronics, which is placed on the door of a larger cabinet or switch-board, which may contain, in addition to the mains power supply, a power relay to control the pump, solenoid valve or signalling elements.



Semi-permeable filter



A semi-permeable filter located next to the cable glands on the underside of the H520's level box ensures air pressure equalization between the outside environment and the H520's internal sealed compartment, which is important not only for correct level measurement, but also for preventing condensation inside the unit during temperature changes common to day and night time.

If you will be placing the front panel of the H520 unit on another rack or cabinet containing the power supply and possibly the power relay, you must also relocate the semi-permeable filter from the original unused bottom of the H520 box to this rack.

4.2. Electrical wiring

CONNECTING THE TERMINALS OF THE H520 LEVEL GAUGE

On the back of the H520 lid there is a detachable serial terminal block for connecting the cable from the TSH27 level sensor, the power cable and possibly the binary relay output.

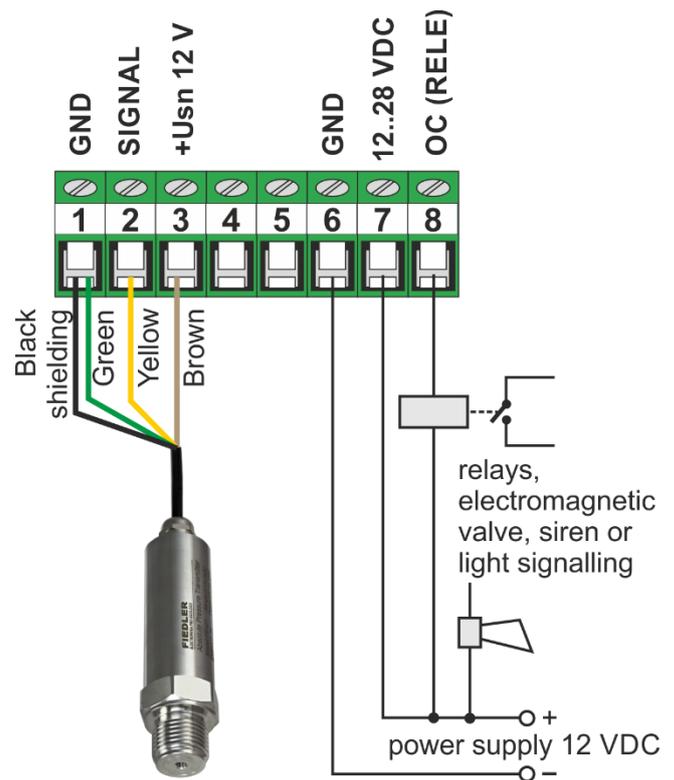
Power supply Terminals 6 and 7 are used to connect a supply voltage in the range of 8 to 28 V DC (usually 12 V DC) from a safe voltage source designed for the environment of the level gauge installation site.

! The external power supply must meet all safety standards and be appropriate for the environment in which the level gauge will be operated.

Power relay connection If the level gauge is to control a pump, solenoid solenoid valve or limit signalling, then terminal 8 (OC - Open Collector) is used to switch the coil of the power relay. The maximum voltage and current load of terminal 8, which is connected to the collector of the transistor switch, is 28 V DC / 300 mA.

Connecting the TSH27 level sensor The TSH27 level sensor connects to terminals 1 to 3. Connect the cable shield from the sensor to terminal 1 or 6 (GND).

RS485 Terminals 4 and 5 (RS485 bus) are intended for connection of the higher-level control system under the ModBus RTU protocol.



5

Parameter settings

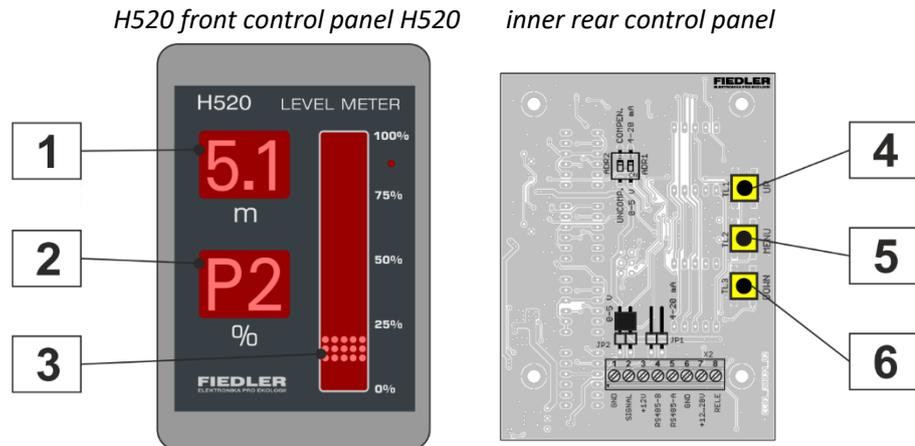
5.1. Unit menu description

Setting of individual parameters of the unit is done in the MENU, which has 10 items and the following structure:

