SLM1000 SERIES
July 2007

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Chapter 1  Product Specification

Product Composition

SLM800S : SLM1000(CONTROLLER) + XDS800(SENSOR)
SLM1200S : SLM1000(CONTROLLER) + XDS1200(SENSOR)
SLM1500S : SLM1000(CONTROLLER) + XDS1500(SENSOR)

Physical
Dimensions Controller 240 (width). x 185 (height) mm = SLM1000(Controller)
Sensor 67 (dia) x160 (height) mm = XDS800
88 (dia) x 100 (height) mm = XDS1200
101 (dia) x 120 (height) mm = XDS1500
Mounting 3/4"NPT(XDS800), 1"NPT(XDS1200, XDS1500)
Weight Nominal 3.0 kg
Sensor material PP(XDS800), PVC(XDS1200, XDS1500), STS(XDS800-Option)

Environmental
IP Rating (electronics housing) IP65
Max. & Min. temperature (electronics) -20 ºC to +70 ºC

Performance
Accuracy 0.25% of the measured range
Resolution 1mm
Max. range Liquids 8m/12m/15m
Min. range 0.35meters(XDS800) / 0.50 meters (XDS1200/XDS1500)
Beam Angle 10° at -3dB
Damping Rate Adjustable from 0.1m/min to 100m/min
Temperature Compensation Fully compensated via integral temperature sensor over entire operational span
Explosion Proof EEX d II T6

Outputs
Analogue output 4-20mA into Max 600Ω (user adjustable) Fault condition Alarm 3.8mA or 21mA user selectable.
Display 2 Line 40 Characters LCD

Programming
On-board programming via 4 tactile push button keys

Supply
Power supply AC 90 ~ 260V, DC 24V
Chapter 2  Installation

Power Supply Requirements

The SLM1000 Series operate from an AC supply of 90 –260V or DC 12/24V.

All electronic products are susceptible to electrostatic shock, so follow proper grounding procedures during installation.

The construction of the SLM1000 Series can be mounted easily using the thread (3/4” NPT, 1”NPT).

When choosing a location to mount the XDS800/1200/1500(Sensor), bear in mind the following:

- For easy access to the LCD display and programming buttons mount it where it is easily accessible.
- The ultrasonic signal path should be free of falling material and obstructions such as pipes, beams etc.
- The XDS800/1200/1500(Sensor) should be mounted at least 35/50cm above the maximum level of the material and be perpendicular to the surface.
- The mounting surface should be vibration-free.
- The ambient temperature of the sensor is between -20ºC and 70ºC.
- There should be no high voltage cables or electrical inverters close by.
- Do not use any metal substances when installing

(Please use the PVC nut & flange supplied as option)

Dimensions

**XDS800/1200/1500**
Terminal Connection

25 terminals are aligned inside the terminal box.

