

Instruction Manual



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ANDERSON-NEGELE

Instrument Model Number _____

Instrument Serial Number _____



"ITM-51" Turbidity Meter

Table of Contents

Section 1 - General	4
1.1 - Description	4
1.2 - Specifications	4
1.3 - General Safety	5
1.4 - Intended use	6
Section 2 - Application Requirements	6
2.1 - Conditions required for the meter	6
2.2 - Mounting Position	7
2.3 - Mounting in a pipe	7
Section 3 - Installation	8
3.1 - Mounting in the line	8
3.2 - Electrical	8
3.2.1 - Cabling and Connections	8
3.2.2 - Power and Wiring	8
Section 4 - Commissioning	10
Section 5 - Operation	10
Section 6 - Parameterization	11
6.1 - Settings using the MPI-200 programming adapter	11
6.2 - Settings using the User Interface	15
6.2.1 - Setting the units of Turbidity	17
6.2.2 - Setting the Range of the Analog Output	18
6.2.3 - Setting the Dampening of the Analog Output	19
Section 7 - Troubleshooting	21
Section 8 - Maintenance and Cleaning	21
Section 9 - Service and Calibration	22
9.1 - Service	22
9.2 - Calibration	22
Section 10 - Spare Parts	22
Section 11 - Product Matrix	23
11.1 - ITM-51 Matrix	23
11.2 - ITM-51R Matrix	24
Warranty and Return Statement	25

Section 1 - General

1.1 - Description

The ITM-51 turbidity meter has been specifically designed for placement in Dairy, Food and Beverage applications where turbidity metering is required. The ITM uses a single light/receiver system that measures the intensity of reflected light from particles present in a liquid. The meter takes this measurement and calculates the result. The calculated value is then displayed on the meter along with the creation of an analog output representing the measurement based on an internally selected range. In addition to the display and analog output, the ITM also offers an optional switched output that can be used to take action on a user assigned set point. The resulting signals may be interfaced with Anderson Digital Indicators, Anderson recording devices or Customer supplied instrumentation including programmable logic controllers. Multiple sizes are available to allow adapting a variety of piping sizes. The ITM-51 is 3-A authorized with all wetted parts are constructed of 316L stainless steel, and sapphire glass. Three keys allow for programming changes that can affect the analog and switched output operation.

1.2 - Specifications

Process Connection:	Triclamp 1.5", 2", 2.5", 3", Varivent, DN25, DN40-50, G1/2"
Materials Connection Head:	1.4308
Fitting:	1.4404 (316L)
Lens:	Sapphire
Window Material:	Polycarbonate
Temperature Ranges	
Ambient:	-10-60 °C (14-140°F)
Process:	-10-130 °C (14-266°F)
CIP/SIP-Cleaning:	up to 140°C (284°F) for up to 120 minutes
Operating Pressure:	-1...20 Bar (-14.5psi...290psi)
Measurement Principle:	Infrared backscatter. (wavelength = 860 nm)
Minimum Turbidity:	200 NTU / 5% of 100% scale
Ranges:	Freely programmable (internally selectable) one remotely selectable
Repeatability:	<1% of upper range limit
Response Time:	adjustable 0, 1.5, 3, 6, 13 and 25 sec.
Display:	backlit LCD
Electrical Connection:	CableGland M16, M12 connector
Supply Voltage:	24 VDC (18-36 VDC)@ 190 mA
Input Range Switching:	E1=24 VDC (18-36 VDC) DC decoupled Output
Analog:	4-20 mA active
Setpoint:	adjustable 0-200%
Hysteresis:	factory set at 5%, adjustable 0-100%
Measurement	
Principle:	Infrared backscatter. Meets EN7027 (wavelength = 860 nm +/- 20 nm)
Short Circuit Proof:	DC decoupled
Switching:	24 VDC 80 mA maximum respectively to GND of power supply
Weight:	approx. 750g. (1.65lbs.)
Environmental Protection:	Designed and factory tested to IP69K;intended for use in wet environments at up to 100% relative humidity

1.3 - General Safety

These safety instructions have to be strictly observed in order:

- To not endanger the safety of persons and environment
- To avoid any damages to the measuring instrument
- To prevent any faulty product as a result of use

The electric connection may only be carried out by qualified persons who have the necessary electrical knowledge and have been authorized by the owner to do so. The wiring of the voltage supply and the inputs and outputs of the control circuits has to be carried out professionally in consideration of current electrical design and regulation. Also refer to chapter 3 "Installation"/"Electrical" for more information.

In particular, the following references have to be observed:

- Safety instructions
 - Electrical connection information
1. All persons who are involved in the installation, commissioning, operation, service, and maintenance of the meter have to be qualified accordingly.
 2. This instruction manual has to be strictly observed. The user of the meter has to assured that the personnel concerned has read and fully understood the instruction manual.
 3. All work done must be carried out by authorized and trained personnel only.
 4. The instruction manual should be kept in close proximity to the device for reference to the operators.
 5. Before starting any cleaning, conversion, service or maintenance work, the measuring device has to be switched off and disconnected from the power. This requires a device for separating all live wires, e.g. a 2-pole main switch in the control cabinet. The associated device has to be protected against unauthorized switching-on.
 6. Before starting any service and maintenance work, the system has to be flushed with water and emptied. If the meter has to be removed from the pipe system, all pipelines will have to be emptied prior to removal and protected by a maintaining an opening to atmosphere or a shut-off method to prevent refilling.
 7. Never remove or put out of action any safety devices through modification of the meter.
 8. Do not touch any part of the meter while the measuring instrument is cleaned as there is a risk of getting burned!
 9. To minimize the danger of injury, the working area around the meter should have sufficient free space.
 10. The technical data according to the instruction manual, nameplate needs to be considered against the requirements of the application.

If damage is done to the meter, all warranties are void.

Dangers not resulting from the functionality of the device, but from the ambient and operating conditions present at the place of application, have to be referred to in appropriate instructions to the operators and by the use of danger signs. The user of the device is exclusively responsible for the compliance with these instructions!

1.4 - Intended use

The ITM-51 turbidity meter is only to be used for the application that it has been designed, dimensioned and built. The electrical connection must be made to a direct current network (see the nameplate).

