Flexilevel2/Sondaloop System

Installation & Setting up Instructions

Comprising

Flexilevel2 Indicator/Controller Sondaloop Ultrasonic Transmitter





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This product has been designed and complies to the relevant standards as listed in its certificate of conformity. The installer/user must ensure system compliance. The Crossed-out bin symbol, placed on the product, reminds you of the need to dispose of the product correctly at the end of its life. Because of continuing development, we reserve the right to change the specifications without notice

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1.0 Overview of the System

The Flexilevel2 wall mounted Indicator/Controller is designed for use with the Sondaloop ultrasonic transmitter to give digital Indication of level with four programmable points and an isolated retransmission signal. The Flexilevel2 will power the Sondaloop via a two core screened cable and display the level in any engineering unit or as a percentage. It will also control up to four pumps or alarms via the volt free changeover contacts. There is a fifth relay for system failure and diagnostic purposes.

The Sondaloop is a loop powered 2-wire ultrasonic transmitter with a user programmable measuring range of up to 8 meter's with a dead band of 0.4 metres. The integral LCD can display the measurement as a depth or distance (user configurable). The output of the transmitter is a 4 to 20 mA current which is linearly proportional over the programmed range.

The Sondaloop works by sending out ultrasonic sound waves from its sensor, the sound waves reflect off the surface of the liquid in the vessel and return back to the sensor. The time taken to perform this process is calculated and then converted to provide a measurement in meter's. The Sondaloop is temperature compensated as the speed of sound varies with temperature. If the Sondaloop does not receive an echo (Lost Echo) it can be programmed to transmit various current outputs as a failsafe feature including a 21mA alarm signal if required. Underneath the screw-on cap is a 4-digit LCD and keypad.

The Sondaloop v2 is available as three different types to suit specific applications.

Sondaloop



Comprises a polypropylene enclosure to IP66 with a universal flange; under the screw on lid is a LCD and keypad. The UPVC sensor is factory fixed to the bottom of the enclosure.

Sondaloop Remote



Separate UPVC sensor and electronics by up to 15metres, c/w integral twin cables. The electronic display and keypad are housed in a clear polycarbonate enclosure to IP66. The remote sensor is to IP68.

MiniSonda



Comprises a polypropylene enclosure to IP66 with a 2" BSP fitting; under the screw on lid is a LCD and keypad. The UPVC sensor is factory fixed to the bottom of the enclosure.

2.0 General Specification - Flexilevel2 Indicator/Controller

Technical Data

Outputs

Display	4 digit 9mm LCD Configurable between 0.100 and 9999. The decimal point can be positioned to suit	Sensor Supply	Nominal 24vDC for loop powered transducer fully isolated from the input and supply. Current limiting at 30mA
Input	Within the range 0-25mA (min span 2mA). Input circuit fully isolated.	Four Control Relays	Volt free changeover rated 5A resistive @240vAC. Each having fully adjustable hysteresis with programmable fail to safe action.
Input resistance	12 – 54 ohms depending on range	One Failure Relay	Volt free changeover rated 5A resistive @240vAC. De-energized on loss of, or excess current in a loop-powered system. De-energized for lost echo with the Sondaloop.
Zero Suppression	A live zero can be set anywhere within the range	L.E.D.'s	4 x 'Relay energized' 1 x 'Supply On'
Accuracy	Better than 1% for 4-20mA input		1 x 'Reverse Acting' retransmission 1 x 'Fault' (Flashing on failure condition)
Resolution	0.1%	Re- transmission	Programmable within 0-21mA. Max loop
Input supply	110v/23v, 50Hz or nominal 24vDC		when set for 4-20mA. Outputs fully isolated from input & supply
		Enclosure	Weather resistant to IP66 Clear polycarbonate fascia

254(H) x 180(w) x 84(D) mm.