Input & Output Terminals
### Function

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Function</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>① Sensor +</td>
<td>Connect to positive wire (red) of ultrasonic sensor</td>
<td></td>
</tr>
<tr>
<td>② Sensor -</td>
<td>Connect to shield wire (blue) of ultrasonic sensor</td>
<td></td>
</tr>
<tr>
<td>③</td>
<td>This terminal is used only at factory</td>
<td></td>
</tr>
<tr>
<td>④ mA+</td>
<td>4~20mA current output</td>
<td>Maximum: 600Ω</td>
</tr>
<tr>
<td>⑤ mA-</td>
<td>Current output return</td>
<td></td>
</tr>
<tr>
<td>⑥ TX</td>
<td>RS232C interface in use, connect to reception part</td>
<td>OPTION</td>
</tr>
<tr>
<td>⑦ RX</td>
<td>RS485 interface in use, connect to transmission part</td>
<td>OPTION</td>
</tr>
<tr>
<td>⑧ GND</td>
<td>GROUND, RX, TX</td>
<td></td>
</tr>
<tr>
<td>⑨ LL_NO</td>
<td>Lower limit relay point, OFF with LL_COM together in operation</td>
<td></td>
</tr>
<tr>
<td>⑩ LL_COM</td>
<td>Lower limit relay point, OFF with LL_NO together in operation</td>
<td></td>
</tr>
<tr>
<td>⑪ LL_NC</td>
<td>Lower limit relay point, OFF with LL_COM together out of operation</td>
<td></td>
</tr>
<tr>
<td>⑫ L_NO</td>
<td>Lower Alarm relay point, OFF with L_COM together in operation</td>
<td></td>
</tr>
<tr>
<td>⑬ L_COM</td>
<td>Lower Alarm relay point, OFF with L_NO together in operation</td>
<td></td>
</tr>
<tr>
<td>⑭ L_NC</td>
<td>Lower Alarm relay point, OFF with L_COM together out of operation</td>
<td></td>
</tr>
<tr>
<td>⑮ H_NO</td>
<td>Upper Alarm relay point, OFF with H_COM together in operation</td>
<td></td>
</tr>
<tr>
<td>⑯ H_COM</td>
<td>Upper Alarm relay point, OFF with H_NO together in operation</td>
<td></td>
</tr>
<tr>
<td>⑰ H_NC</td>
<td>Upper Alarm relay point, OFF with H_COM together out of operation</td>
<td></td>
</tr>
<tr>
<td>⑱ HH_NO</td>
<td>Upper limit relay point, OFF with HH_COM together in operation</td>
<td></td>
</tr>
<tr>
<td>⑲ HH_COM</td>
<td>Upper limit relay point, OFF with HH_NO together in operation</td>
<td></td>
</tr>
<tr>
<td>⑳ HH_NC</td>
<td>Upper limit relay point, OFF with HH_COM together out of operation</td>
<td></td>
</tr>
<tr>
<td>㉑ ER_NO</td>
<td>Error relay point, OFF with ER_COM together in operation</td>
<td></td>
</tr>
<tr>
<td>㉒ ER_COM</td>
<td>Error relay point, OFF with ER_NO together in operation</td>
<td></td>
</tr>
<tr>
<td>㉓ ER_NC</td>
<td>Error relay point, OFF with ER_COM together out of operation</td>
<td></td>
</tr>
<tr>
<td>L</td>
<td>Connect to line of AC power</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>Connect to neutral of AC power</td>
<td></td>
</tr>
</tbody>
</table>

### Quantity of cables gland provided and the cable thickness

<table>
<thead>
<tr>
<th>Model</th>
<th>Quantity</th>
<th>Thickness(ømm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG9</td>
<td>1</td>
<td>4~8</td>
</tr>
<tr>
<td>PG11</td>
<td>4</td>
<td>5~10</td>
</tr>
<tr>
<td>PG13.5</td>
<td>1</td>
<td>6~12</td>
</tr>
</tbody>
</table>
Outdoor and Open Vessel Installation

The XDS800/1200/1500 can be simply mounted on a bracket, suitable for the application and secured using the thread located at the top of the transducer (3/4"NPT, 1" NPT).

Care should be taken to ensure that the XDS800/1200/1500 are not installed in direct sunlight, in order to avoid errors in the measurement of ambient temperature.

Attention should also be taken, when mounting the unit, to ensure that strong windy conditions are avoided, wherever possible, to prevent abnormal operation.

Closed Vessel Installation

The XDS800/1200/1500 can be simply screwed into a flange and secured using the thread located at the top of the transducer (3/4"NPT, 1"NPT).

Where possible use a flange made of a synthetic material such as PVC, to avoid vibration. Place a rubber gasket between the flange and the connection to the vessel to avoid vibration.

Stand Pipe Installation

When mounting the XDS800/1200/1500 to a standpipe care should be taken to ensure that the standpipe is of sufficient dia with reference to its length, see the table below for details:

When using a standpipe, fixed to the top of a vessel, ensure that the open end of the standpipe is clear of any obstructions such as weld seams, gaskets etc. in order to avoid unwanted signal returns.