The intended purpose of the turbidity meter is the measurement of liquid turbidity in the food processing, beverage, pharmaceutical and chemical industries. This meter is not suitable for the measurement of hazardous, explosive, and combustible liquids of PED group.

Any modifications to the measuring device that might have an influence on the function and the safety devices of the meter are only allowed to be carried out by authorized persons of Anderson Instrument Company. Possible misuse including any use in contradiction to the above-mentioned application is an indication of misuse of the measuring instrument!

In such a case Anderson does not assume any responsibility for safety.

Section 2 - Application Requirements

2.1 - Conditions required for the meter

The meter has to be installed in the product line with power supplied for operation. When selecting the place for the installation of the meter you should ensure that the housing can be opened for service work whenever needed and that the meter can be simply removed, if necessary. In order to protect the electronics from damage, select an installation location so that:



Warning! Do not subject this sensor to pressure that exceeds the specified upper range limit. Over-pressure may cause premature failure, incorrect output signal, or possible human injury.

- Product temperature is always kept within the admissible temperature

Caution: Do not expose the sensor to process or ambient temperatures that exceed the rated specifications. Physical damage, incorrect output signal, or premature failure may result.

- Piping is securely mounted (e.g. to avoid vibration)
- Meter can be emptied if there is a risk of freezing
- Connection housing is not permanently exposed to dripping water

2.2 - Mounting Position

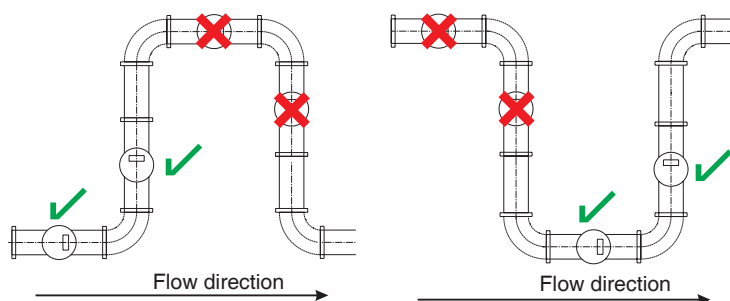
Ensure that the mounting position of the turbidity meter guarantees that the measurement tube is always full with media. Air or air bubbles are measured like turbidity.

Correct installation:

- In or in front of ascending pipes

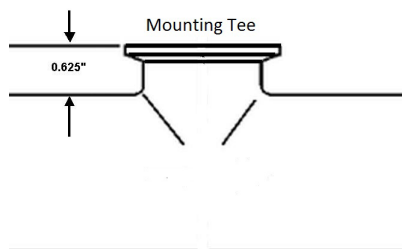
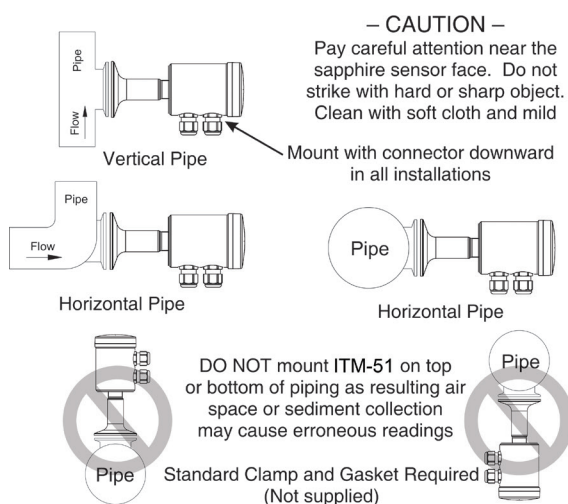
Wrong installation:

- In or in front of descending pipes
- Into the highest point of a pipe. Air or air bubbles will concentrate there. Refer to drawings below for examples.



2.3 - Mounting in a pipe

The ITM is designed to be installed in a short outlet tee in the orientations shown below. The distance from the clamping face to the wall of the main pipe should measure at 5/8" (.625")



Section 3 - Installation

3.1 - Mounting in the line

Caution: Handle with care during installation to avoid damage to the sensor. Physical damage, especially to the sensing surface can cause incorrect output signal or premature failure.

The ITM is designed to be installed in a supported pipeline.

Caution: For proper mounting of this sensor, verify that the fitting connection type, size, gasket or seal, and holding ring or clamp match the process connection it is being mounted to. Improper mounting can cause process leakage, reduced pressure ratings, and/or contamination issues.

3.2 - Electrical

3.2.1 - Cabling and Connections

Anderson recommends the use molded five wire molded cord sets to provide the best protection in wet environments. Wire should be 18-24 AWG, 4 conductor cable to power the ITM-51 and provide a return for the analog output signal. In addition, it should be foil shielded with a continuous drain wire. The ITM is provided with M12 quick disconnect electrical connectors that will prevent moisture from entering the electronics housing. The drain (ground) wire should be attached to ground at only the receiving device end.

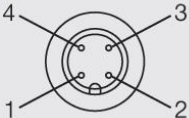
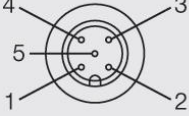
WARNING: To prevent signal interference, do not run signal cable closer than 12" to AC wiring.

3.2.2 - Power and Wiring



Warning! This unit accepts DC voltage only, connection to AC voltage can cause failure of the sensor and/or risk of electrocution

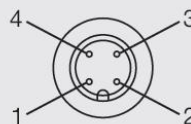
The ITM requires 24 VDC (18-36 VDC) at 190mA current for proper operation. The diagram below illustrates the pin assignments for the M12 connectors used on the ITM.

