

MonoCONT

PDF-410

User's and Programming manual
software version v.01 __ __
1st edition



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1. INTRODUCTION

MonoCONT is a single-channel HART® smart field display and data logger. It can be integrated as a universal field interface with NIVELCO intelligent level transmitters and other process control system components (e.g. PCs, PLCs and actuators). The MonoCONT can communicate with one transmitter with 4...20 mA/HART® output at a time. It can be used with any NIVELCO transmitter with HART® to set up the transmitter, read and display measured data, log data (data logger) and transmit data via the RS485 (Modbus) communication line.

The LCD allows for on-site reading. It can display an “echo map” for suitable transmitters. The text menu displayed on the MonoCONT device is identical when it is connected to the following three-level transmitters: the PiloTREK (W-200) non-contact microwave level transmitters and the EasyTREK (SP-300 and SP-500 Pro) and EchoTREK (SE-300) ultrasonic level transmitters for liquids.

The unit can also perform stand-alone control functions using one or more outputs that can be controlled based on the measured data, allowing multiple control functions to be implemented. It can also be connected to other process control devices via the optional RS485 (Modbus) communication line to perform higher-level tasks. It can also be used with transmitters from other manufacturers, in which case all functions except transmitter setting are available (readout, display, data logging, transmission (Modbus), output control).

2. ORDER CODE (Not all combinations are available.)

MonoCONT P F - 1 - *

Function	Code
Display	D
Display + Bluetooth® ⁽¹⁾	B
Display + Data logging	F

Housing	Code
Painted aluminum	4
Fiberglass-reinforced plastic (PBT)	5
Stainless steel	6

Output	Code
Opto-coupled Dual-FET switch output	0
Opto-coupled Dual-FET switch output + RS485	1

Supply voltage / Ex	Code
2-wire	
Loop powered	2
Loop powered / Ex ia G/D ⁽¹⁾	6
Loop powered / Ex d G/tD ⁽²⁾	B
Loop powered / Ex d ia G ⁽²⁾	F
3-wire	
8...30 V DC	3
8...30 V DC / Ex ia G/D ⁽¹⁾	7
8...30 V DC / Ex d G/tD ⁽²⁾	C
8...30 V DC / Ex d ia G ⁽²⁾	G
4-wire	
85...230 V AC ⁽¹⁾	1
8...30 V DC ⁽¹⁾	4
8...30 V DC / Ex ia G/D ⁽¹⁾	8
85...230 V AC / Ex d G/tD ⁽²⁾	A
8...30 V DC / Ex d G/tD ⁽²⁾	D
85...230 V AC / Ex d ia G ⁽²⁾	E
8...30 V DC / Ex d ia G ⁽²⁾	H

* For explosion-proof devices, the article number is followed by "Ex" on the data plate.

⁽¹⁾ Under development.

⁽²⁾ Under development, only with metal housing.

3. TECHNICAL DATA

3.1. General

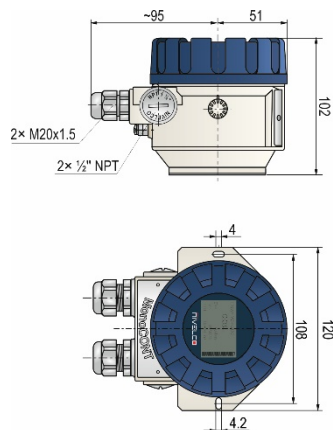
Version		2-wire	3-wire
Power supply		4...20 mA loop powered; voltage drop: 4.5...5.5 V DC	8...30 V DC, max. 250 mW (see: 4.1 Wiring)
Ambient temperature		-25...+70 °C (-4...+158 °F)	
Input		4...20 mA loop, HART® protocol, max. 1 transmitter	
Output	Display	SAP-300 graphic display unit	
	Optocoupler	Polarity independent switch, max. 30 V / 200 mA, R _{on} : 2 Ω	
	RS485 (optional)	—	Galvanically isolated Modbus RTU protocol
	Data logger (optional)	Integrated Flash memory (32 MB) ⁽¹⁾	
Ingress protection		IP67	
Electrical connection		2× M20×1.5 plastic cable gland + 2× internally threaded ½" NPT ⁽²⁾ connection, cable outer diameter: Ø6...12 mm (Ø0.2...Ø0.5"), wire cross-section: 0.5...1.5 mm² (20...16AWG)	
Electrical protection		Overvoltage Class 1; (Class III [SELV])	
Housing		Painted aluminum, fiberglass-reinforced plastic (PBT) or stainless steel	
Weight		With plastic housing: ~0.55 kg (~1.2 lb); with aluminum housing: ~0.9 kg (~2 lb); with stainless steel housing: ~2.5 kg (~5.5 lb)	

⁽¹⁾ Serial read (SAT-506 e-Link module required), or Bluetooth® read with MobileEView or EView2 (under development).

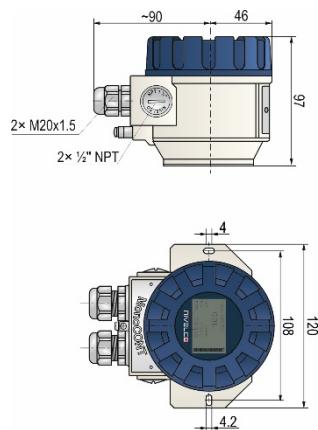
⁽²⁾ Except stainless steel housing version.

3.2. Dimensions

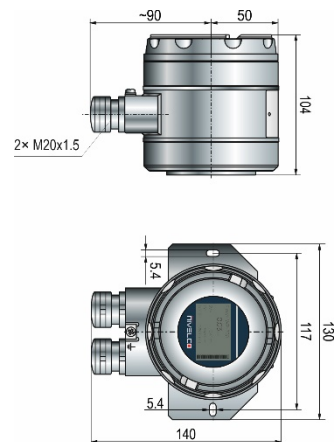
Aluminum housing PQF-41□-□



Plastic housing PQF-51□-□



Stainless steel housing PQF-61□-□



3.3. Accessories

- Warranty card
- User and programming manual
- EU-Declaration of Conformity
- Two M20×1.5 cable glands

3.4. Conditions for safe operation

- Operate the device only from a power supply with at least Class II surge protection!
 - Connection to the Equipotential Bonding System (EPH) (Grounding)
 - Earthing connector (EP) on the side of the device housing, maximum wire cross-section: 4 mm² (AWG12). See 3.2 Dimensions.
 - The instrument housing must be earthed to a $R < 1 \Omega$ resistive earth.
 - The shield of the measuring cable must be grounded in the instrument room.
 - The measuring cable should not be routed near high power cables, as shielding does not protect against switching harmonics
- Make sure that the current flowing through the input terminals of the device does not exceed the overload limit.

3.5. Maintenance, repair, and storage conditions

The device does not require regular maintenance.

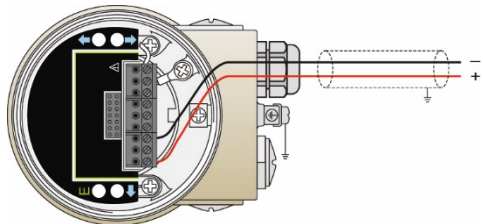
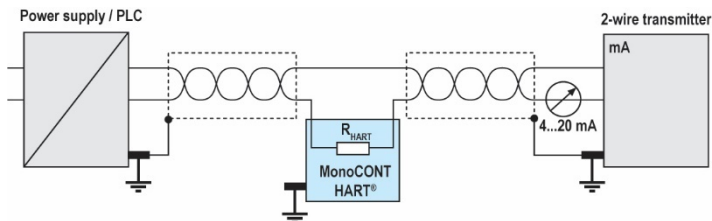
Refer to the warranty card for warranty information. The device returned for repair must be cleaned by the user, all chemical deposits must be removed, and the device must be disinfected before sending it back. In addition, the return package must include a properly filled [Returned Equipment Handling Form](#), in which the sender declares that the device is free of all contamination and substances hazardous to health. When not in use, the unit should be stored within the ambient temperature range specified in the specifications and at a maximum humidity of 98%.