If using standpipes, which extend into the vessel, beyond the blanking distance, but not as far as the empty level, then the open end of the standpipe should be cut to an angle of 45°.

<table>
<thead>
<tr>
<th>D [mm]</th>
<th>XDS-800</th>
<th>XDS-1200</th>
<th>XDS-1500</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>300</td>
<td>305</td>
<td>300</td>
</tr>
<tr>
<td>100</td>
<td>380</td>
<td>380</td>
<td>380</td>
</tr>
<tr>
<td>150</td>
<td>570</td>
<td>570</td>
<td>570</td>
</tr>
<tr>
<td>200</td>
<td>760</td>
<td>760</td>
<td>760</td>
</tr>
</tbody>
</table>
Chapter 3  How To Use Controller

Operating the Controller

Display Window

SLM1000 is designed to display various data at the same time by adopting 40 letter LCD. The display below shows an example of a normal operation of SLM1200S.

Conditions:  
The distance between the sensor and bottom of the tank: 12m  
Current liquid level: 10m

| L : 10.00 m | D : 2.00 m | D T  
|-------------|------------|------
| M : 86.9%   | TEMP : +24.5 °C |

1)  L : 10.00 m   :  shows the current liquid level 10m
2)  D : 2.00 m   :  shows the distance between the sensor and liquid level.
3)  M : 86.9%   :  Percentage of the level
4)  TEMP     :  Temperature around the sensor.
5)  D   :  Indication of normal operation, shows returning echoes are well detected.
6)  T   :  Indication of normal operation, shows tracking of returning echoes is okay.
7)  S   :  No appearance under normal operation, but appears during abnormal operation such as abrupt level change. Searching for the returning echoes.

Setting Buttons

MODE  
UP
DOWN  
RUN
1) MODE Button: Used for setting data and moving to another mode.
2) UP Button: Used for increasing the value.
3) DOWN Button: Used for decreasing the value.
4) RUN Button: Used for starting measurement.

**Alarm Display**

1) HH LED Lamp: Lighted in case of upper limit operated
2) H LED Lamp: Lighted in case of upper alarm operated
3) L LED Lamp: Lighted in case of lower alarm operated
4) LL LED Lamp: Lighted in case of lower limit operated
Chapter 4  Menu Guide

Application Menu Option

1) Password

Password is needed to enter the operation mode. After setting the password using UP/DOWN button, press MODE to get into the operation mode. If the user forgets the password that he or she set, the master password is 413.

2) Measure Type

Factory Set = Level
This option sets the mode of operation when in run mode, and can be set to one of the following:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level</td>
<td>Display shows how full the vessel is with respect to the Empty (0% of Span)</td>
</tr>
<tr>
<td>Distance</td>
<td>Display shows the distance from the transducer face to the surface.</td>
</tr>
<tr>
<td>Space</td>
<td>Display shows how an empty vessel is with respect to Full (100% of Span) i.e. how much space is available in the vessel.</td>
</tr>
</tbody>
</table>

3) Bottom Distance

Factory Set = 8.00/12.00/15.00m
This option sets the maximum distance from the face of the transducer to the empty point
4) 4mA Setpoint

Factory Set = 0
This option sets the distance (or level or space, depending on the selected Measure Type at which the 4mA output will occur. By default 4mA will represent Empty(0% of Span).

5) 20mA Setpoint

Factory Set=8.00/12.00/15.00m
This option sets the distance (or level or space, depending on the selected Measure Type at which the 20mA output will occur. By default 20mA will represent Full (100% of Span).

**Important Information**

The **Span** is the maximum working distance from Empty (0%) to Full (100%), and is automatically calculated as Empty Level (Bottom Distance) minus Blanking Distance. **Except for when Measure type = Distance** in this case the Span is the same as the Empty Level.