Electrical connection "N" (Output "A53")	
M12 connector top (4-pin)	
1: Out 1 +	
2: Out - / D out	
3: Out + / D out	
4: Out 1 -	
M12 connector bottom (5-pin)	
1: Power supply +24 V DC	
2: Not assigned	
3: Not assigned	
4: Power supply -	
5: Digital in	

Electrical connection "A" (Output "A53")

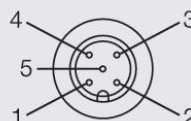
M12 connector top (4-pin)

- 1: Out -
- 2: Out +
- 3: Power supply +24 V DC
- 4: Power supply -



M12 connector bottom (5-pin)

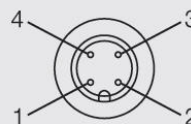
- 1: Out - / D out
- 2: Not assigned
- 3: Not assigned
- 4: Out + / D out
- 5: Digital input



Electrical connection "M" (Output "A42")

M12 connector top (4-pin)

- 1: Power supply +24 V DC
- 2: Power supply -
- 3: Out +
- 4: Out -



For electrical connection A, the upper connector offers the connection for input power and the analog output. If more features are to be utilized connection to the lower connector will need to be done using a second cable with 4 conductors. On this connector the switching output is available for use to control a low voltage light or input to a PLC (0.08 A max.) If the output current is higher than the specified current (80 mA) an electronic fuse switches off the output. To reset the switch output, disconnect the output (or deactivate and activate the turbidity meter).

There is also an optional input to select a second pre-programmed range choice. The turbidity meter is delivered with measurement range 1 (0...100 % = 4...20 mA). Other ranges can be selected by applying 24V DC to the inputs identified below.

Range 2 E1=24 V DC (18...36 V DC) can be chosen by means of inputting the rated signal +24 V DC (18...36 V DC) at the input on pin 2. Please take note of the table below. · If this input is not connected, measurement range 1 always will be active!

E1*	Measurement Range
0	1 (factory setting: 0-100 %)
1	2 (factory setting: 0-10 %)

*0 = 0 V DC / 1 = 24 V DC

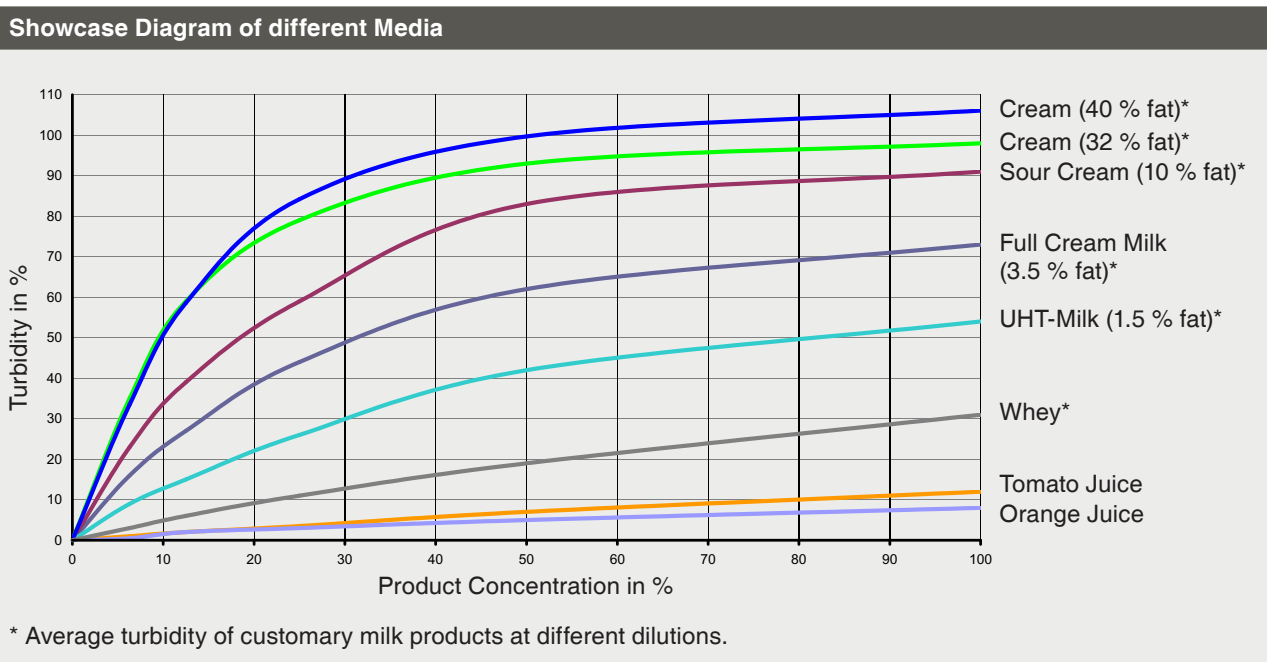
*0 = 0 V DC / 1 = 24 V DC (18...36 V DC) The digital inputs E1 are DC decoupled to the power supply.
Reference ground: pin39

Section 4 - Commissioning

Following mounting and electrical connections the device can now be turned on for use. With an empty measurement pipe the signal will not be expected to read "0". This reading is not a concern as the optics have been designed for the measurement of liquids not gasses. Once filled with clear liquid such as distilled water the measured value should be .4 - .7% depending on the purity of the water used. The ITM-51 is factory calibrated and ready to use once installed. If a check of performance is desired it is recommended a check with distilled water be performed.

Section 5 - Operation

Once commissioned there is no further need to interact with the ITM other than reading the display to view the turbidity measurement as the measurement is continuous and automatic. The response of the ITM to various liquids is dependent on the particle content of the liquid. Below is a graph demonstrating the measurement of the ITM when used with food products and the impact of diluting with water has on the measurement.



Section 6 - Parameterization

6.1 - Settings using the MPI-200 programming adapter

The MPI-200 programming adapter is connected to the ITM-51 turbidity meter via the external MPI-200-F adapter piece. It must be ensured that the ITM-51 turbidity meter is permanently connected to the supply voltage while the parameters are being set.



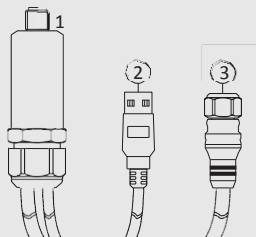
Connection plug for the MPI-200-F adapter as an intermediate plug between the ITM-51 electronics and the MPI-200 connection 3 (see the next figure).