4. WIRING AND COMMISSIONING

4.1. Wiring

4.1.1. System Structure

MonoCONT includes the loop resistance required for HART® communication. The application must provide the power supply for the current loop. Only one power supply can be in the loop and no other HART® Master device is allowed.



1. Remove the cover of the device.
2. Insert the cable through the cable gland into the terminal block
3. Strip approximately 80 mm (3.15") of the cable's insulation and remove approximately 4 mm of the insulation of the wires. Cut the shielding of the signal cable.
4. Connect the wires as shown in the wiring diagrams (sections 4.1.2 and 4.1.3).
5. Pull the cable back with about 10 mm (0.4") of the cable insulation remaining in the cable gland. Tighten the socket locking nuts with two wrenches.
6. Arrange the wires in the housing.
7. Put the cover back on.

- A shielded twisted pair cable should be used for the wiring.
- After removing the cover and the display the terminal block becomes accessible.
- After wiring and programming, the cover must be screwed back on until the seal is tight.
- The cable shield must be grounded at the power supply side, not to be connected to the MonoCONT ground point. The cable from the transmitter must be grounded on the transmitter side if possible, otherwise it must be connected to the MonoCONT ground point.

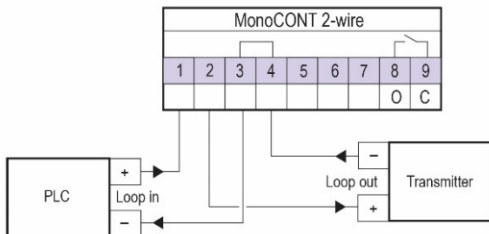


Electrostatic discharge at the terminals can damage the device, so standard procedures must be followed to prevent discharge (e.g., touch a grounded point before opening the device to dissipate the electrostatic charge).



After wiring and programming, the cover must be screwed back, and the locking screw and the safety latch should be screwed back on! If the seal is damaged, it must be replaced, otherwise the specified IP protection of the unit may be compromised.

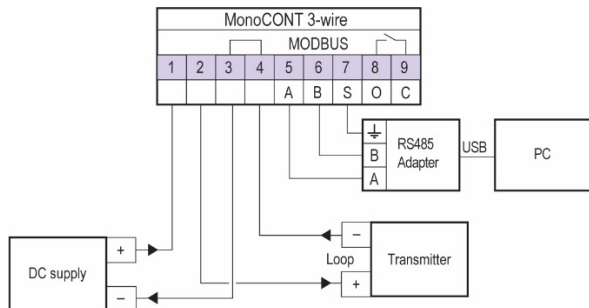
4.1.2. Wiring of 2-wire version



2-wire devices can be connected to a 4...20 mA current loop.

2-wire devices do not require a separate power supply.

4.1.3. Wiring of 3-wire version



4.2. Commissioning

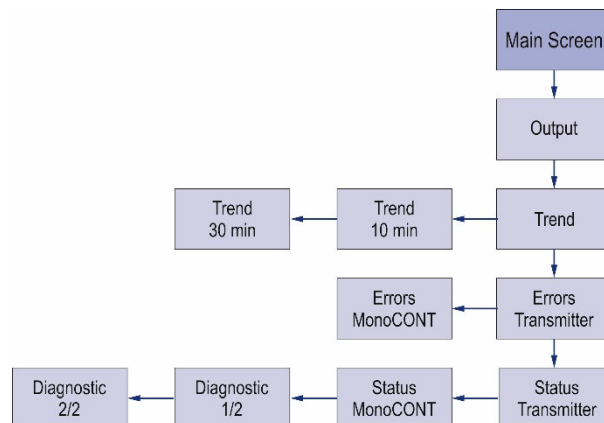
After powering on MonoCONT starts operating according to the previously set parameters. After a power loss, the MonoCONT device automatically turns back on and continues operating according to the previous settings.

5. HANDLING AND DATA SCREENS

The data measured by the MonoCONT can be read on the graphic (LCD) display. The device can be operated using the buttons located under the cover. These buttons can be used to switch between different display screens and to adjust the parameters of the MonoCONT and the connected transmitter.

5.1. Data screens

You can switch between screens using the   and  buttons, according to the following scheme.

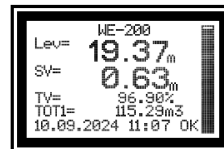


5.1.1. Main screen

The values measured and calculated by the transmitter are displayed in the middle of the screen. The displayed data can be modified. For further information on the settings, see *Chapter 6.2*.

Displayed information:

- [top center]: HART® Short Tag, or the connected device type if Short Tag empty
- [four data rows]: the selected measured data (according to the setting)
- [bargraph on right side]: loop current, level, or distance (according to the settings)
- [status line]:
 - general status information (e.g., test mode, simulation, log reading)
 - in the case of a data logging version, the set date and time
 - the error code (in case of an error)



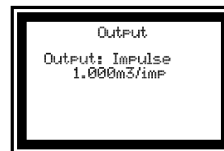
Refer to the transmitter manual for more information on transmitter error codes. Detailed information about the MonoCONT error codes can be found in Appendix 2. The errors displayed here can be read in detail on the screen described in section 5.1.4.

5.1.2. Output

The status of the MonoCONT device output and the set control function are displayed; for more information on how to change the settings, see *chapter 6.3*.

Displayed information:

- Outputs Status
- Outputs function setting



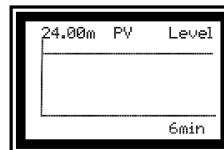
5.1.3. Trend

Trend (standard):

The display shows the last 120 PV readings as a function of time. The query frequency can be set (see *chapter 6.2. Polling time*), the length of the time axis is displayed accordingly. Default setting: 3s/data → 6 minutes.

Displayed information:

- PV value type (top right corner)
- Y axis maximum value (top left corner)
- PV value data curve on the chart
- X axis length (bottom left corner)

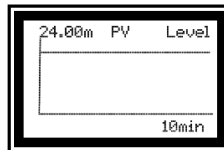


Trend 10 min / 30 min:

By pressing the left  button, the queried data can be displayed scaled to a 10- or 30-minute range.

This is only available if the default time range resulting from the query frequency is smaller than this.

(5 s/data → 10 min, 15 s/data → 30 min).



Attention, the scaled view shows only the points corresponding to the time interval of the scaling of the queried data; the intermediate details are not displayed!

5.1.4. Transmitter/MonoCONT errors

The error messages of the connected transmitter are displayed on the screen, and by pressing left , the error messages of the MonoCONT device can be read.

Displayed information:

- Transmitter type / MonoCONT (top center)
- Text description of errors
- *Note: You can find more information about the displayed transmitter errors in the transmitter's documentation.*

5.1.5. Transmitter/MonoCONT status

The status screens display the general characteristics and operating status of the transmitter or MonoCONT.

You can swipe left using the  button to navigate between the following status screens.