6) Blanking Distance

Factory Set=0.35m~/0.50m~
This option is the distance from the face of the transducer that is not capable of being measured, and is pre-set to 35cm(SLM800S) or 50cm(SLM1200S/SLM1500S). It should not be set to less than this figure, but can be increased if required.
Process Menu Options

7) HH ON Point Setting

HH ON POINT SET
ON : 11.00m

This option determines the high limit "ON" point for HH relay

- Setting Range  SLM800S - 0.35~8m
                 SLM1200S - 0.5~12m
                 SLM1500S - 0.5~15m

8) HH OFF Point Setting

HH OFF POINT SET
OFF : 10.00m

This option determines the high limit "OFF" point for HH relay

- Setting Range  SLM800S - 0.35~8m
                 SLM1200S - 0.5~12m
                 SLM1500S - 0.5~15m

9) H ON Point Setting

H ON POINT SET
ON : 10.00m

This option determines the "ON" point for H switched output

- Setting Range  SLM800S - 0.35~8m
                 SLM1200S - 0.5~12m
                 SLM1500S - 0.5~15m

10) H OFF Point Setting

H OFF POINT SET
OFF : 9.00m

This option determines the "OFF" point for H switched output

- Setting Range  SLM800S - 0.35~8m
                 SLM1200S - 0.5~12m
                 SLM1500S - 0.5~15m
11) L ON Point Setting

This option determines the “ON” point for L switched output

- Setting Range
  - SLM800S - 0.35~8m
  - SLM1200S - 0.5~12m
  - SLM1500S - 0.5~15m

12) L OFF Point Setting

This option determines the “OFF” point for L switched output

- Setting Range
  - SLM800S - 0.35~8m
  - SLM1200S - 0.5~12m
  - SLM1500S - 0.5~15m

13) LL ON Point Setting

This option determines the low limit “ON” point for LL relay

- Setting Range
  - SLM800S - 0.35~8m
  - SLM1200S - 0.5~12m
  - SLM1500S - 0.5~15m

14) LL OFF Point Setting

This option determines the low limit “OFF” point for LL relay

- Setting Range
  - SLM800S - 0.35~8m
  - SLM1200S - 0.5~12m
  - SLM1500S - 0.5~15m

Important Information

The value of HH relay ON point should be higher than OFF point and this function is used for high limit.
The value of LL relay ON point should be lower than OFF point and this function is used for low limit.
H, L relay are used for pump control, draining control, high and low liquid level warning, etc. at user’s need.
15) Measuring Response

**MEASURE RESPONSE**

**RESP : 2**

This option determines the maximum rate at which the unit will respond to an increase/decrease in level.

- Setting Range
  - 1 = 0.1M/min (Response to changes to a max. 0.1m/min)
  - 2 = 1M/min (Response to changes to a max. 1m/min)
  - 3 = 10M/min (Response to changes to a max. 3m/min)
  - 4 = 100M/min ((Response to changes to a max. 100m/min)

16) Transmitting Power

**TRANSMITTING POWER**

**POW : 3**

This option is used to set the power output from the transducer to suit varying applications. By reducing the power emitted the beam angle will be effectively reduced and can be applied as detailed below;

- Setting Range
  - 1 = Minimum Power (For use on short range applications)
  - 2 = Low Power (For use on applications where obstructions such as pipes, beams, etc. are present)
  - 3 = Normal Power (For use in normal condition)
  - 4 or 5 = High Power (For use in arduous applications where conditions are dusty, steamy or turbulent)

17) Error Current

**ERROR CURRENT SET**

**SET : 3.8mA**

If the SLM800S/1200S fails to receive a valid echo return from the target, then the mA output can be used to indicate a fault condition (Lost of Echo)

- Setting Range : 3.8mA, 21mA, HOLD
18) Fail Safe Time

<table>
<thead>
<tr>
<th>FAIL SAFE TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME : 120</td>
</tr>
</tbody>
</table>

In the event of a fail-safe condition occurring (Lost of Echo) the fail safe timer determines the time before the mA output indicates a fault condition (Lost of Echo)