Connection of the MPI-200 programming

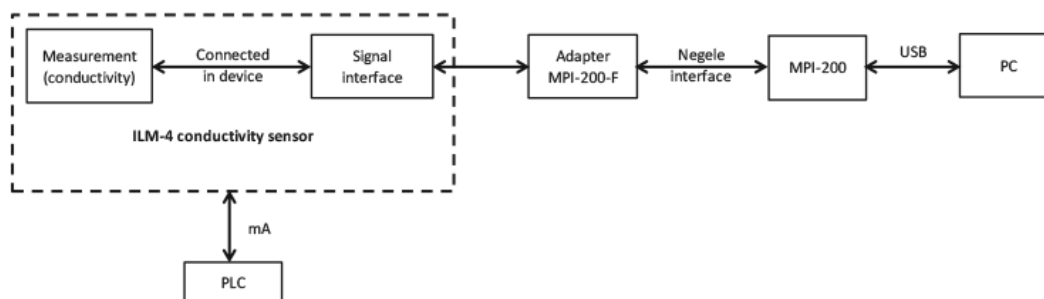
1: Connection for M12 connector

2: USB port for connecting to a PC

3: Connection cable to adapter for ILM-4



Signal flow during programming

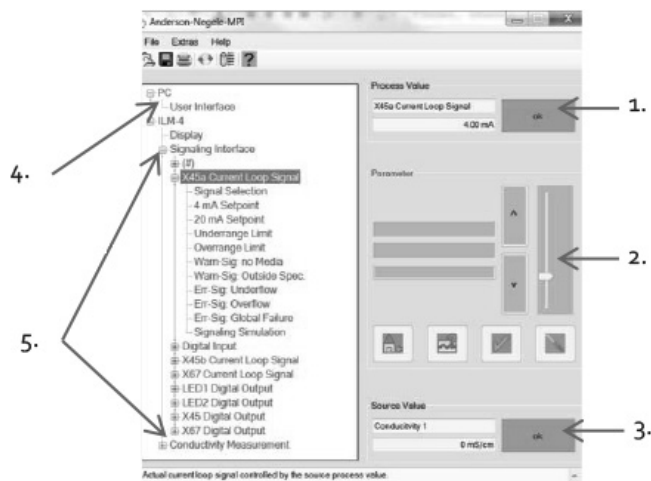


PAGE 12

After the sensor is connected to the PC and the user software is opened, the following window appears:

1. Information on the current process value
2. Buttons for changing the parameter setting
3. Information on the current source value
4. Adjustable PC parameters
5. Adjustable sensor parameters

Clicking on the + in the menu opens a submenu in which parameters can be adjusted.



Note:

For further settings, please see also the description in the MPI-200 product information.

To set or change parameters directly in the sensor (see section 6.2 **“Settings using the User Interface”**), you need the ID codes contained in the table below. This table only lists the most important ID codes.

Further ID codes can be found in the user software. To view these, right-click on “Info” by the parameter name. An info box appears with the respective ID (see graphic below):



Because the search number must have 6 digits, an additional digit is always added in front of the five-digit ID (30034 in the graphic above). This digit depends on the node as follows:

- 4 for changes to the display
- 3 for changes to the signal interface
- 0 for changes to the conductivity measurement

Because the signal selection is located in the single interface node, the ID code for the “Signal selection” example above is: 330034.

A list of all ID codes can be printed out via the PC user interface. To do so, click on File — Parameter Data — Print to open the corresponding window and print out the complete list of ID codes.

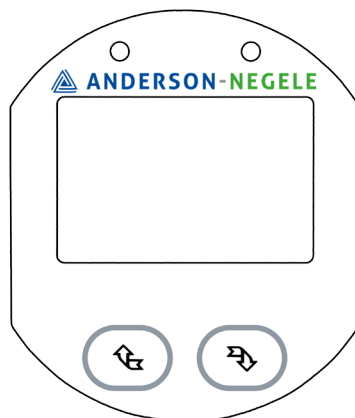
List of important ID codes:

Parameter/Parameter Name	Access/Setup Mode	Search Number (ID Number)	Value Name
Sensor			
Unit Turb1	Setup	014021	Turbidity1
Damping 1	Setup	014027	Turbidity1
Range Tb.1	Setup	014029	Turbidity1
Unit Turb1	Setup	014022	Turbidity2
Damping 1	Setup	014028	Turbidity2
Range Tb.1	Setup	014030	Turbidity2
X-Pnt 01	Setup	013151	Tu.%Solids
Y-Pnt 01	Setup	013171	Tu.%Solids
Thru	Setup	Thru	Tu.%Solids
X-Pnt 08	Setup	013158	Tu.%Solids
Y-Pnt 08	Setup	013178	Tu.%Solids
Current Loop Signal 1			
Signal Selection	Setup	330031	X45a I-Out
Underrange Limit	Setup	330141	X45a I-Out
Overrange Limit	Setup	330211	X45a I-Out
no Media=	Setup	330121	X45a I-Out
Out Spec.=	Setup	330221	X45a I-Out
Underflow=	Setup	330151	X45a I-Out
Overflow=	Setup	330161	X45a I-Out
Failure=	Setup	330131	X45a I-Out
Simulation	Setup	330201	X45a I-Out
Digital Input			
Direction	Setup	330821	Digital-In
Simul. Inp	Setup	330831	Digital-In

Parameter/Parameter Name	Access/Setup Mode	Search Number (ID Number)	Value Name
Current Loop Signal 2			
Signal Selection	Setup	330032	X45b I-Out
Underrange Limit	Setup	330142	X45b I-Out
Overrange Limit	Setup	330212	X45b I-Out
no Media=	Setup	330122	X45b I-Out
Out Spec.=	Setup	330222	X45b I-Out
Underflow=	Setup	330152	X45b I-Out
Overflow=	Setup	330162	X45b I-Out
Failure=	Setup	330132	X45b I-Out
Simulation	Setup	330202	X45b I-Out
Digital Output			
Signal Selection	Setup	330037	X67 D-Out
Function	Setup	331114	X67 D-Out
Direction	Setup	331124	X67 D-Out
Inp. Method	Setup	331114	X67 D-Out
Switch Pt.	Setup	331144	X67 D-Out
Hysteresis	Setup	331254	X67 D-Out
ON Delay	Setup	331174	X67 D-Out
OFF Delay	Setup	331114	X67 D-Out
No Media=	Setup	331194	X67 D-Out
Out Spec.=	Setup	331204	X67 D-Out
Underflow=	Setup	331214	X67 D-Out
Overflow=	Setup	331224	X67 D-Out
Failure=	Setup	331234	X67 D-Out
Simulation	Setup	331244	X67 D-Out
Display			
Language	Setup	451010	Set Display
Contrast	Setup	451020	Set Display
Scrs delay	Setup	451050	Set Display
Password	Setup	450103	Set Display