3.0 General specifications and dimensions for Sondaloop

Model	MiniSonda	Sondaloop	Sondaloop R1	
Measuring Range	0.4 to 8 meter's	0.4 to 8 meter's	0.4 to 8 meter's	
Output	4-20mA into 250 ohms @ 24	VDC or 850 ohms @ 38\	/DC	
Loop Voltage	20 to 38VDC reverse polarity	protected		
Power required	0.5Watts @ 24VDC			
Resolution	1mm			
Accuracy	0.25% of measuring range (e	lectronic)		
Display	4 digits			
Minimum span	100mm			
Lost Echo	User programmable 4, 20,21	mA or hold last valid read	ding	
Temp. compensation	Built in digital sensor			
Ultrasound frequency	50KHz ±10%			
Op. temperature	-10℃ to +60℃			
Weatherproof	IP66	IP66	Controller IP66.	
Cable Gland thread	M20	M20	N/A	
Cable	2 core screened			
Mounting2" BSPUniversal flange ANSI 3" 150lbS E DN80 PN16 BS10 Table D 3"Mounting2" BSPUniversal flange BS10 Table D 3"S E BS10 Table D 3"S E S Type 81 BracketS S		Sensor ³ / ₄ inch BSP Electronics screw/DIN		
Cone angle	12° included			
Pressure	-0.25 to + 2 Bar @ 20 degree	es C		
Construction Materials				
Housing Sensor	singPolypropylenePolypropylenePolycarksorUPVCUPVCUPVC		Polycarbonate UPVC	

MiniSonda

Sondaloop





Sondaloop Remote R1



All dimensions in mm unless stated otherwise

4.0 Installation of Equipment

(A) Ultrasonic Transmitter

The ultrasonic Transmitter should be mounted at least 0.4 meter's above the top liquid level. Fittings for the different sensors are as follows: -

Sondaloop	Universal Flange
Sondaloop R1	³ ⁄ ₄ in BSP
MiniSonda	2" BSP

The location of the transmitter is important for long term reliability and consideration should be given to the following to ensure false echoes are avoided: -

- The Transmitter should be mounted at least 0.4m above the top liquid level.
- Mount the transmitter away from walls or obstructions by 11cm distance per 1 metre depth with a minimum distance from the wall of 30 cm.
- When using enclosed tanks and horizontal cylinders do not mount the transmitter in the centre to avoid parabolic reflections.
- Ensure there is a clear and uninterrupted view between the sensor face and the lowest level.
- Foam absorbs sound and is a poor reflector. In such conditions ensure the transmitter is mounted over an area of clear liquid.
- Stilling wells with smooth internal walls and no joints can be used to avoid foam. The stilling well should be 100mm diameter and vented. Its length should always be in the liquid to prevent ingress of foam.
- Guide tubes can be used to avoid protuberances and metal grilled walkways. The tube should be at least 1 metre long and the bottom end of the tube cut at an angle of 45 degrees.

(B) The Flexilevel2 Indicator/Controller

Fix the FXL2 Flexilevel2 to the wall using M4 screws and connect it to the mains supply preferably through an isolator. Cable glands are already fitted so no drilling of the enclosure is needed.

Connect the FXL2 Flexilevel2 Controller to the ultrasonic transmitter using the 2 core screened instrument cable, connector size 0.5mm² minimum.

Connect the relay volt free contacts (either NC or NO) to contactors for latching pump control or to the alarm function. (Where contactors are used it is advisable to fit a suppression circuit to prevent the induced back EMF damaging the PCB mounted relays.



5.0 Setting up the System

The Sondaloop and the Flexilevel2 should now be installed and interconnecting cables completed. Turn power on to the Flexilevel2 Controller and wait for 2 minutes. This allows all components to stabilize and will also power the Sondaloop. The Sondaloop and Flexilevel2 are now ready for programming.

5.1 To Calculate the range in DEPTH MODE

Assume a tank 6 metres high. The face of the transmitter is 0.5m from the top of the tank You want to set a liquid level range of 3 metres measured from BWL (Bottom Water Level). The 4-20mA current output will be the 3m range.