MENU H520	Range of settings	Step	Default.	Display %
1. Delta - zero offset	-99,9 m .. +99,9 m	0,1 m	0,0 m	P1
2. Maximum required measuring range	1,0 m .. +99,9 m	0,1 m	10,0 m	P2
3. Water level for switch-on	0,0 m .. +99,9 m	0,1 m	0,0 m	P3
4. Water level for switch-off	0,0 m .. +99,9 m	0,1 m	0,0 m	P4
5. TSH27 sensor zero calibration	-0,5 m ... +0,5 m	0,1 m	0,0 m	P5
6. Measuring range of the level sensor	1,0 m .. +99,9 m	1,0 m	10,0 m	P6
7. Type of current output of the level sensor	4-20 mA / 0-20 mA	-	4-20 mA	P7
8. Communication address - Modbus RTU	1 .. 99	1	15	P8
9. Storage parameters / factory settings	Parameter storage			SA
	Factory default settings 10			dE 10
	Factory default settings 25			dE 25
10. Exit menu - return to measurement				CA

Entering the menu, changing individual parameters, saving them to the unit's memory and exiting the menu is done using 3 control buttons. The buttons are accessible from the rear of the display panel.

The unit menu can be accessed by pressing the middle MENU button. Use the UP and DOWN buttons to scroll through the menu items.



1	Displaying the value of the parameter being set
2	Displaying the parameter serial number or code designation of the parameter function
3	Cursor for visualizing the serial number of the parameter, ascending bar for visualizing the time needed to hold the MENU button long when saving parameters to the H520 memory
4	TL UP - incrementing the set parameter, moving the menu to a higher item
5	TL MENU - enter the menu, confirm the selection and parameter value by long press
6	TL DOWN - decrementing the set parameter, moving the menu lower

Parameter editing procedure

Editing of the selected parameter is possible after pressing the middle MENU button. The MENU entry always starts with the selection of parameter P1. The code of the selected parameter is displayed on the lower display. The UP and DOWN buttons are used to select the desired parameter and the MENU button is used again to confirm this selection.

Editing the value of the selected parameter is indicated by flashing of the cursor on the bar display (see previous picture). The UP or DOWN button can be used to edit the parameter value. Pressing the MENU button again will exit the editing mode of the selected parameter and return to the individual menu items.

Saving parameters to H520 memory

After editing the parameter, it is necessary to write the new settings to the permanent internal memory of the device. This is done by selecting menu 9 - help on the SA display (Save) and then pressing the MENU button for a long time. Without this saving, the last saved parameterization will be restored during the next reset of the device.

Leaving MENU

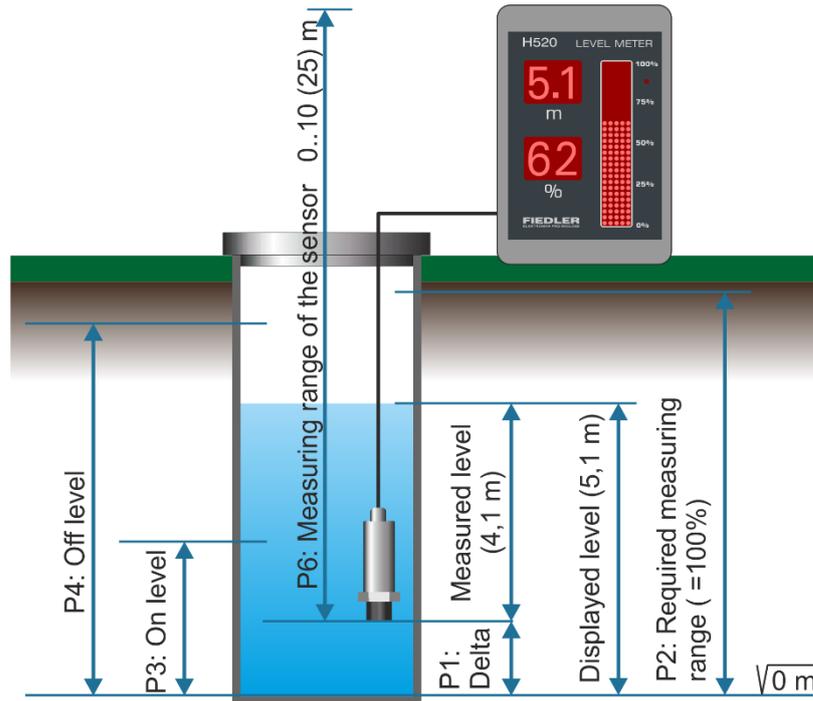
To exit the menu, select item 10, which is signalled by the CA (Cancel) hint on the lower display and by lighting up the last highest row on the bargraph. Exit from the menu also occurs spontaneously after approximately 1 minute of inactivity (no button press).