6.2 - Settings using the User Interface

Navigation of the display is done using the two Buttons below the screen.
The buttons have different operation depending on whether they are pressed quickly or held longer (>1 sec).
Their function is described below:



Short- Return to previous node or parameter



Long-Leave edit without saving or return to previous level



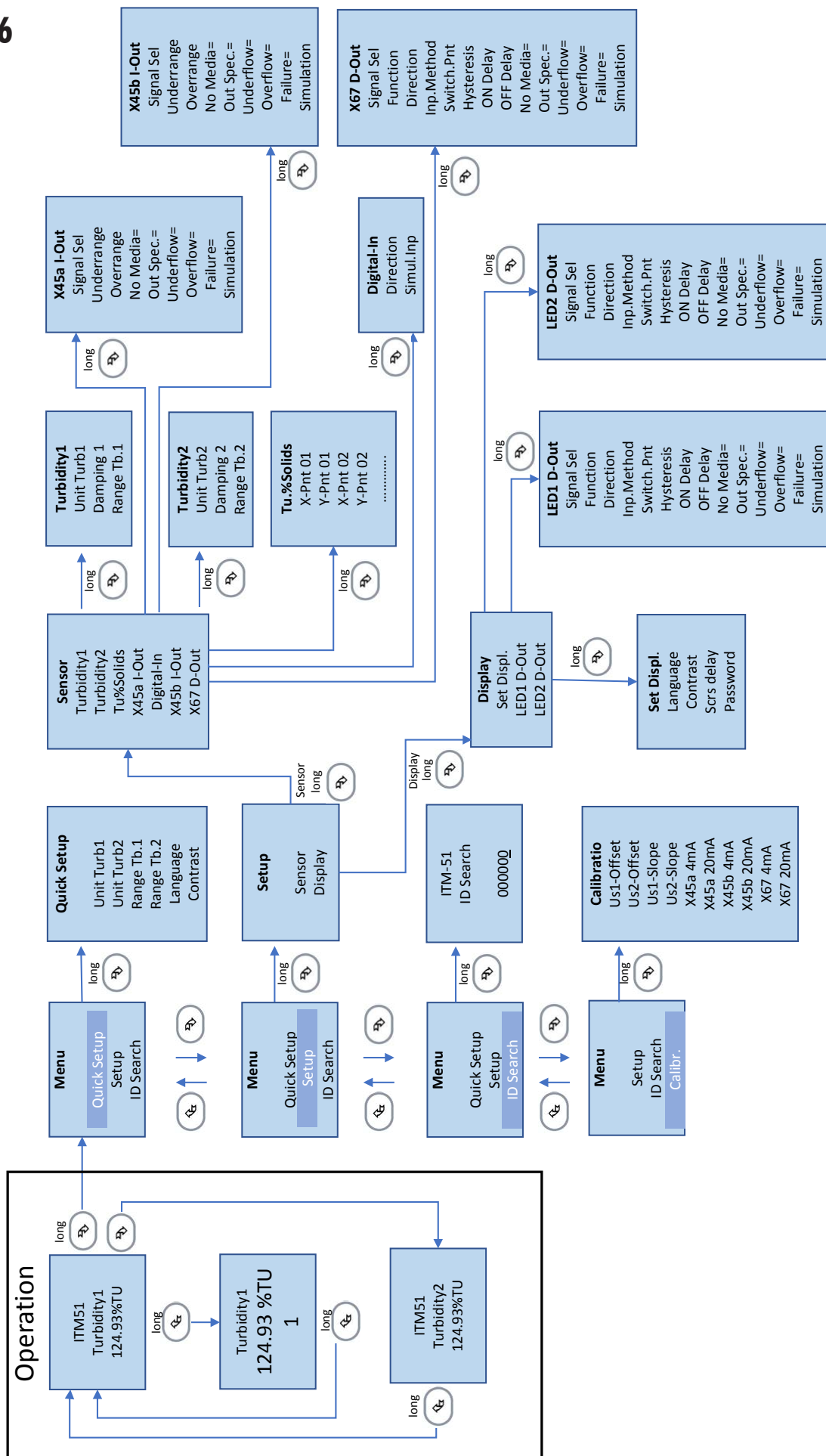
Short-Advance to next node or parameter



Long-Edit a node or parameter



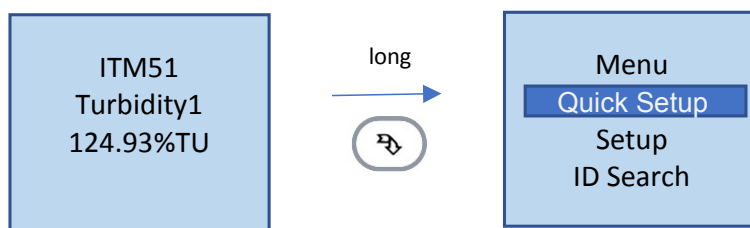
Long-Return to operation screen



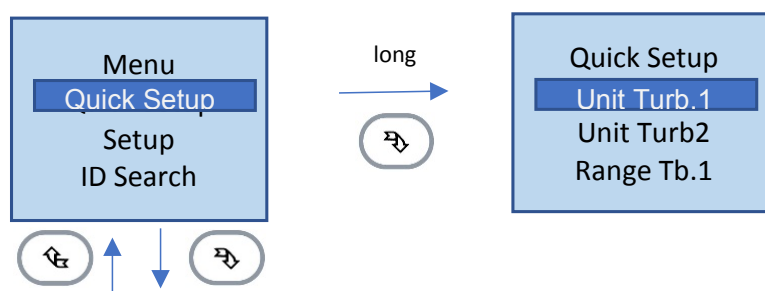
6.2.1 - Setting the units of Turbidity

The ITM-51 will come from the factory set to %TU units. If you are familiar with the ITM-3 these units are the same and the ITM-51 will perform the same when configured with these units. If it is desired to change the units of measure to NTU, EBC, or % solids then the following steps should be followed:

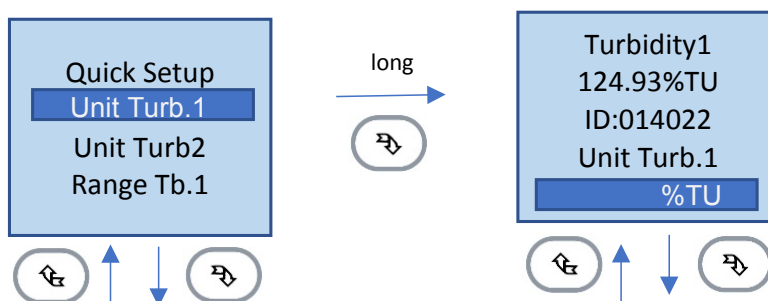
From the display screen press and hold the right button until the display changes to the Menu Screen.