Transmitter status:

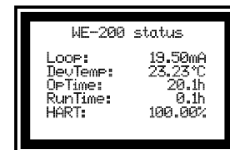
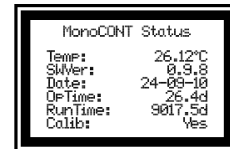
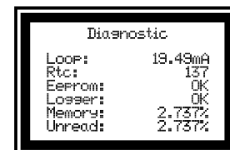
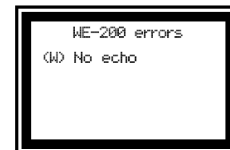
LoopC (T):	Loop current supplied by the transmitter
DevTemp:	Temperature transmitted by the transmitter (<i>usually the temperature of the electronics</i>)
OpTime:	Total operating time
RunTime:	Elapsed time since last power up
HART:	HART® packet quality factor <i>100% = no HART® packet error</i>

MonoCONT status:

Temp:	Temperature measured by MonoCONT
SWVer:	MonoCONT software version
Date:	SW release date
OpTime:	Total operating time
RunTime:	Elapsed time since last power up
Calibrated:	Last calibration of MonoCONT current meter

Diagnostic:

LoopC (M):	Loop current measured by MonoCONT
RTC:	It displays the current time value of the real-time clock. <i>If it is functioning, it continuously counts upwards.</i>
EEPROM:	The result of the EEPROM self-diagnosis
LOGGER:	The result of the data logger self-diagnosis
Memory:	The occupancy of the data memory, in percentage (%)
Unread:	Displays the percentage (%) of unread data. <i>If it matches the memory percentage value (Memory %), then no data has been read out yet.</i>



6. MONOCONT SETTINGS

Menu structure

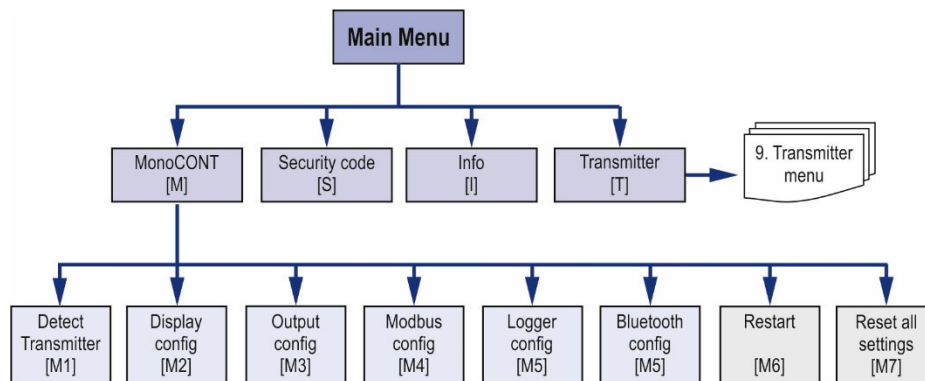
Navigating in the menu	Button	Value input	Checkbox setting
Entering the selected menu		Accepting the setting	Accepting the setting
Selecting a menu item		Modifying digit value	Selecting an item
Going back to the previous menu		Next digit	Switching between checked/unchecked states

In the case of a dialog box, the button performs the function displayed on the screen, e.g., [Save], [Cancel]. A small arrow in the top right corner indicates if the menu list can be scrolled further in a given direction.

Main menu



Enter the main menu from any main screen by pressing the  button. The changes will only take effect after exiting the menu. If the user does not exit the menu, the MonoCONT will automatically exit after 3 minutes, but the changes will not take effect, meaning it will operate according to the previous settings.



To help navigation in the menu system the menus are numbered as shown in the figures M(x).

6.1. Detect Transmitter

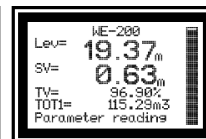
M1

Local display	ID	Modbus
MonoCONT> Detect Transmitter	M1	bit 0

Transmitter detection can be initiated from the MonoCONT main menu. The instrument then searches for the connected transmitter, starting from HART® address 0 through address 15. Make sure that the transmitter completes its power on the initialization sequence before initiating transmitter detection. If a device is found, the search will stop and MonoCONT will ask for storing of the transmitter or not.

After detection, the MonoCONT will begin querying the transmitter's parameters and other data.

This process can take several minutes. During this time, the information bar on the main screen will display "Parameter Reading" and the menu will show an up arrow in the top line to indicate that the first query is still in progress.

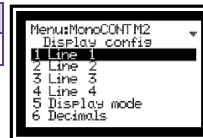


6.2. Display config

M2

Local display	ID	Modbus
MonoCONT> Display config	M2	—

In this menu, we can configure various display settings.



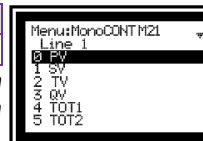
Line 1

M21

Local display	ID	Modbus
MonoCONT> Display config> Line 1	M21	11600 > □□□■

User can select one of the below listed transmitter variable. The content, and unit of each variable depend on the transmitter's settings. If the selected variable is not available in the transmitter MonoCONT will display a zero value without a unit.

#	Value	Description
0	PV (default)	Primary variable
1	SV	Secondary variable
2	TV	Tertiary variable
3	QV	Quaternary variable
4	TOT1	Volume flow totalizer 1
5	TOT2	Volume flow totalizer 2
6	Loop current	Loop current measured by MonoCONT
7	Nothing	Empty



Line 2

M22

Local display	ID	Modbus
MonoCONT > Display config > Line 2	M22	11600 > ☐ ☐ ☒ ☐

See Line 1 description. Default setting: 'SV'

Line 3

M23

Local display	ID	Modbus
MonoCONT > Display config > Line 3	M23	11600 > ☐ ☒ ☐ ☐

See Line 1 description. Default setting: 'Loop Current'

Line 4

M24

Local display	ID	Modbus
MonoCONT > Display config > Line 4	M24	11600 > ☒ ☐ ☐ ☐

See Line 1 description. Default setting: 'TOT1'

Display mode

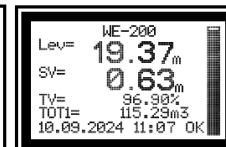
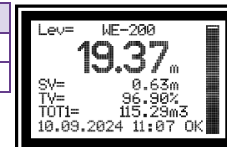
M25

Local display	ID	Modbus
MonoCONT > Display config > Display mode	M3	11602 > ☐ ☐ ☐ ☒

Sets the font size of the lines displayed on the main screen.



#	Value	Description
0	1 large 3 small (default)	first row large, next 3 rows small
1	2 medium 2 small	first 2 rows medium another 2 rows small

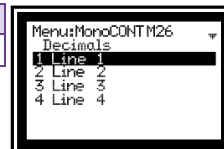


Decimals

M26

Local display	ID	Modbus
MonoCONT > Display config > Decimals	M26	—

The number of decimals to be displayed can be set. The settings of the four display lines can be changed individually. See below.

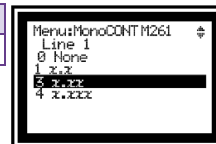


Decimals – Line 1

M261

Local display	ID	Modbus
MonoCONT > Display config > Decimals > Line 1	M261	11604 >

The number of decimals to be displayed. The values are rounded according to mathematical rules.



#	Value	Description
0	1 None (default)	Display as integer
1	2 x.x	Display with 1 decimal place
2	3 x.xx	Display with 2 decimal places
3	4 x.xxx	Display with 3 decimal places

Decimals – Line 2

M262

Local display	ID	Modbus
MonoCONT > Display config > Decimals > Line 2	M262	11604 >

See Decimals – Line 1 description. Default setting: 'None'

Decimals – Line 3

M263

Local display	ID	Modbus
MonoCONT > Display config > Decimals > Line 3	M263	11604 >

See Decimals – Line 1 description. Default setting: 'None'

Decimals – Line 4

M264

Local display	ID	Modbus
MonoCONT > Display config > Decimals > Line 4	M264	11604 >

See Decimals – Line 1 description. Default setting: 'None'

Local display	ID	Modbus
MonoCONT > Display config > Bargraph source	M27	11602 > ☐ ☐ ☐ ☐

You can select the data source for the bargraph displayed on the right side of the main screen. 'Level%' and 'Distance%' are only available for transmitters that support this feature.



#	Value	Description
0	Loop current% (default)	Loop current % transmitted by the transmitter
1	Level%	Level %
2	Distance%	Distance %

Local display	ID	Modbus
MonoCONT > Display config > Language	M28	11638 > ☐ ☐ ☐ ☒

You can select the menu language for MonoCONT.



#	Value
0	English (default)
1	Espanol
2	Portuguesa
3	Deutsch

Temperature unit

M29

Local display	ID	Modbus
MonoCONT > Display config > Temperature unit	M29	11638 > ☐ ☒ ☐ ☐

The unit in which the internal temperature of the MonoCONT is displayed.

You can select either **°C (default)** or °F.



#	Value	Description
0	Celsius (default)	°C
1	Fahrenheit	°F

Polling time

M2A

Local display	ID	Modbus
MonoCONT > Display config > Polling Time	M2A	11636 > float

The polling time at which the transmitter's measurement results are queried. When setting this, it is important to consider that no notifications will be received about errors that occur and recover between two queries.