P1 - DELTA PARAMETER

The parameter is used to move the measured level to the desired value. The Delta parameter can take positive or negative values and its value is added to the level measured by the level sensor. With this parameter, you can display, for example, the actual level in the well from the bottom, even if the dip sensor is suspended, for example, 1.2 m above the bottom (in this case, set Delta = 1.2 m). The parameter can be changed in steps of 0.1m.

When setting the Delta parameter to a non-zero value, it should be noted that the displayed level on the upper display, which is used both for calculating the percentage level and for possible controlled switching and expansion of the transistor binary output, cannot take on a value less than the set Delta parameter, even when the sump or well is completely empty.

The meaning of the individual MENU parameters is clear from their graphical representation:



P2 - REQUIRED MEASURING RANGE

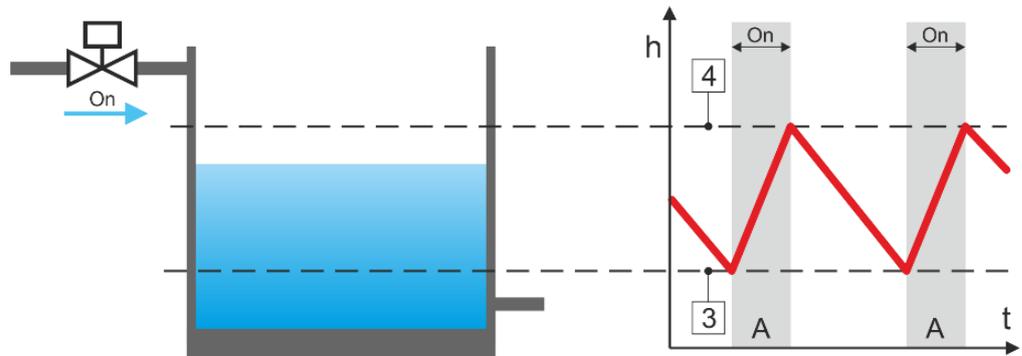
This parameter specifies the maximum level height corresponding to the desired 100% display of the bargraph or lower display showing the percentage level height. Typically, this parameter corresponds to the height of the sump or tank being monitored, the depth of the well, borehole, etc. The P2 parameter can be changed in 0.1m increments.

P3 – WATER LEVEL FOR SWITCH-ON

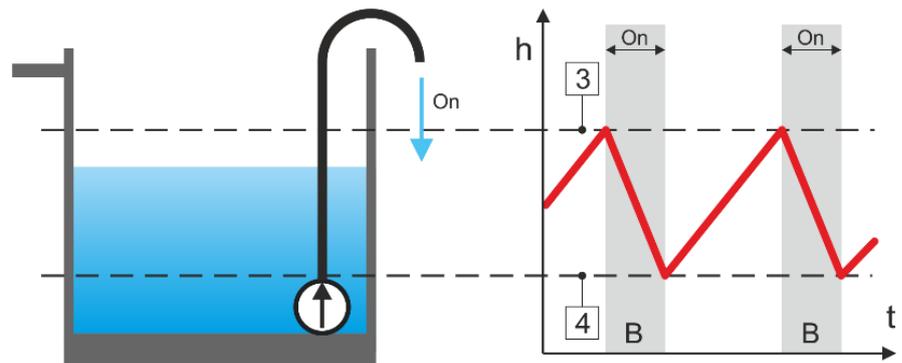
The value of parameter P3 determines the level in meters at which the OC transistor binary output will be triggered. The P3 parameter can be changed in 0.1m steps.