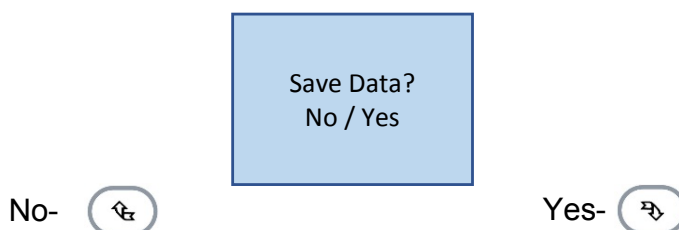
Quick Setup should be highlighted and you will now press and hold the right button again to change to the Quick Setup screen is displayed. If Quick Setup is not highlighted, short presses of the left button will scroll upward to the desired choice.



Unit Turb.1 should be highlighted. If yes, press and hold the right button once more to change to the Turbidity1 screen. If Turb.1 is not highlighted, short presses of the left button will scroll upward to the desired choice.

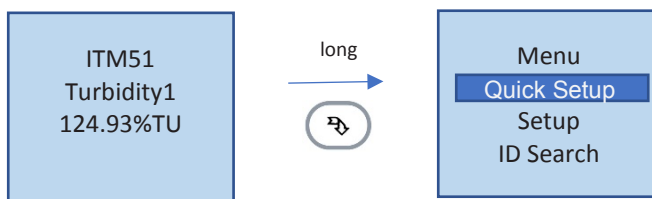


On the bottom of this screen the units of measure should be displayed (%TU). To change the units again press and hold the right button until the bottom line is highlighted. You can now scroll thru the units using short presses of the right or left buttons. Once the units you desire is shown press and hold the right button until you are prompted to save the choice. Press the right button to save your choice or the left button to reject the choice and return to the units selection screen. If you saved the choice the display will return to the operation screen. (Note that if you select % solids your will need to go into setup and program data points to establish the relationship between solids and NTU for the unit to properly measure)

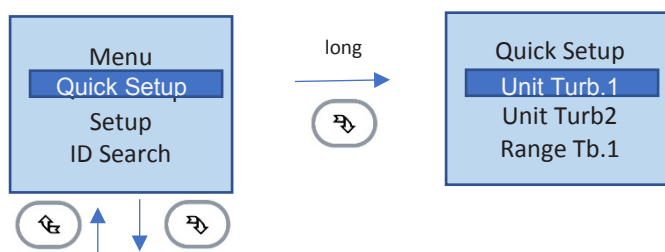


6.2.2 - Setting the Range of the Analog Output

The ITM-51 will come from the factory ranged to 100%TU units for its primary 20mA point. If you are familiar with the ITM-3, this would be set to the same value and the ITM-51 will perform the same when configured with this range. If it is desired to change the range based on products that will measure higher than 100%TU (high solids like yogurt or ice cream mix) then the following steps should be followed:



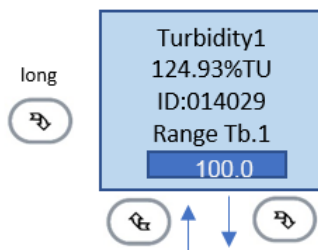
From the operational display screen press and hold the right button until the display changes to the Menu Screen.



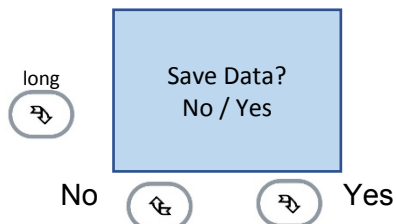
Quick Setup should be highlighted and you will now press and hold the right button again to change to the Quick Setup screen is displayed. If Quick Setup is not highlighted, short presses of the left button will scroll upward to the desired choice.



Unit Turb.1 should be highlighted. If yes, short press the right button to scroll to highlight Range TB.1. Hold the right button once more to change to the Range Tb 1 screen. If Unit Turb.1 is not highlighted, short presses of the left button will scroll upward to the desired choice.



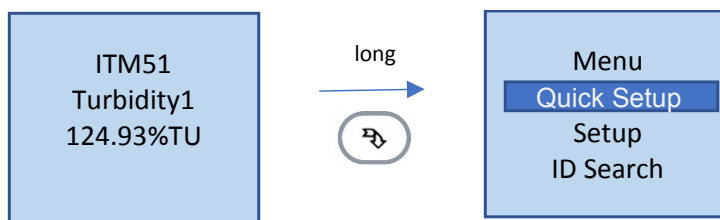
On the bottom of this screen the range of turbidity should be displayed. To change the value again press and hold the right button until the bottom line is highlighted. You can now scroll thru the value using short presses of the right or left buttons. For each digit that you wish to change, press and hold the right button until that digit is highlighted. Now use the left or right buttons in short presses to increment to the desired value. When done entering the value, long press the right button until the digit is no longer highlighted. Using short presses of the left or right buttons select the next digit to modify and change as needed. Continue this until the desired value is displayed. When done entering the complete value, short press the right button until the entire selection is highlighted.