In practice the top water level or 20mA point is usually nearer the sensor face. But it must not be closer than 0.5m (Sensor dead band). Assume the sensor is mounted at the lowest level to give a 3m range



4mA point = 3.5m Distance from sensor to bottom of tank 20mA point = 0.5m Distance from sensor to top water level Range for 4-20mA = 3.5 - 0.5 = 3.0m

In Summary

The 20mA point is the distance from the sensor face to the top water level The 4mA point is the distance from the sensor face to the lowest water level. The depth is the difference between the top water level and bottom water level.

6.0 Programming the System

The Sondaloop and the Flexilevel2 are independent instruments which can be used with other pieces of equipment. These instructions are to enable you to combine the two units and set them up for a depth application.

There are 3 operations in setting up the Sondaloop

- 1 Scaling the level in (A) MANUAL Mode (B) AUTO Mode
- 2 Setting the Display
- 3 Setting the Lost Echo

There are 4 operations in setting up the Flexilevel2

- 4 Scaling the level for 'Empty' and 'Full' Condition. This is factory programmed.
- 5 Setting the Display
- 6 Setting the relays 1 4
- 7 Setting the re-transmission signal

It well help to complete the following calibration notes before starting any programming.

6.0.1 Calibration Notes

The following information is needed to set up the system

Position of sensor face from the bottom of the tank			
Top water level (or Tan	Top water level (or Tank full position) (20mA point)		
Bottom water level (or tank empty position) (4mA point)			
Operating range (20mA point – 4mA point)			
Relay 1 ON		OFF	
Relay 2 ON		OFF	
Relay 3 ON		OFF	
Relay 4 ON		OFF	
Lost echo setting (4,20,21,Hold)			

To start the setting up it is best to have an empty tank. Set the Tank empty level (4mA) point on the Sondaloop Fill the vessel to the top water level Set the Tank Full level (20mA) point on the Sondaloop

6.1.1 Sondaloop – Scaling the level - Tank Empty (4mA)

The Tank Empty position is the distance from the sensor face to the Bottom Water level or Tank Empty position. If the tank is Empty, then you can use the automatic mode and the Sondaloop will calculate the distance from the sensor face to the bottom level for you. If the tank is partially full then you will need to dip the tank and calculate the distance. Then you can enter the distance using the manual setting.

(A) Settina i	ın in	ΜΑΝΙΙΑΙ	Mode	with a	known	distance or	[,] partial	l filled t	tank
١) Octaing t	up in	MANUAL	Moue	with a		uistance ui	partia	inicu i	ann

Operation	Display	Notes
Press M	Number freezes	Colon stops flashing
Press ↑↓↑↓	Ent	
Press E	4mA	This is the low level setting (depth mode)
Press E	X.XXX	You can set the 4mA point by scrolling. Use the $\uparrow\downarrow$ arrows until you reach the low level depth you want.
Press E	donE 4mA	You have now stored the low level depth manually in the memory
Press M	Ent	You are leaving the Manual set up
Press M	X : XXX	
Press M	X.X : XX	Flashing Colon. System is running

(B) Setting up in AUTO Mode with an empty tank

Operation	Display	Notes
Press M	X : XXX	Colon stops flashing. Display freezes
Press ↑↓↑↓	Ent	
Press ↑	Auto	You are entering Auto set-up
Press E	4mA	This is your 4mA low setting (depth mode)
Press E	X.XXX	You can hear the sensor ticking. With the
		tank empty set the 4mA point.
Press E	d.onE	You have stored the low level depth setting
	4mA	automatically in the memory
Press M	Auto	You are leaving the Auto set up
Press M	X : XXX	
Press M	X.X : XX	Flashing Colon. System is running

6.1.2 Sondaloop – Scaling the level - Tank Full (20mA)

The Tank Full setting is the distance from the sensor face to the top water level or Tank Full position. If the tank is full then you can use the automatic mode and the Sondaloop will calculate the distance from the sensor face to the Top Water level for you. If the tank is not full you will need to calculate the distance from the sensor to the top water level and enter the distance manually.