P4 – WATER LEVEL FOR SWITCH-OFF

The value of parameter P4 determines the level height in meters at which the OC transistor binary output will open. The P4 parameter can be changed in 0.1m steps.



Setting of the switch-on [3] and switch-off [4] levels for **controlled water supply** to the sump by means of a solenoid valve



Setting of the switch-on [3] and switch-off [4] levels for **controlled pumping of water from the sump using a submersible pump**

P5 - ZERO CALIBRATION OF TSH27 SENSOR

This menu option is used to compensate for atmospheric air pressure measurements between the TSH27 sensor and the H520 unit that can build up over time and is usually caused by aging of the TSH27 sensor. Before starting the calibration, the TSH27 sensor must be removed from the water to ensure that the calibration is not disturbed by water pressure.

A properly adjusted sensor should show a 0 m level on the air. If a non-zero level is displayed, go to the 5 zero calibration menu and perform the calibration by long pressing the middle SET button. After calibration, any zero shift will be reset and then permanently stored in the display memory after the SET menu is selected.

P6 - MEASURING RANGE OF THE LEVEL SENSOR

This parameter is intended to change the measurement range of the connected level pressure sensor in case the sensor is changed from the factory setting of the level gauge. An example would be to change a TSH27-10 sensor with a 10 meter measuring range to a TSH27-25 sensor when the original sensor does not cover the total measuring range of the level gauge and the user of the level gauge decides to replace the original sensor with a sensor with a measuring range of 0 to 25 meters.

Parameter P6-Level sensor measuring range must be updated even if a sensor with a 4-20 mA or 0-20 mA current output and a measuring range different from the original factory setting of the unit is connected to the H520 unit.

Connecting the sensor with current output requires setting the switches and jumpers as described in the table on page 6 in addition to setting the measuring range. 8.

Parameter P6-The measuring range of the sensor can be changed in steps of 0.1m.

P7 - SENSOR CURRENT OUTPUT

If a level sensor with a 0-20 mA or 4-20 mA current output signal is connected to the H520, then this P7 parameter can be used to select the desired current signal measurement method.

For TSH27 sensors with a voltage output signal, this parameter is irrelevant. The P7 parameter can be changed between the 4-20 mA and 0-20 mA options (the selected option is shown on the upper and lower display of the H520 unit).

P8 - COMMUNICATION ADDRESS

Parameter P8 is used to set the communication address of the H520 level gauge in the RS485 network, because the H520 display unit even with/without a connected level sensor can display the level and its percentage data using data commands received via the RS485 serial communication line under the Modbus RTU protocol. The H520 unit is always a

controlled unit - it operates in slave mode. This operating mode of the H520 unit is discussed in detail in chap. 6. on p. 17.

Switching to slave mode occurs automatically after the first received command over the RS485 line and this mode takes precedence over the measurement and display of the level measured by the actual level sensor.

The H520-B unit is designed for RS485 communication only. This variant of the unit is cheaper than the fully equipped H520 measuring unit because it does not include analogue measuring circuits or atmospheric pressure measurement.

For a level gauge assembly with its own level sensor, this parameter P8 is not relevant.

SA, DE - SAVE PARAMETERS AND RECALL PRODUCTION SETTINGS

This option contains three submenus and is used to save set or changed parameters to the unit's permanent memory or to recall production settings.

Switching between the SA-Save parameters (SA=save) and dE-Recall factory parameters (dE=default) options is done using the UP and DOWN buttons.

SA - Saving parameters to H520 memory

After each change in the settings of the unit parameters, it is necessary to save them permanently in the memory of the device. The Save Parameters menu is indicated by SA on the lower display of the unit. The parameter saving option must be confirmed by long pressing the middle MENU button (the required time of button pressing is indicated on the bar display).

dE -Recall factory parameters

The user can use this option to recall the original factory settings of all parameters of the H520 unit. The selection of the option is indicated by the dE sign on the lower display of the unit.

Depending on the type of connected TSH27 sensor, the factory setting of dE-10 (TSH27-10 sensor with a measuring range of 10 m) or dE-25 (TSH-25 sensor) can be recalled.