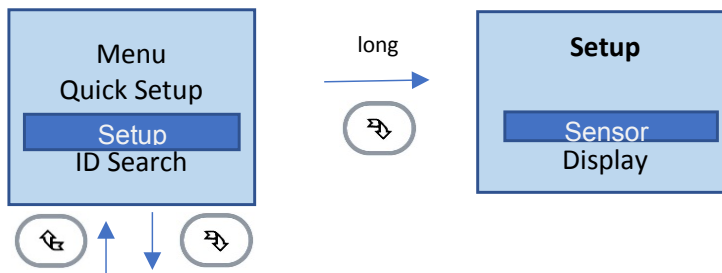
Once the units you desire are shown, press and hold the right button until you are prompted to save the choice. Press the right button to save your choice or the left button to reject the choice. Responding No will return to the units selection screen. If you saved the choice the display will return to the operation screen. (Note that if you select % solids your will need to go into setup and program data points to establish the relationship between solids and NTU for the unit to properly measure)

6.2.3 - Setting the Dampening of the Analog Output

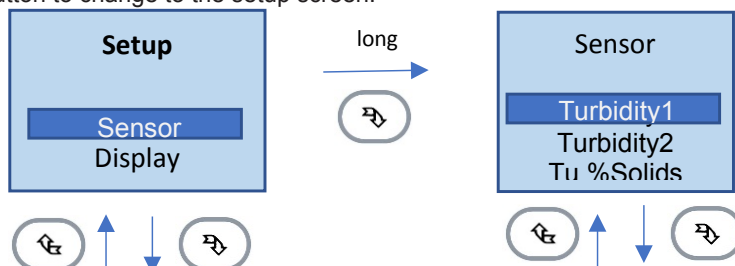
The ITM-51 will come from the factory set to 1.5 seconds dampening for the primary 20mA output. In most applications this setting will be appropriate for phase transition applications where the fastest response is required. If the application involves monitoring turbidity and process noise creates an instable output, it is possible to set the dampening value to a higher value. To do this the following steps should be followed:



From the operational display screen press and hold the right button until the display changes to the Menu Screen.

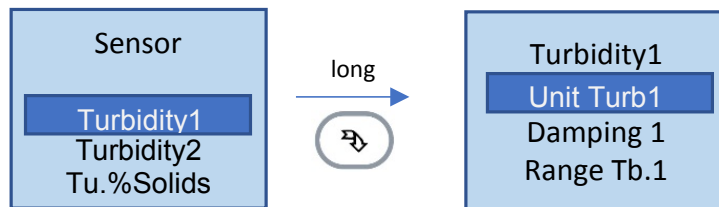


Quick Setup should be highlighted and you will now short press the right button again to highlight Setup. Once highlighted, press and hold the right button to change to the setup screen.

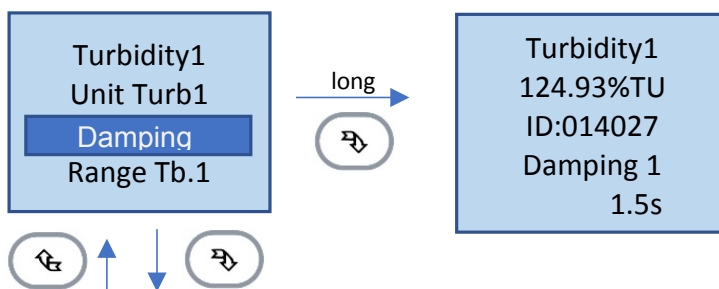


Sensor should be highlighted. If Sensor is not highlighted, short press of the left button will scroll upward to Sensor. Once selected, hold the right button once more to change to the Sensor screen

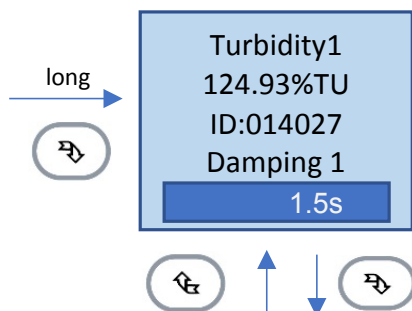
PAGE 20



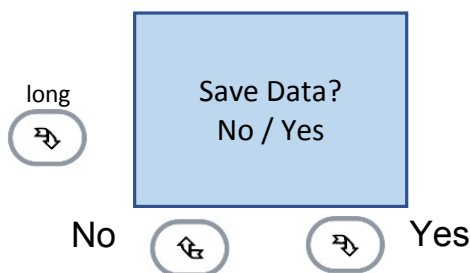
From the Sensor screen, press and hold the right button to change to the Turbidity1 screen.



Short press the right button to highlight Damping. Once highlighted, press and hold the right button to change the screen to the Damping value screen.



Press and hold the right button to highlight the damping value. To change, use short presses of the left and/or right buttons to scroll through the available settings of (1.5,3,5,10,and 20 seconds)



Once the desired setting is selected, press and hold the right button until you are prompted to save the choice. Press the right button to save your choice or the left button to reject the choice. Responding No will return to the Damping value screen. If you saved the choice the display will return to the operation screen.

Section 7 - Troubleshooting

Symptom	Diagnosis	Action
Display does not light up	-Unit is miss wired -No power to meter	-Correct wiring -Correct power issue
Display lights no analog output	Analog output has failed	Return to factory for service
Switched output does not operate	-Set point is incorrectly set -Output has been damaged by over current	-Adjust set point to correct value -Correct electrical problem and power cycle meter
mA output stays at >21mA but display indicates measurement	Range selection is too low	Reconfigure range for a higher value
mA output stays at >21mA and display indicates greater than 200%	Issue with measuring electronics	Contact factory
Reading on display and output are higher when flowing than when flow is stopped	Air/gasses are being introduced into the process liquid	Find and correct source for air/gas entrainment

Caution: Attempting to disconnect or change wiring to this sensor during process operation can cause loss of signal to the control system!

Section 8 - Maintenance and Cleaning

The ITM requires no regular maintenance other than the periodic changing of process connection gaskets. This should be done annually or at the same intervals as your plant gasket maintenance. The product contact and exterior of the ITM is designed to be cleaned under the same conditions as required in food and pharma processing facilities including CIP cleaning methods. High pressure hoses, abrasive brushes or pads and harsh detergents should not be used to clean the ITMs product contact and external surfaces.

Section 9 - Service and Calibration

9.1 - Service



Warning! Do not remove this sensor from the process while it is operating. Removal while the process is operating can contaminate the process and could cause human injury.

Caution: Improper replacement of components during service can result in process leakage, reduced pressure rating, system clean ability issues, incorrect output signal, or error code(s).