Operation	Display	Notes
Press M	Number freezes	Colon stops flashing
Press ↑↓↑↓	Ent	
Press E	4mA	
Press ↑	20mA	This is the High level setting (depth mode)
Press E	X.XXX	You can set the 20mA point by scrolling. Use the $\uparrow\downarrow$ arrows until you reach the depth or top water level you want.
Press E	donE 20mA	You have now stored the depth manually in the memory
Press M	Ent	You are leaving the Manual set up
Press M	X : XXX	
Press M	X.X : XX	Flashing Colon. System is running

(A) Setting up in MANUAL Mode

(B) Setting up in AUTO Mode

Operation	Display	Notes
Press M	X.XXX	Colon stops flashing. Display freezes
Press ↑↓↑↓	Ent	
Press ↑	Auto	You are entering Auto set-up
Press E	4mA	
Press ↑	20mA	This is your 20mA High setting (depth mode)
Press E	X.X : XX	You can hear the sensor ticking. With the
		tank Full set the 20mA point.
Press E	d.onE	You have stored the top water level depth
	20mA	automatically in the memory
Press M	Auto	You are leaving the Auto set up
Press M	X : XXX	
Press M	X.X : XX	Flashing Colon. System is running

You have now set up the Empty and Full level for the Sondaloop. The display on the Sondaloop will now display the depth between the top and bottom water level. It will also transmit a 4-20mA signal into the Flexilevel2. You now have the option of setting the Sondaloop display in depth or percentage.

6.2 Setting the Display for the Sondaloop

Operation	Display	Notes
Press M	X.XXX	Colon stops flashing. Display freezes
Press ↑↓↑↓	Ent	
Press ↑	Auto	
Press ↑	diSP	This is the display set-up.
		You can select in depth units or percentage
Press E	dEP	This is the display in depth units
Press ↑	PErC	This is the display in percentage
Press ↑	dEP	This is the display in units of depth.
		Press ↑ to return to percentage
		Select dEP or PErC
Press E	donE	Display in units of depth is stored in the
	dEP	memory
Press M	dISP	You are leaving the display set up
Press M	X : XXX	
Press M	X.X : XX	Flashing Colon. System is running

6.3 Setting the Lost Echo (LE) for the Sondaloop

The final setting for the Sondaloop is the Lost Echo.

The Sondaloop sends out a burst of energy then waits for the reflected pulse.

If there are no reflected pulses the system indicates an error. The error may be caused by foam on the liquid absorbing the sound. Or there the sensor may be physically damaged.

In applications where intermittent foam is prevalent the Hold option may be the preferred option. This means the Sondaloop will remember the last good reading until the foam disappears and more good readings can be achieved.

Where a loss of reflected echo is usual, then a decision is needed to switch the relays On or Off, or drive the signal to 21mA to give an external alarm.

Operation	Display	Notes
Press M	X.X : XX	Colon stops flashing. Display freezes
Press ↑↓↑↓	Ent	
Press ↑	Auto	
Press ↑	diSP	
Press ↑	LE	This is the Lost Echo set-up
Press E	21mA	This is the 21mA option
Press ↑	4mA	This is the 4mA option
Press ↑	Hold	This is the Hold option
Press ↑	20mA	This is the 20mA option
Press ↑	21mA	You have returned to the first option
		Make your choice
Press E	donE	The system has chosen 21mA for the Lost
	21mA	Echo
Press M	LE	You are leaving the Lost Echo set up
Press M	X : XXX	
Press M	X.X : XX	Flashing Colon. System is running

The Sondaloop is now set-up. It will transmit a 4-20mA to the FXL2 Flexilevel2 to allow you to set up the Flexilevel2

6.4 Scaling the input level to the Flexilevel2 for 'Empty' and 'Full' Condition.

This involves setting the 4mA and 20mA input to the Flexilevel2. This is factory set and you should not need to set these. However, instructions are give at the back of the manual under Additional features if you need to re-set the parameters.

6.5 Setting the Display for the Flexilevel2 Controller/Indicator

There are two settings – the position of the decimal point and the maximum reading when the tank is full. The maximum reading can be the level, volume or a percentage of the depth.