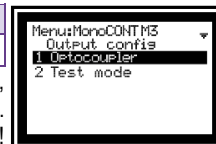
	Value range	Unit of measurement	Default
Polling Time	3...120 s	s	3 s

6.3. Output config

M3

Local display	ID	Modbus
MonoCONT > Output config	M3	—

The MonoCONT's polarity-independent dual-FET optocoupler output offers a variety of applications, including pulse transmission and status indication. This allows simpler control tasks to be implemented. Nine different measured values can be assigned to nine unique functions, enabling versatile use. See below!



Attention, please consider the maximum load capacity of the output! See technical data!

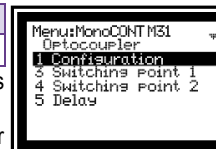
Optocoupler

M31

Local display	ID	Modbus
MonoCONT > Output config > Optocoupler	M31	—

From this menu, we can access the settings related to the operation of the dual-FET optocoupler output, as well as the settings for the values that control the selected operation.

Upon entering the menu, depending on the "Configuration" setting, either the "Switching Point" or the "Error Setting" submenus will appear. Always start by making the configuration settings first.



Configuration

M311

Local display	ID	Modbus
MonoCONT > Output config > Optocoupler > Configuration	M311	—

This menu provides the available settings options for the output operation.



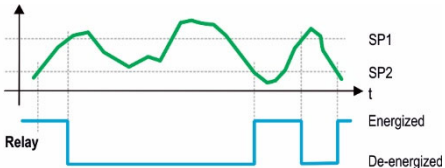
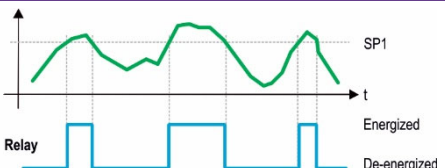
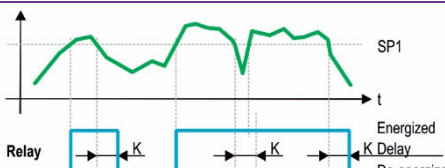
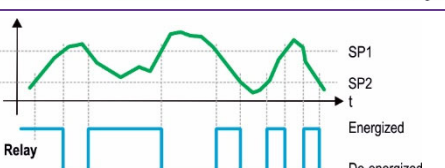
Configuration – Functions

M3111

Local display	ID	Modbus
MonoCONT > Output config > Optocoupler > Configuration > Functions	M3111	11606 > ☐ ☐ ☐ ☐ ☐ ☐

You can choose from the following control functions. The SP1, SP2, SP3 parameters mentioned in the mode descriptions are "switching point" values, which can be set in the 'Optocoupler' (M31) menu ('Switching point x'). For some operating modes, the operation can be reversed either by swapping the SP1, SP2 values or by using the 'Invert' (M3113) menu item. **Default: OFF (Disabled).**



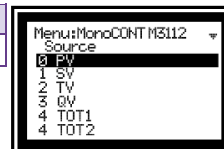
#	Operating mode	Function	Parameter
0	Disabled – (default) Default state. The output is not operational.		9
1	Hysteresis Above SP1 output OFF (de-energized), Below SP2 output ON (energized)	 SP1 SP2 t Relay Energized De-energized	SP1 SP2
2	ALARM Below SP1 output OFF (de-energized), Hysteresis = 2.5% of SP1	 SP1 t Relay Energized De-energized	SP1
3	Delayed ALARM Below SP1 output OFF (de-energized). Hysteresis = 2.5% of SP1 Delay: time specified in SP3 (in seconds).	 SP1 t Relay Energized De-energized K Delay	SP1 Delay
4	Window (window comparator) Between range of SP1...SP2 output ON (energized)	 SP1 SP2 t Relay Energized De-energized	SP1 SP2

#	Operating mode	Function	Parameter
5	Delayed Window (Comparator with switching differential) Between range of SP1...SP2 output ON (energized) Delay: Time specified in SP3 (in seconds)		SP1 SP2 Delay
6	Impulse The output will be energized (ON) for 200 ms for each unit volume set in SP3. If a sudden change requires multiple pulses, the interval between pulses is the same as the pulse duration.		SP3
7	Wide impulse It is the same as the 'Impulse' setting, but the pulse duration and the interval between pulses are 1 s long.		SP3
8	ERROR Whenever any error set in the 'Error config' (M312) menu occurs, the output will be energized (ON). When the error clears, the output will release (OFF).		'Error config' menu
9	LOGGER Full When the Logger memory reaches the percentage (%) value specified in SP1, the output will energize (ON). SP1 is only defined within the 0...100% range. If 'Logger – Loop Mode' is active, the memory saturation percentage (%) refers to data that has not been read previously. When the memory is cleared or when reading in 'Loop Mode', the output will return to the OFF (de-energized) state.		SP1

Local display	ID	Modbus
MonoCONT > Output config > Optocoupler > Configuration > Source	M3112	11606 > ☐ ☒ ☐ ☐

You can select which remote value change the software uses to control the output.

In 'Error' and 'Logger full' operation modes, this is not relevant.



#	Values	Description
0	PV (default)	Output variables queried from the transmitter. The content and unit of each variable depend on the settings of the transmitter.
1	SV	
2	TV	
3	QV	
4	TOT1	Volume flow totalizer queried from the transmitter, if available.
5	TOT2	
6	Loop current	Loop current measured by MonoCONT

Configuration – Invert

Local display	ID	Modbus
MonoCONT > Output config > Optocoupler > Configuration > Invert	M3113	11606 > ☐ ☒ ☐ ☐

It inverts the output's operating logic. In this case, the default state of the output is also inverted. For example, after a power outage and reactivation, the remote value may be within the hysteresis zone. In such cases, the output will remain in its default state until one of the threshold values is crossed. If the inverted operation is desired without an inverted default state, the inverted operation can be triggered by swapping the threshold values.



#	Values	Description
0	Disabled (default)	normal, non-inverted operation (NO)
1	Enabled	inverted operation (NC)



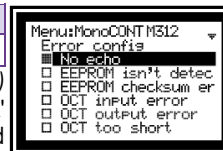
Attention, in the case of no power, the output will definitely be in the off (OFF) state.

Error config

M312

Local display	ID	Modbus
MonoCONT > Output config > Optocoupler > Error config	M315	11608 > bit-field

Only for the ERROR type output function, see the description of *Configuration – Functions (Operating Mode)* (ID: M3111). Multiple error states from the list can be selected at once. For the outputs, a logical 'OR' relationship is implemented, meaning that if any of the selected errors occur, the output will be activated according to the selected inverted or non-inverted setting. For more details on the error states, refer to the documentation of the connected transmitter.



Switching point SP1

M313

Local display	ID	Modbus
MonoCONT > Output config > Optocoupler > Switching point 1	M313	11610 > float

The **SP1** switching point value can be set here if required for the operation of the selected output function. For more information, see the description of the '*Configuration – Functions (Operating Mode)*' (M3111) menu.



	Value range	Unit	Default
Switching point	not limited	(1)	0

(1) The unit of the '*Switching point*' threshold value is the same as the unit of the variable set in the '*Configuration – Source*' (M3112) menu. Attention, the unit of the given variable depends on the transmitter settings! In '*LOGGER Full*' mode, the unit is a percentage (%).

Switching point SP2

M314

Local display	ID	Modbus
MonoCONT > Output config > Optocoupler > Switching point 2	M314	11612 > float

SP2 switching point value can be set here for output functions. See SP1 description.

Delay

M315

Local display	ID	Modbus
MonoCONT > Output config > Optocoupler > Delay	M315	11614 > float

The delay value for the delayed output functions. For more information, see the description of the '*Configuration – Functions (Operating Mode)*' (M3111) menu.