This selection must also be confirmed by a long press of the middle MENU button (the required button press time is indicated on the bar display).

CA - EXIT MENU

Option to exit the setup menu and return to the measured values display.

5.1.1. Alternative level gauges with data transfer to the server



The H520 level gauge is the simplest and most affordable instrument for continuous water level measurement from the wide range of level gauges manufactured by FIEDLER AMS s.r.o. For this reason, this level gauge does not include any communication module for transferring the actual measured data to the database server.

Remote access to measured data in the form of graphs and tables is possible with more sophisticated level meters and data loggers of the H1 to H40G type or smart metering modules H530 and H531, which can be equipped with any of the offered types of communication modules (GSM/GPRS, NB-IoT, Lora, Sigfox). Most of these devices also allow their complete remote parameterisation via a web interface and common technical equipment (PC, laptop, mobile phone, ...).

The user of these modern devices thus not only has a historical overview of the movements of the monitored level, but can also change, for example, the setting of limit levels for controlled pumping or set various SMS alerts and their recipients, including many other parameters and functions.

6



H520-B display module

The H520-B is a variant of the H520 and is a low cost level display module easily connected to PLCs and dataloggers equipped with RS485 bus. Because the H520-B allows, like the H520, the setting of a communication address, a virtually unlimited number of H520-B or H520 can be connected to a single PLC (master).

Switching to the slave mode occurs automatically for the H520-B module (and for the H520 unit) after the first received command over the RS485 line.

Unlike the H520 display unit, the H520-B display module does not contain analogue measurement circuitry and therefore cannot be connected to sensors with voltage or current output signals.

6.1. H520-B terminal wiring

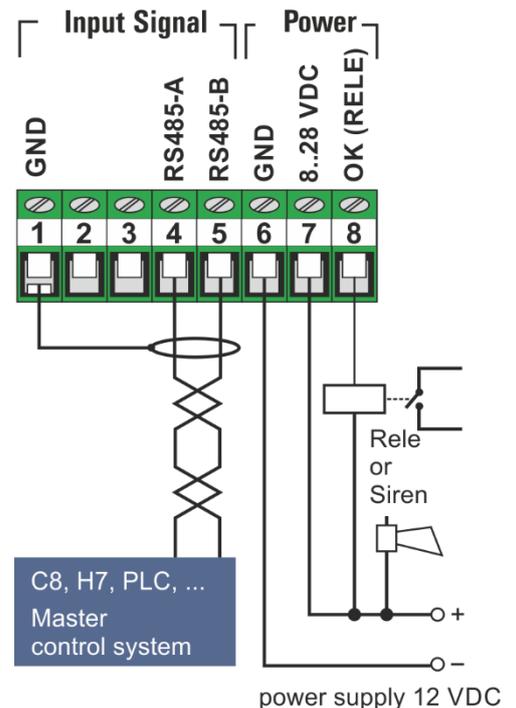
The mechanical and electrical installation of the H520-B display module is similar to that of the H520 unit. The only difference is the terminal block wiring, which does not use terminals 2 and 3, which are used to connect the analogue level sensor in the H520 unit.

RS485 connection

The RS485 communication lines are connected to terminals 4 and 5 and when pulling the communication cable it is necessary to observe the principles of data conductor routing (avoid crossing the data cable with the power line, use twisted double conductor in a shielded sheath, install terminating resistors at both ends of longer lines to reduce reflections, ...).

Power supply and binary output

The same rules apply for external supply voltages as for the H520 unit. The possibility of using the transistor binary output for controlled switching of a relay, solenoid valve or signaling element remains unrestricted.



6.2. Communication over RS485 under MODBUS-RTU

Default setting of communication parameters:

communication speed:	19200 Bd
number of data bits:	8
stop bit:	1
parity bit:	none
communication address:	15 .. 18 (see description of parameter P8)

The following data types are supported:

Data type	Description
BIT	Binary state 0 or 1
UINT16	Unsigned integer data type of 16 bits - range 0 to 65535
INT16	Signed integer data type of 16 bits - range -32767 to 32767
FLOAT	Floating point decimal number of 32 bits according to IEEE 754 standard. Significantly higher word at lower address. (called word swapping)

REGISTRY

The register is the register address sent by the MODBUS protocol, not the register number, which has the address + 1.