Operation	Display	Notes
Press M	X.X : XX	Colon stops flashing
Press ↑↓↑↓	ILo?	This is the 4mA input signal
Press ↑	IHI?	This is the 20mA input signal
Press ↑	PErC	Percentage of tank full.
Press E	1 0 0.0	Select 100.0 as tank is full
Press E	donE	You have stored the tank full as a reading
	PerC	
Press ↑	FSd	Position for decimal point
Press E	d E C. P	Position the Decimal point using the arrow
		keys. Scroll ↑↓
Press E	X.XXX	Shows the chosen position of decimal point
		Select max reading for Full tank . This should
		be 4mA point minus 20mA point.
		Scroll $\uparrow\downarrow$ for maximum reading for tank full.
Press E	donE	You have now stored the display reading for
	FSd	maximum depth
Press M	X.X : XX	Flashing Colon. System is running

6.6 Setting the Four relays 1 – 4 for the Flexilevel2

Operation	Display	Notes
Press M	X.X : XX	Colon stops flashing
Press ↑↓↑↓	ILo?	This is the 4mA input signal
Press ↑	IHi?	This is the 20mA input signal
Press ↑	PErC	Percentage of tank full.
Press ↑	FSd	Position of decimal point
Press ↑	rL1	First relay set point
Press E	On	Set the on position
Press E	XX.X	Scroll $\uparrow\downarrow$ to select the On position as a
		percentage of depth
Press E	OFF	Set the OFF position
Press E	XX.X	Scroll $\uparrow\downarrow$ to select the OFF position as a
		percentage of depth
Press E	donE	First relay has now been set
	rL1	
Press ↑	rL2	Second relay set point. Repeat as above
Press M	X.X : XX	Flashing Colon. System is running

6.7 Setting the Fault Relay

There is no programming for the fault Relay. TB10 is a volt free changeover contact. For an external alarm connect between the common (C) and normally open (NO) contacts.

6.8 Examples of setting up a relay as a percentage of depth



In this example the ON point is above the OFF point so the relay is set to fail to safe Low

If we assume a depth of 6 metres The ON point is 1.2m The OFF point is 2.3M

 $\frac{1.2}{6.0} \times 100 = 20.0 \qquad \qquad \frac{2.3}{6.0} \times 100 = 38.3$

In this example the ON point is below the OFF point and the relay is set to fail to Safe High

6.9 Setting up the Re-Transmission 4-20mA output signal from the Flexilevel2

Connect a Multi-meter to TB5 to monitor the output current.



The Current output can be set within the range 0 - 21mA. The ideal range of 4 - 20mA makes best use of the diagnostic facilities of the Sondaloop and the Flexilevel2.

Operation	Display	Notes
Press M	X.X : XX	Colon stops flashing
Press ↑↓↑↓	ILo?	This is the 4mA input signal
Press ↑	IHi?	This is the 20mA input signal
Press ↑	PErC	Percentage of tank full.
Press ↑	FSd	Position of decimal point
Press ↑	rL1	First relay set point
Press ↑	r L 2	Second relay set point
Press ↑	r L 3	Third relay set point
Press ↑	r L 4	Fourth relay set point
Press ↑	4 n A	Set the 4mA output
Press E	ХХХХ	Scroll $\uparrow\downarrow$ using the arrow keys so you get a
		4mA reading on the multi-meter
Press E	donE	You have stored the 4mA output signal
	4 n A	
Press ↑	20 n A	Set the 20mA output
Press E	XXXX	Scroll $\uparrow\downarrow$ using the arrow keys so you get a
		20mA reading on the multi-meter
Press E	donE	You have stored the 20mA output signal
	20 n A	
Press M	X.X : XX	Flashing Colon. System is running

6.10 There is an option to invert the 4-20mA re-transmission signal

Operation	Display	Notes
Press M	X.X : XX	Colon stops flashing
Press ↑↓↑↓	ILo?	
Press ↓	r E v ?	This is the Reverse current output option
Press E	For	Forward acting (normal)
Press ↑	REv	Reverse acting (inverted output)
Press ↑	For	You have returned to your first option.
		Make your selection
Press E	donE	Forward acting option chosen in this example
	r E v ?	
Press M	X.X : XX	Flashing Colon. System is running