	Value range	Unit	Default
Delay	positive integer only	s	0

Test**M32**

Local display	ID	Modbus
MonoCONT> Output config > Test	M316	bit 1 & bit 2

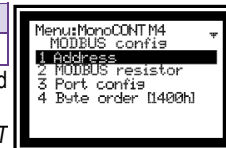
In the 'Test' menu, the output state can be manually set for testing purposes. The '■' symbol indicates the ON state, while the '□' symbol indicates the OFF state. When exiting the menu, the output state will revert to the state defined by the set control.

**6.4. Modbus config****M4**

Local display	ID	Modbus
MonoCONT> Modbus config	M4	—

The MonoCONT operates in slave mode according to the Modbus RTU protocol. Both the MonoCONT and the connected transmitter can be parameterized and controlled via Modbus.

For detailed information on the Modbus RTU communication protocol, please refer to the 'MonoCONT Modbus RTU Communication' document. The Modbus register addresses for the MonoCONT settings can also be found in this manual.

**Address****M41**

Local display	ID	Modbus
MonoCONT> Modbus config > Address	M41	11630 > ulong

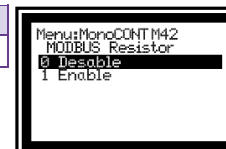
The MonoCONT Modbus address can be set here.



	Value range	Unit	Default
Address	positive integer only	—	0

Modbus resistor**M42**

Local display	ID	Modbus
MonoCONT> Modbus config > Modbus resistor	M42	11634 > □□□■



#	Values	Description
0	Disabled (default)	The RS485 network termination resistor can be enabled or disabled depending on the installation.
1	Enabled	

Local display	ID	Modbus
MonoCONT > Modbus config > Port config	M43	—

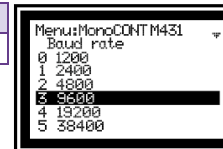
In this menu, the operating properties of the RS485 serial port can be configured. To specify individual values, enter the submenus. The default setting is following standard practice and generally does not require modification.



Port config – Baud rate

M431

Local display	ID	Modbus
MonoCONT > Modbus config > Port config > Baud rate	M431	11632 > □□□■



#	Values	Description
0	1200	It must be adjusted to the settings of the connected RS485 network. The default setting is following standard practice and generally does not require modification.
1	2400	
2	4800	
3	9600 (default)	
4	19200	
5	38400	
6	57600	
7	115200	

Port config – Stop bit

M432

Local display	ID	Modbus
MonoCONT > Modbus config > Port config > Stop bit	M432	11632 > □□■□



#	Values	Description
0	1 STOP bit (default)	It must be adjusted to the RS485 network. Generally does not require modification.
1	2 STOP bit	

Port config – Parity

M433

Local display	ID	Modbus
MonoCONT> Modbus config > Port config > Parity	M433	11632 > ☐ ☒ ☐ ☐



#	Values	Description
0	None	It must be adjusted to the RS485 network. Generally does not require modification.
1	Odd (default)	
2	Even	

Byte order [1300h]

M44

Local display	ID	Modbus
MonoCONT> Modbus config > Byte order [1300h]	M44	11634 > ☐ ☐ ☒ ☐



#	Values	Description
0	ABCD (default)	The byte order of the data block in the 1300h-1340h range can be adjusted here. See the 'MonoCONT Modbus RTU Communication' manual for more details.
1	CDAB	
2	DCBA	
3	BADC	

6.5. Logger config

M5

Local display	ID	Modbus
MonoCONT > Logger config	M5	—

The Data Logger is a 32 MB internal storage that records the measurement results sent by the connected transmitter.



The collected data can be read in two ways:

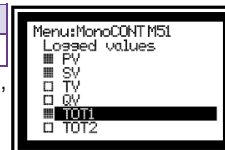
- Connect the UNICOMM SAT-506 eLink unit through the display connector. The 'SAT-506-1 Logger reader only' version is also suitable for the data logger reading function.
- Via Bluetooth® interface using EView2 or MobileEView. (under development)

Logged values

M51

Local display	ID	Modbus
MonoCONT > Logger config > Logged values	M51	11634 > bit field

You can choose which values the device logs. You can select multiple values. If none is selected (default), logging is disabled.



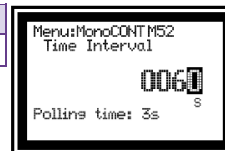
#	Values	Description
0	PV	
1	SV	Output variables queried from the transmitter.
2	TV	The content and unit of each variable depend on the settings of the transmitter.
3	QV	
4	TOT1	
5	TOT2	Volume flow totalizer queried from the transmitter, if available.
6	Loop current	Loop current measured by MonoCONT
7	Error	Error messages

Time interval

M52

Local display	ID	Modbus
MonoCONT > Logger config > Time interval	M52	11620 > float

The data logger records the selected data at the intervals set here, regardless of the frequency at which data is received from the transmitter. The data values that are current at the given time are always recorded, regardless of the data received between the two recording times.



	Value range	Unit	Default
Time interval	3...9999 s	s	10 s



**It is not recommended to set a value smaller than the Polling time ('Display config – Polling time [M2A]').
For reference, the set 'Polling time' is displayed in the lower information bar.**

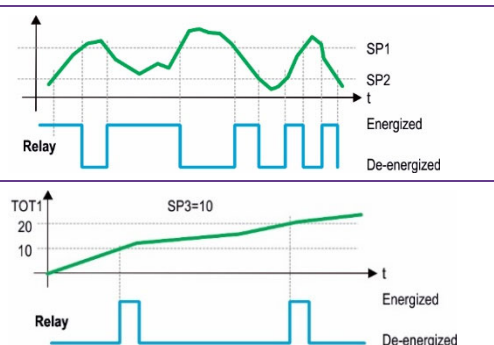
Event mode

M53

Local display	ID	Modbus
MonoCONT > Logger config > Event mode	M53	11622 > □□□■

You can select the operating mode of the event that triggers data logging.

#	Values	Description
0	Always on (default)	Continuous data logging according to 'Interval Setting' (M52). No event control.
1	Window	Data logging according to the 'Interval Setting' (M52) when the condition defined by the 1st and 2nd thresholds ('Threshold 1' and 'Threshold 2') is met. The inverted operation can be triggered by swapping the thresholds.
2	Delta	Data is logged when the change in the reference value (regardless of the direction of the change) exceeds the 'Threshold 1' threshold during the evaluation period.
3	Errors	Data logging in case of an error signal from the transmitter according to the 'Time interval' (M52) as long as the error signal is active.



Local display	ID	Modbus
MonoCONT > Logger config > Event settings	M54	—

In the case of selecting the Event-controlled function, the parameters for the event and the threshold values can be set in this menu.

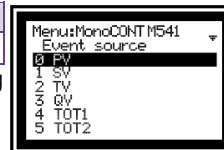


Event settings – Event source

M541

Local display	ID	Modbus
MonoCONT > Logger config > Event settings > Event source	M541	11622 > ☐ ☐ ☒ ☐

You can select which change in the transmitted value is used by the software to control the data logging event for threshold-based logging.



#	Values	Description
0	PV (default)	Output variables queried from the transmitter. The content and unit of each variable depend on the settings of the transmitter.
1	SV	
2	TV	
3	QV	
4	TOT1	Volume flow totalizer queried from the transmitter, if available.
5	TOT2	
6	Loop current	Loop current measured by MonoCONT
7	Errors	Error messages

Event settings – Threshold 1

M542

Local display	ID	Modbus
MonoCONT > Logger config > Event settings > Threshold 1	M542	11624 > float

In 'Window' mode, data logging is active when the 'Event source' value is greater than the 'Threshold 1' value set here. In 'Delta' mode, data logging is active when the change in the source data (during the evaluation period) is greater than this value.

The threshold values operate independently of each other. Therefore, if the 'greater than' condition of 'Threshold 1' is met, data collection will be activated, regardless of whether the 'Threshold 2' condition is met.

	Value range	Unit	Default
Threshold	not limited	(1)	0

(1) The unit of the 'Threshold' value is the same as the unit of the variable set in the 'Configuration – Source' (M3112) menu. Attention, the unit of the given variable depends on the transmitter settings!