OPERATIONS

Specifies the type of operation supported. Write (W), Read (R), or both (R/W).

DESCRIPTION

Contains the meaning of the data of that register. If it is an error code, it is listed in the list of error codes on the manufacturer's website.

INPUT REGISTERS (FC=0X04)

Current measured values

Registry	Type	Operations	Description
1000	UINT16	R	Level [mm]
1001	UINT16	R	Error code for level
1002	UINT16	R	Level [%]
1003	UINT16	R	Error code for level
12000	FLOAT	R	Level [mm]
12002	FLOAT	R	Level [%]

HOLDING REGISTERS (FC=0X04,0X06,0X10)

Setting device parameters

Registry	Type	Operations	Description
4000	UINT16	R	Firmware version
4001	UINT16	R/W	Sensor address, the allowed address range is 1 to 247
4002	UINT16	R/W	Baud rate for MODBUS RTU (0 = 19200 bps, 1 = 1200bps, 2 = 2400 bps, 3 = 4800 bps, 4 = 9600 bps, 5 = 19200 bps, 6 = 38400 bps)
4003	UINT16	R/W	Parity bit for MODBUS RTU 0 = no parity, 1 = odd parity (odd), 2 = even parity (even)
5000	UINT16	W	Register for recording the level value in mm
5001	INT16	W	Register for recording the level value in %
5002	UINT16	R/W	Tank height in mm. Used for correct calculation of the level in %
5003	UINT16	R	Pressure probe range in metres
5004	UINT16	R/W	Level for binary output SHUTDOWN in mm
5005	UINT16	R/W	Level for Binary Output Cutoff in mm

READ COIL (FC=0X01)

Inputs and outputs

Registry	Type	Operations	Description
1000	BIT	R	Binary output status

Technical parameters

Level sensors TSH27-10 TSH27-25

Sensor type	absolute strain gauge with voltage output, air pressure compensation in H520 unit
Measuring range of the TSH27-10 sensor	0..10 m water column
Measuring range of the TSH27-25 sensor	0..25 m water column
Measurement accuracy	±2.5% of the measuring range
Output signal	0 .. 5 V DC
Supply voltage	12 V DC /max 20 mA
Connection cable TSH27-10	shielded PUR cable 3x 0,25; length 10 m or 25 m
Connection cable TSH27-25	shielded PUR cable 3x 0,25; length 30 m
Working temperature	-0° C ... +40° C
Storage temperature	-30° C ... +75° C
Sensor material	Stainless steel, polyurethane cable insulation
Dimensions	diameter 27 mm, 1/2" mounting thread, height 70 mm
Weight	350 g without cable

Imaging units H520 H520-B

Analog measurement input (H520 only)	voltage 0-5 V or current 4-20 mA / 0-20 mA (selectable via jumpers and parameters)
Measurement frequency (H520 only)	5 measurements/sec
Atmospheric air pressure measurement (H520 only)	integrated barometer, type. Measurement accuracy ± 0.1 hPa
Display	double double-digit red LED display 15 mm high, bargraph with 3.5% step
Resolution of the displayed level	0.1 m for measuring ranges up to 10 m, 1 m for measuring ranges greater than 10 m
Serial communication line	Modbus RTU protocol SLAVE, 19200 N1, address 15
Output for sensor power supply	12 V / max. 40 mA (H520 only)
Surge protection of analogue input	suppressors 600 W, 15 VDC (H520 only)
Binary output	open collector, Umax 28 V DC, Imax 300 mA
External power supply voltage	8..28 VDC / max 200 mA (typically 12 V/ 150 mA)
Working temperature	-30° C ... +50° C
Storage temperature	-30° C ... +75° C
Dimensions	120 x 80 x 55 mm (without two M12 cable glands on the bottom of the box)
Weight	220 g
Material	ABS
Coverage	IP65

**CE version**

The instruments listed in this user manual comply with the electromagnetic compatibility directives 89/336/EU, including their supplements, and with the standards EN 61326-1:98, including supplements.

**Disposal of equipment**

The manufacturer has concluded a take-back contract with ASEKOL a.s. You can find a list of collection points in your area at www.asekol.cz.

Installation according to this user manual may only be carried out by personnel at least competent according to § 5 of Decree 50/1978 Coll. or 51/1978 Coll.

Notes:

CRJF0220423.105E
H520, H20-B, TSH27

Producer:

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