With the tank at maximum level the Flexilevel2 should be displaying maximum depth and the current source showing 20mA. If the tank is not full then the current reading should be linear to the display

E.g. If the tank is half full. The normal depth would be 3 metres

Display reading = 50% of 3 metres = 1.5mCurrent output = (50% of 16mA) + 4mA = 12m**7.0 Trouble Shooting**

Symptom	Cause	Action
Gives Lost Echo LE	Target out of range	Check system specification
	Application Dusty or	Check installation & Tank condition
	steamy	Re-site Transducer
	Excess foam on liquid	
Reading Static when	Unit processing wrong	Move transducer to better location
level changes	target	
No display of loop	Power Failure	Check Flexilevel2 Power supply and output to
current		Sondaloop
Reading Erratic	Target Unsteady	Move transducer to a better location
	Target within dead-band	Raise transducer >0.5m above top water level
	Fumes	Check installation
	Electrical Noise	Move transducer to a better location
	Target outside top or	Re-calibrate system
Reading	bottom water level	
Or		
Reading occasionally	Spurious echo detected	Move transducer to a better location
goes high when vessel	Acoustic coupling to	Loosen nylon mounting bolts.
is not full	bracket	Use foam gasket
Failure to operate	Load resistance too	Reduce load resistance.
correctly at mid range	great	Check equipment connected to loop.
current	-	

8.0 Frequently Asked Questions

Q. Can I set-up the Sondaloop without filling and emptying the tank?

A. Yes. If you know the minimum and maximum levels (i.e. 4mA and 20mA points) then you can enter these manually into the Sondaloop.

Q. Can I set-up the Flexilevel2 Controller without the Sondaloop?

A. Yes. If you have a current source to generate a 4-20MA signal, then you could set-up the input signal to the Flexilevel

Q. Can I have a factory set system?

A. Of course. If you know the position of the ultrasonic sensor face and the minimum and maximum depth, then you can receive a fully set-up system including the relay ON and OFF points.

Q. I've set-up the system but the display in the Flexilevel is different to the Sondaloop. Why? **A.** When you set-up the Sondaloop you enter the 4mA and 20mA points It then automatically calculates the depth and displays it for you. The Flexilevel has a separate display setting so you can set it as percentage, depth or volume. A common error is to set the display as the depth from the face of the sensor to the bottom of the tank instead of the maximum depth reading

Q. What additional features are available?

A. The Sondaloop continually monitors its power levels, temperature setting and display and cares out a re-calibration about every minute. This does not affect the current 4-20mA loop. If the sensor signal is lost, then a 21mA signal is transmitted to the Flexilevel2 controller. The Fexilevel2 monitors the current loop from the Sondaloop and has a fifth relay which alarms if it receives a signal below the 4mA or above 20mA. This error could be caused by a loss of echo by the sensor due to foam or vandalism to the sensor or cable damage. The display on the Flexilevel2 and the Sondaloop will show an over-range signal as _____ or an under-range signal as _____.

9.0 Additional Features

There are two useful features covered here.

- 1. The Distance setting for the Sondaloop
- 2. The input settings for the Flexilevel2

The Sondaloop can be used in distance mode rather than depth mode. This is similar to the dept mode except the 4mA setting is now the Top water level and the 20mA setting is now the bottom water setting.

Scaling the level

Setting the upper and lower levels (4mA and 20mA) of the liquid can be carried out manually if the parameters are known, otherwise it may be necessary to fill the vessel to calibrate in auto mode.

If the 4mA is set closer to the sensor face than the 20mA setting the display will show in distance If the 20mA is set closer to the sensor face than the 4mA setting the display will show depth There is a dead band of 0.5 metres.

4mA	DISTANCE	20mA
20mA	DEPTH	4mA

Sensor Face

The datum will always be calculated from the sensor face. The measurement will be from the face of the transmitter to the liquid.