Event settings – Threshold 2

M543

Local display	ID	Modbus
MonoCONT > Logger config > Event settings > Threshold 2	M543	11626 > float

In 'Window' mode, data logging is active when the 'Event source' value is less than the 'Threshold 2' value set here. See the 'Event settings – Threshold 1' description.

Event settings – Evaluation interval

M544

Local display	ID	Modbus
MonoCONT > Logger config > Event settings > Evaluation interval	M542	11628 > float

In 'Delta' mode, the change is monitored during the time period set here, regardless of the configured 'Polling time [M2A]'.



	Value range	Unit	Default
Evaluation interval	0...9999 s 	s	60s



**For proper operation, the evaluation period should not be shorter than the 'Polling time' ('Display config – Polling time [M2A]').
For reference, the set 'Polling time' is displayed in the lower information bar**

Date/time

M55

Local display	ID	Modbus
MonoCONT > Logger config > Date/Time	M55	—

In this menu item, you can set the exact date and time used by the device for logging.
Format: **dd.mm.yyyy hh:mm:ss**

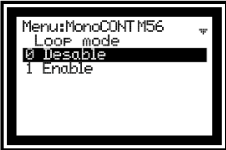


Loop mode

M56

Local display	ID	Modbus
MonoCONT > Logger config > Loop mode	M56	11622 > ☐ ☐ ☐ ☐

If 'Loop mode' is enabled, new data will overwrite the oldest data when the memory is full. If the function is disabled, recording will stop when the memory is full.



#	Values
1	Disabled (default)
2	Enabled

Erase Memory

M57

Local display	ID	Modbus
MonoCONT > Logger config > Erase Memory	M57	—

When selecting the menu item, a security question will appear, and after approval, all logged data will be erased.



6.6. Bluetooth config

M6

Local display	ID	Modbus
MonoCONT > Bluetooth config	M6	—

Under development. Currently not available.

6.7. Reset

M7

Local display	ID	Modbus
MonoCONT > Reset	M7	bit 3

Selecting this menu item will restart the device.



6.8. Reset all settings

M8

Local display	ID	Modbus
MonoCONT > Reset all settings	M8	bit 4

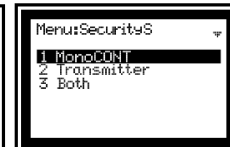
When selecting the menu item, a security question will appear, and after approval, all settings will be reset to their default values, and the paired device will be deleted.



7. SECURITY CODE

When a 4-digit security code is set, changes to the settings can only be made by entering the correct code. Only the menu that has a code set will be locked. The 'Security code' and 'Info' menus will always remain accessible.

The device will ask for the code when entering the corresponding submenu. After exiting the menu, the menu **will remain unlocked for 10 minutes**, so within this time, you can re-enter the menu or switch between menus without needing to enter the code again. However, once the time period expires, the code lock will automatically activate.



Attention, in case of code loss, the device can only be unlocked by the manufacturer.

MonoCONT

S1

Local display	ID	Modbus
Security code > MonoCONT	S1	11800 > ulong

The 'MonoCONT' [M] menu lock code can be set, modified, or deleted by entering '0000' here.

If the menu is already locked, the current code must also be entered to access the 'MonoCONT' [S1] menu.

Transmitter**S2**

Local display	ID	Modbus
Security code > Transmitter	S2	2900 > ulong

The 'Transmitter' [T] menu lock code can be set, modified, or deleted by entering '0000' here. If the menu is already locked, the current code must also be entered to access the 'Transmitter' [S2] menu.



Attention, the 'Transmitter' security code not only locks the menu but also the transmitter itself. In this case, the transmitter settings cannot be modified either via HART® or on the transmitter's own display without entering the security code.

Both**S3**

Local display	ID	Modbus
Security code > Both	S3	11800 & 2900 > ulong

The 'Both' [S3] function locks both the MonoCONT and the transmitter with the common code set here.

The common security code can be modified or deleted by entering '0000' here. If the menu is already locked, the current code must also be entered to access the 'Both' [S3] menu. If different codes are set, both codes must be entered to gain access.

After setting the common code, if one of the codes is modified in the 'MonoCONT' [S1] or 'Transmitter' [S2] menu, the synchronization of the security codes will be lost.

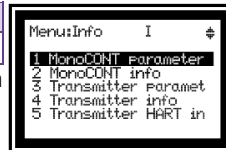
	Values	Description	Default
Security code	0000...9999	—	0000 ⁽¹⁾

⁽¹⁾ Setting '0000' disables the lock function.

8. INFO

Local display	ID	Modbus
Info	I	—

In this menu, setting and type information can be displayed in a summarized, compact form for verification or documentation purposes.

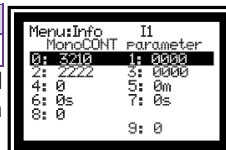


MonoCONT Parameter

11

Local display	ID	Modbus
Info > MonoCONT Parameter	I1	11400-11736

This information page displays the current values of the MonoCONT setting parameters in a summarized form (without text labels). The information shown here helps with remote assistance in case of application issues.

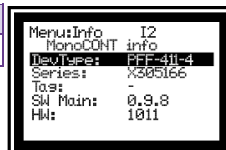


MonoCONT info

12

Local display	ID	Modbus
Info > MonoCONT Info	I2	11000-11400

This information page displays a summary of the exact type, factory identifier, and software version of the MonoCONT.



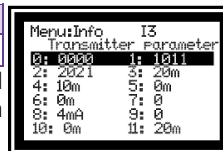
Name	Description
Manuf:	Manufacturer
DevType:	Device family identifier
Serial:	Device serial number
Type:	Device type identifier
SW Main:	Device software version
SW BLE:	Device BLE HW/SW identifier (if available)
HW:	Device hardware identifier

Transmitter parameters

13

Local display	ID	Modbus
Info > Transmitter Param	I1	300-1300

This information page displays the current values of the transmitter setting parameters in a summarized form (without text labels). The information shown here helps with remote assistance in case of application issues.



Menu:Info I3			
Transmitter Parameter			
0: 0000	1: 1011		
2: 2021	3: 20m		
4: 10m	5: 0m		
6: 0m	7: 0		
8: 4mA	9: 0		
10: 0m	11: 20m		

Transmitter info

14

Local display	ID	Modbus
Info > Transmitter info	I4	200-270

This information page displays a summary of the exact type, factory identifier, and software version of the transmitter.



Menu:Info I4	
Transmitter info	
Type:	WPA224HM
DevType:	WP-200
DevID:	000323
Series:	W065679
Type:	WPA224HM
SW Main:	1.16/4.2

Name	Description
Manuf:	Manufacturer
DevType:	Device family identifier
DevID:	Device HART® long address
Serial:	Device serial number
Type:	Device type identifier
SW Main:	Device software version
SW Radar:	Radar software version for PiloTREK W-200
SW BLE:	Device BLE HW/SW identifier (if available)
HW:	Device hardware identifier



Menu:Info I4	
Transmitter info	
Type:	WPA224HM
SW Main:	1.16/4.2
SW SIM:	1.0
SW Radar:	0.7
SW BLE:	0.0/0.0
HW:	0111

Transm. HART Info

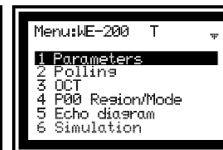
15

Local display	ID	Modbus
Transmitter > Info > HART info	I5	2820-2871

This information screen provides a summary of the textual HART® identifiers specified in the transmitter.