There are no serviceable electronic or optical components in the ITM. All required repairs require returning the device to the factory.

9.2 - Calibration

Although a full calibration of the ITM requires the device to be returned to the factory it is possible to check and correct the ITMs performance against known liquids or a factory calibration sample. When new, it is good practice to document the ITMs measurement of common products used with the device. This information can be used as a reference to check the ITM at future date. If a discrepancy is found, contact the factory for help to resolve.

Section 10 - Spare Parts

ACCESSORIES

Cable - 5-Conductor

w/25' cable	42117H0025
w/50' cable	42117H0050
w/100' cable	42117H0100

Field Wireable Connector

Straight	42119B0000
90°	42119A0000

Programming Adapter

MPI-200

ITM-51R REQUIRED INTERCONNECT CABLE

PVC-cable, M12 connectors, 8 pin IP69K

5 meter	M12-PVC/8-5m
10 meter	M12-PVC/8-10m
25 meter	M12-PVC/8-25m

Custom M12-PVC/8-XXm

Section 11 - Product Matrix

11.1 - ITM-51 Matrix

I T M - 5 1 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

PROCESS CONNECTION

SOL	CLEANadapt G1/2", 15 mm sensor tip
SO1	CLEANadapt G1/2", frontflush
TC1	Tri-Clamp 1½"
TC2	Tri-Clamp 2"
T25	Tri-Clamp 2½"
TC3	Tri-Clamp 3"
TL1	Tri-Clamp 1½", long
TL2	Tri-Clamp 2", long
TL5	Tri-Clamp 2½", long
TL3	Tri-Clamp 3", long
V25	Varivent type F, DN25
V40	Varivent type N, DN40/50

ENCLOSURE ORIENTATION

H	Horizontal
V	Vertical

OUTPUT

A42	1x 4-20mA turbidity only, prepared for display
A52	1x 4-20mA turbidity, 1x switching out, no external range switch, prepared for disp
A53	1x 4-20mA turbidity, 1x switching out, external range switch, prepared for disp

ELECTRICAL CONNECTION

P	Cable gland M16x1,5
D	2 x cable gland M16x1,5
M	1x M12 connector, 4-pin for output A42, 5-pin for output A5x
N	2 x M12 plug standard
A	2x M12 plug, 4 pin power/output, 5 pin output/input

INTERFACE/DISPLAY

X	Without interface
S	Simple User Interface with smal display
L	Large User Interface with display

ENCLOSURE

X	Plastic cap without sight glass
P	Plastic cap with sight glass
M	Stainless steel cap without sight glass
W	Stainless steel cap with sight glass

PARAMETER CONFIGURATION

X	Standard
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11.2 - ITM-51R Matrix

Matrix for Sensor and Transmitter only! Separate interconnect cable is required, see below for part numbers.

ITM-5R

PROCESS CONNECTION

SOLCLEANadapt G1/2", 15 mm sensor tip

SO1CLEANadapt G1/2", frontflush

TC1Tri-Clamp 1½"

TC2Tri-Clamp 2"

T25Tri-Clamp 2½"

TC3Tri-Clamp 3"

TL1Tri-Clamp 1½", long

TL2Tri-Clamp 2", long

TL5Tri-Clamp 2½", long

TL3Tri-Clamp 3", long

V25Varivent type F, DN25

V40Varivent type N, DN40/50

OUTPUT

A421x 4-20mA turbidity only, prepared for display

A521x 4-20mA turbidity, 1x switching out, no external range switch, prepared for disp

A531x 4-20mA turbidity, 1x switching out, external range switch, prepared for disp

ELECTRICAL CONNECTION

P Cable gland M16x1,5

D 2 x cable gland M16x1,5

M 1x M12 connector, 4-pin for output A42, 5-pin for output A5x

N 2 x M12 plug standard

A 2x M12 plug, 4 pin power/output, 5 pin output/input

INTERFACE/DISPLAY

X Without interface

L Large User Interface with display

ENCLOSURE

X Plastic cap without sight glass

P Plastic cap with sight glass

M Stainless steel cap without sight glass

W Stainless steel cap with sight glass

PARAMETER CONFIGURATION

X Standard

Warranty and Return Statement

These products are sold by The Anderson Instrument Company (Anderson) under the warranties set forth in the following paragraphs. Such warranties are extended only with respect to a purchase of these products, as new merchandise, directly from Anderson or from an Anderson distributor, representative or reseller, and are extended only to the first buyer thereof who purchases them other than for the purpose of resale.

Warranty

These products are warranted to be free from functional defects in materials and workmanship at the time the products leave the Anderson factory and to conform at that time to the specifications set forth in the relevant Anderson instruction manual or manuals, sheet or sheets, for such products for a period of one year.

THERE ARE NO EXPRESSED OR IMPLIED WARRANTIES WHICH EXTEND BEYOND THE WARRANTIES HEREIN AND ABOVE SET FORTH. ANDERSON MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE PRODUCTS.

Limitations

Anderson shall not be liable for any incidental damages, consequential damages, special damages, or any other damages, costs or expenses excepting only the cost or expense of repair or replacement as described above.

Products must be installed and maintained in accordance with Anderson instructions. Users are responsible for the suitability of the products to their application. There is no warranty against damage resulting from corrosion, misapplication, improper specifications or other operating condition beyond our control. Claims against carriers for damage in transit must be filed by the buyer.

This warranty is void if the purchaser uses non-factory approved replacement parts and supplies or if the purchaser attempts to repair the product themselves or through a third party without Anderson authorization.

Returns

Anderson's sole and exclusive obligation and buyer's sole and exclusive remedy under the above warranty is limited to repairing or replacing (at Anderson's option), free of charge, the products which are reported in writing to Anderson at its main office indicated below.

Anderson is to be advised of return requests during normal business hours and such returns are to include a statement of the observed deficiency. The buyer shall pre-pay shipping charges for products returned and Anderson or its representative shall pay for the return of the products to the buyer.

Approved returns should be sent to:

ANDERSON INSTRUMENT COMPANY INC.
156 AURIESVILLE ROAD
FULTONVILLE, NY 12072 USA

ATT: REPAIR DEPARTMENT



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