9.1 To Calculate the range in DISTANCE MODE

eg1

Set the 4MA point to 0

Set the 20mA point to 8.000

The unit will now work over the range 0 to 8.000m for a 4-20mA signal. However, if the distance is less than 0.5 metres then the display will show false readings caused by multiple reflections. Readings in the dead band should be ignored, as they are unreliable.

You can change the range to any figure up to 8.000m

If you intend using the transmitter in distance mode, then remember to set the dead band. 4mA = 0.5m20mA = 8.000m

Readings below 0.5m will show an under-range reading on the display. The current loop will be set up for 4-20mA over the range 0.5 to 8.000m and the under-range error will be detected on the display and by the Flexilevel2 Controller.

9.2 The input settings for the Flexilevel2

The Flexilevel2 is factory preset to accept a 4-20mA input signal. We do not recommend you change the programming unless it is essential. In such circumstances you will need a current generator source. It is possible to use the Sondaloop to generate a 4mA and 20mA signal. But if you choose this option you will need to re-input the correct settings for the Sondaloop.

How to generate a 4MA and 20mA input signal to the Flexilevel2

Using a Current generator source. Connect the source to TB3 and generate a 4MA signal. In the Flexilevel2 complete the following

9.2.1 Flexilevel2 - Scaling the input level Tank Empty (4mA)

Operation	Display	Notes
Press M	Number freezes	Colon stops flashing
Press ↑↓↑↓	ILo?	This is the 4mA input signal
Press E	XXXX	This number is not important
Press E	donE	You have now stored the 4mA input signal
	ILo?	from the Sondaloop.
Press M	X.X : XX	Flashing Colon. System is running

Adjust the current source to give a 20mA signal. In the Flexilevel2 complete the following

9.2.2 Flexilevel2 – Scaling the input level Tank Full (20mA)

Operation	Display	Notes
Press M	Number freezes	Colon stops flashing
Press ↑↓↑↓	ILo?	
Press ↑	IHI?	This is the 20mA input signal
Press E	XXXX	This number is not important
Press E	donE	You have now stored the 20mA input signal
	IHi?	from the Sondaloop.
Press M	X.X : XX	Flashing Colon. System is running

You have now successfully set up the input 4-20mA signal for the Flexilevel2.

9.3 Using the Sondaloop as a current Generator

You need the Sondaloop to generate a 4mA and 20mA signal and inject it into the Flexlevel2. This is best achieved using the auto setting of the Sondaloop. Connect the Sondaloop to TB3 of the Flexilevel2. In the Sondaloop complete the following

Operation	Display	Notes
Press M	X : XXX	Colon stops flashing. Display freezes
Press ↑↓↑↓	Ent	
Press ↑	Auto	You are entering Auto set-up
Press E	4mA	This is your 4mA low setting (depth mode)
Press E	X.XXX	You can hear the sensor ticking.
		Set the 4mA point.
Press E	d.onE	You have stored the low level depth setting
	4mA	automatically in the memory
Press M	Auto	You are leaving the Auto set up
Press M	X : XXX	
Press M	X.X : XX	Flashing Colon. System is running

With the Sondaloop transmitting a 4mA output for the level in the tank now set up the Flexilevel2 low level setting as 9.2.1

You have completed the 4mA input.

You need the Sondaloop to generate a 20mA signal and inject it into the Flexlevel2. In the Sondaloop complete the following

Operation	Display	Notes
Press M	X.XXX	Colon stops flashing. Display freezes
Press ↑↓↑↓	Ent	
Press ↑	Auto	You are entering Auto set-up
Press E	4mA	
Press ↑	20mA	This is your 20mA High setting
Press E	X.X : XX	You can hear the sensor ticking. With the
		tank Full set the 20mA point.
Press E	d.onE	You have stored the 20mA point
	20mA	automatically in the memory
Press M	Auto	You are leaving the Auto set up
Press M	X : XXX	
Press M	X.X : XX	Flashing Colon. System is running

With the Sondaloop transmitting a 20mA output for the level in the tank now set up the Flexilevel2 high level setting as 9.2.2