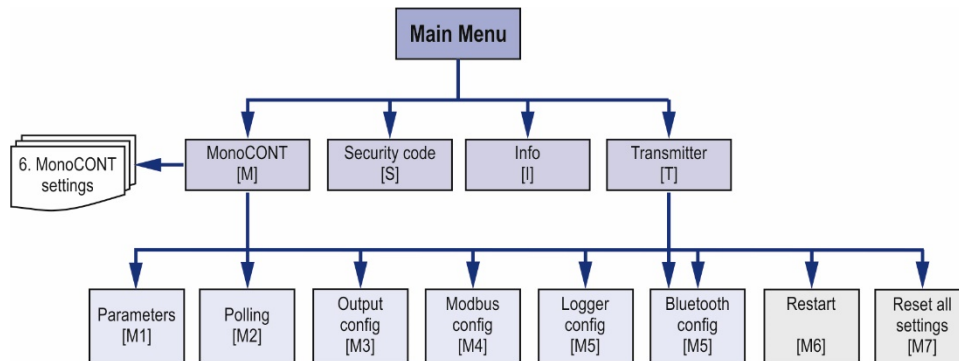
Menu:Info I5	
Transmitter HART info	
HART ID:	0
Shorttag:	WP200
Longtag:	W-200 80 GHz LEV
EL TRANSMITTER	
Message:	



Menu:W-200 T	
1 Parameters	
2 Polling	
3 OCT	
4 P00 Reson/Mode	
5 Echo diagram	
6 Simulation	

9. TRANSMITTER MENU

Access the main menu from any main screen by pressing the **E** button. For menu navigation, see the introduction section of chapter 6. *MonoCONT Settings*. Changes will only take effect after exiting the menu. If the user does not exit the menu, the MonoCONT will automatically exit after 10 minutes, but the changes will not be applied, meaning it will operate according to the previous settings.



The functionality of the 'Transmitter' menu depends on the type of transmitter connected, but the 'Polling' [T2] and 'HART Tags' [T7] menus are always available. To configure the transmitter, we must wait for MonoCONT to read the parameters and all other information from the transmitter. The 'Transmitter' menu cannot be used until the reading process is complete. The reading process is indicated by an up arrow (▲) in the upper right corner of the display.

9.1. Parameters

T1

Local display	ID	Modbus
Transmitter > Parameters	T1	300-1300

For PiloTREK (W-200), EasyTREK (SP-300 and SP-500), and EchoTREK (SE-300) transmitters, both the parameter number and the textual description of the parameter can be read. The parameters are set in the usual textual menu as the transmitter.

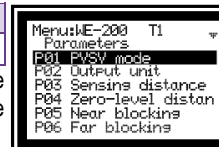
For other NIVELCO transmitters, only the parameter number is displayed (P01...P49). The MonoCONT only displays the parameters that can be modified. The parameters are set by entering values.

A user or programming manual for the transmitter is essential for setting the parameters.

The parameters are sent to the transmitter when exiting the 'Parameters' [T1] menu. The display shows which parameter is being sent. The process can be interrupted by pressing the [Abort] button.

In this case, the changes that have been sent so far will not take effect on the transmitter.

If a parameter contains an invalid value, the download process will be interrupted. Pressing the [OK] button will take us directly back to the corresponding parameter menu, where we can modify the value. After making the modification, exiting the 'Parameters' [T1] menu again will continue sending the parameter from where it was interrupted. The [Abort] button discards all changes and returns to the 'Transmitter' menu.

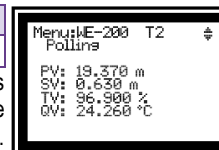


9.2. Polling

T2

Local display	ID	Modbus
Transmitter > Polling	T2	202-214

The current value of the transmitter's 4 output variables can be viewed here. Time elapsed between updates is the same as the 'Polling Time' [M2A] set in the MonoCONT configuration. This display makes it possible to check the validity of the settings without leaving the menu after changing the transmitter settings. For example, to check that the transmitter value and unit of measurement are correct. If the selected variable is not available in the transmitter, the MonoCONT will display a zero value without a measurement unit.



9.3. OCT (Output Correction Table)

T3

Local display	ID	Modbus
Transmitter > OCT	T3	—

This menu is used to edit the 'Output Correction Table' (OCT) for NIVELCO transmitters that have this feature. See the transmitter manual for more information.

The OCT table can be used in Volume or Flow modes to assign the measured level value to any output signal. The characteristic can be defined with up to 100 points for the W-200 and SP-500 and 32 points for the S-300. Between the points, the transmitter calculates the output signal from the measured level using linear interpolation, and after the last point, linear extrapolation. Refer to the transmitter manual for more information.



Conditions for correct programming of the OCT:

- The left column represents the **input value**, i.e. the level reference point given in the unit of measurement set in the transmitter.
- The right column represents the **output value** corresponding to the specified level, expressed in the unit of measurement set in the transmitter.
- The first entry in the left column must always be zero (0.000).
- The left column must not contain duplicate values.
- As you move down the columns, only increasing values are allowed. The transmitter usually sorts the values automatically.
- If the table contains fewer points than the maximum, the row following the last valid data pair in the left column must contain a 0-0 pair.
- The table must contain at least 2 rows

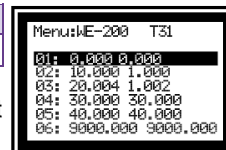
View/edit table

T31

Local display	ID	Modbus
Transmitter > OCT > View/edit table	T31	2400-2803

The existing OCT value pairs can be viewed and edited in this menu.

After selecting the appropriate row, pressing the **E** button opens the data pair editor view, and the input value becomes editable. The value editing process is the same as in other value input menus (see 6. MonoCONT Settings). By pressing the **E** button again, the output value becomes editable. After approving it with the **E** button, the editing of the data pair is completed, and the display returns to the OCT table. The transmitter automatically arranges the rows in increasing order based on the input value.

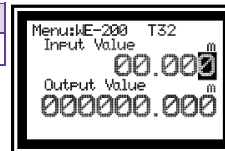


Add item

T32

Local display	ID	Modbus
Transmitter > OCT > Add item	T32	—

Add a new value pair to the OCT table. New data pairs can be added to the table one at a time. The transmitter automatically sorts the rows in ascending order based on the input value, so an intermediate value can be inserted later.



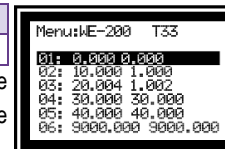
**Attention, the mandatory first and second rows are already included in the empty table.
To modify the first two rows, use the 'View/edit table' [T31] menu.**

Delete item

T33

Local display	ID	Modbus
Transmitter > OCT > Delete item	T33	—

Upon entering the menu, we can select the value pair to be deleted from the table, and the deletion can be initiated by pressing the **E** button. Any row can be deleted as long as the remaining rows meet the programming conditions of the OCT described above. See the transmitter description.



Attention, at least 2 rows must remain, and the input value of the first row must be 0.

Send Table

T34

Local display	ID	Modbus
Transmitter > OCT > Send table	T34	—

The modified OCT table is sent to the transmitter.



Attention, the Transmitter will only apply the Output Correction Table (OCT) to the output if it is enabled in the Transmitter settings.

9.4. P00 Region/Mode

T4

Local display	ID	Modbus
Transmitter > P00 Region/Mode	T4	0000

The region setting also changes the unit of measurement (SI or US/Imperial).



Changing parameter P00 will reset all other transmitter parameters to their default settings. Refer to the transmitter manual for more information.

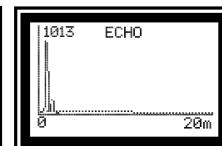
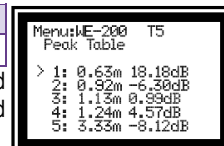
9.5. Echo diagram

T5

Local display	ID	Modbus
Transmitter > Echo Diagram	T5	5100-10200

This menu is available only on the PilotREK (W-200), EasyTREK (SP-500, SP-300), and EchoTREK (SE-300) transmitters. Upon entering the menu, the Peak Table is displayed. The peak selected by the transmitter is indicated by the '>' symbol.

Pressing the  button switches to the ECHO display (W-200 and SP-500 only). While data is being read, the text 'Reloading...' is displayed at the bottom of the page. By pressing the  button, the query can be repeated and the graph will be updated. Pressing the  button again will display the '9.2 Polling' [T2] screen. Press the  button to return to the previous screen.



9.6. Simulation

T6

Local display	ID	Modbus
Transmitter > Simulation	T6	

If the connected NIVELCO transmitter has an output simulation function, it can be configured from this menu to test the control and signal circuits. Refer to the transmitter manual for more information on simulation operation and setup.

- 'Settings': Entering the menu allows parameter configuration.
- 'Start simulation'
- 'Stop simulation'



Attention, while the simulation is running, real measurement data is not available! Be sure to stop the simulation after completing the testing.

9.7. HART Tags

T7

Local display	ID	Modbus
Transmitter > HART Tags	T7	2820-2870

The textual HART® identifiers of the transmitter can be edited here. After editing, the set identifier can be sent to the transmitter by pressing the **E** button.

The short identifier entered in the 'Short Tag' field is displayed by MonoCONT in the top line of the main screen, see 5.1.1 Main screen.



Short address

T71

Local display	ID	Modbus
Transmitter > HART Tags > Short address	T71	2820

Short tag

T72

Local display	ID	Modbus
Transmitter > HART Tags > Short tag	T72	2821-2825

Long tag

T73

Local display	ID	Modbus
Transmitter > HART Tags > Long tag	T73	2826-2842

Descriptor

T74

Local display	ID	Modbus
Transmitter > HART Tags > Descriptor	T74	2843-2851

Message

T75

Local display	ID	Modbus
Transmitter > HART Tags > Message	T75	2852-2868

Date

T76

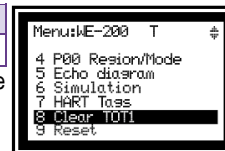
Local display	ID	Modbus
Transmitter > HART Tags > Date	T76	2869-2870

9.8. TOT1 clear

T8

Local display	ID	Modbus
Transmitter > Info > TOT1 clear	T8	bit 8

By entering the menu item (**E** button), the value of TOT1 is cleared. After this, the display returns to the initial menu. The value of TOT2 cannot be cleared.



9.9. Reset

T9

Local display	ID	Modbus
Transmitter > Info > Reset	T9	bit 7

Further information regarding the following functions can be found in the manual of the connected Transmitter:

- Software restart: Restarting the transmitter.
- Default threshold: Resetting the threshold curve to default.



10. DATA LOGGER READOUT

The data stored in the MonoCONT data logger can be read read out in two ways. Reading speed depends on the used method.

10.1. Readout interface

10.1.1. Wired connection

The data logger memory can be read through the UNICOMM SAT-506 eLink unit via USB interface using the EView2 HART® configuration software.

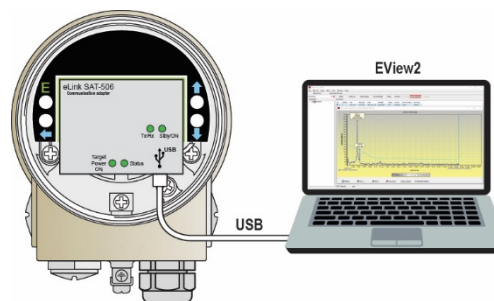
Device connection

To read the data, connect the SAT-506 unit to the MonoCONT device and to the computer:

- Remove the cover
- Remove the display unit
- Connect the SAT-506 unit in place of the display
- Connect the SAT-506 unit to the USB port of the computer

Starting the reading

In the EView2 program select the desired reading method and start the reading process.



10.1.2. Wireless connection (under development)

Via Bluetooth® interface using EView2 or MobileEView programs.

10.2. Readout speed

10.2.1. Normal readout

The MonoCONT device's transmitter query, data saving, and control functions continue to operate during the reading process. Therefore, the reading is slow, approximately 16 kB/s, so reading the entire memory takes more than 30 minutes.

10.2.2. Quick readout

The MonoCONT device's transmitter query, data saving, and control functions are not active; the device only performs data transmission. The reading is fast in this case, approximately 64 kB/s, so the entire memory can be read in about 8–10 minutes.



Attention, in Quick readout mode, the display, control, and data acquisition functions do not operate during the reading process. The output remains in the state it was in when the reading started until the reading is completed. This may cause an error in the controlled process.

10.3. Data content to be read out

10.3.1. Total

The entire memory content will be read out.

10.3.2. Unread

Only the data that has been generated since the last reading will be read out.

11. CONNECTABLE TRANSMITTERS AND AVAILABLE FUNCTIONS

11.1. Fully compatible NIVELCO HART® transmitters

The MonoCONT device contains the complete menu system of these transmitters and the transmitter parameters can be set in the usual way. The MonoCONT have the same text menu and selectable value names that correspond to the transmitter.

- PiloTREK (W-200) Non-contact microwave level transmitters
- EasyTREK (SP-300 and SP-500) Integrated ultrasonic level transmitters for liquids.
- EchoTREK (SE-300) Compact ultrasonic level transmitters for liquids.

11.2. Partially compatible NIVELCO HART® transmitters

The MonoCONT can set the parameters of the transmitters, but only by parameter number and value. The MonoCONT does not have the text menu and selectable value names that correspond to the transmitter. The transmitter manual is required for setting.

11.3. HART® transmitters from other manufacturers

The MonoCONT is capable of polling, displaying and collecting data from third-party transmitters. However, it is not possible to program transmitters from other manufacturers.

11.4. 4...20 mA analog transmitters

The MonoCONT can be used in a loop with 4...20 mA transmitters from any manufacturer. In such cases, it is suitable for displaying the loop current and for data acquisition.

APPENDIX 1. – MONOCONT PARAMETER LIST

P#	Name	Data type	Modbus	Decade list values			
				d	c	b	a
P00	Display - line values	Decadal	2000	Line4	Line3	Line2	Line1
P01	Display - mode	Decadal	2002			Bargraph	Display mode
P02	Display - decimals	Decadal	2004	Line4	Line3	Line2	Line1
P03	Optocoupler - config	Decadal	2006		Invert	Source	Function
P04	Optocoupler - error checkbox	Bit-field	2008				Transmitter error flags
P05	Optocoupler - switching point 1	Float	2010				
P06	Optocoupler - switching point 2	Float	2012				
P07	Optocoupler - delay	Float	2014				
P08	Logger - date/time	Unix time	2016				
P09	Logger - logged values	Bit-field	2018				Source
P10	Logger - time interval	Long	2020				Default: 60s
P11	Logger - event config	Decadal	2022		Loop Mode	Data source	Function
P12	Logger - threshold 1	Float	2024				
P13	Logger - threshold 2	Float	2026				
P14	Logger - evaluation interval	Float	2028				Default: 60s
P15	Modbus - address	ULong	2030				Default: 0
P16	Modbus - protocol	Decadal	2032		Baud	Stop bit	Parity
P17	Modbus - config	Decadal	2034			Byte order	Modbus resistor
P18	MonoCONT - data update interval	Long	2036				Default: 3s
P19	MonoCONT - config	Decadal	2038			TEMP	Lang
P20	Bluetooth config	Decadal	2040			TX power	Operation mode

P#	Read only	Data type	Modbus	Decade list values			
				d	c	b	a
P60	Operating hours	Long	2				Step: 0,1 hour
P61	Operating hours after reset (runtime)	Long	4				Step: 0,1 hour
P62	Temperature Min.	Float	6				
P63	Temperature Current	Float	8				
P64	Temperature Max.	Float	10				
P65	Memory percent	Float	12				%
P66	sw version	Long	14				
P67	hw version	Long	16				
P68	Password	ULong	18				Default: 0

APPENDIX 2. – MONOCONT ERROR FLAG LIST

MonoCONT Error Flags can be read from the [R 2001] Modbus register. The meanings of the error bits are shown in the table below. The error code is displayed as a HEX number in the status bar of the main screen, but can also be found with a textual description in the '5.1.4 Transmitter/MonoCONT errors' screen view.

bit	Message	Description
3	EEPROM checksum error	Data stored in internal memory is corrupted
4	EEPROM read error	Failed to read internal memory
6	HART error	Communication error, no response from the transmitter
8	Parameter integrity error	Invalid value for the parameter to be set
9	LOGGER error	Data memory read error
10	RTC	Real Time Clock is not functioning
11	LOGGER write pointer error	Data loss error

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Information is accurate to the best of NIVELCO's knowledge.

We reserve the right to change specifications at any time.