**Compensation Menu Options**

19) Detection Threshold Voltage

<table>
<thead>
<tr>
<th>DETECTION THRESHOLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEV : 4</td>
</tr>
</tbody>
</table>

This option determines detectable size of return echo. This is useful when the first return echo is needed in condition where small objects creating various kinds of return echoes exist. In case the set value is high, it can be stronger to the noise, but may not be able to detect small echoes. The 4 is equal to 0.3V. The table below shows the equivalent voltage to each value

<table>
<thead>
<tr>
<th>No.</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>0.3</td>
<td>0.5</td>
<td>0.7</td>
<td>0.9</td>
<td>1.1</td>
<td>1.3</td>
<td>1.5</td>
<td>1.7</td>
<td>1.9</td>
<td>2.1</td>
<td>2.3</td>
<td>2.5</td>
</tr>
</tbody>
</table>

20) Detection Method

<table>
<thead>
<tr>
<th>DETECTION METHOD</th>
</tr>
</thead>
<tbody>
<tr>
<td>METHOD : FIRST ECHO</td>
</tr>
</tbody>
</table>

This option determines detecting algorithm.
If “FIRST ECHO” is set, it will detect the first returned echo.
If “MAXIMUM ECHO” is set, it will detect the maximum echo among the returned echoes.
However, this method is used on the condition that the difference in voltage between the maximum echo and other echoes should be less than 0.5V. This method is useful where smaller objects are near the target.

21) Sound Velocity

<table>
<thead>
<tr>
<th>SOUND VELOCITY SET</th>
</tr>
</thead>
<tbody>
<tr>
<td>VELO : 331.5m/s</td>
</tr>
</tbody>
</table>

This option allows for the velocity of sound to be changed according to the atmosphere the transducer is operating in. By default the velocity is set for sound traveling in air at a temperature of 0°C.
The table below gives details of the velocity of sound in various gaseous atmospheres. In all cases the velocity indicated is that in a 100% gaseous atmosphere at 0°C. In atmospheres less than 100% it may be necessary to check the level indicated at near empty and near full and compare with the actual level, several times, then adjust the **Sound Velocity** accordingly to obtain an accurately displayed reading.

<table>
<thead>
<tr>
<th>Gas</th>
<th>Sound Velocity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorine</td>
<td>206 m/sec</td>
</tr>
<tr>
<td>Carbon Dioxide</td>
<td>259 m/sec</td>
</tr>
<tr>
<td>Argon</td>
<td>308 m/sec</td>
</tr>
<tr>
<td>Oxygen</td>
<td>316 m/sec</td>
</tr>
<tr>
<td>Air</td>
<td>331.5 m/sec</td>
</tr>
<tr>
<td>Ammonia</td>
<td>415 m/sec</td>
</tr>
<tr>
<td>Methane</td>
<td>430 m/sec</td>
</tr>
<tr>
<td>Helium</td>
<td>435 m/sec</td>
</tr>
<tr>
<td>Neon</td>
<td>965 m/sec</td>
</tr>
</tbody>
</table>

22) **Velocity Temperature Factor**

![VELOCITY TEMP FACTOR](image)

The sound velocity in air increases or decreases at fixed rate (0.6 m/°C).

This option allows the rate of change in m/°C to be set according to the present atmosphere and temperature. This option is useful where ambiguous or mixed gas exists. The newly set value should be compared with the actual level, several times, to obtain an accurately displayed reading.

- Setting Range : -2.0 m/°C ~ 2.0 m/°C

23) **Material Temperature**

![MATERIAL TEMPERATURE](image)

The SLM800S/1200S uses an internal temperature sensor, housed inside the transducer nose cone and therefore the temperature used for compensation is the temperature close to sensor. In applications where there is a large difference between the temperature near the sensor and that at the surface of the material being measured, errors in measurement may occur.

This mode allows for the present temperature at the material surface to be entered and reduces any error in measurement.

- Setting Range : 0~100.0
24) Material Temperature Weighting

This option is used in conjunction with Mode 23, Material Temperature. This option determines the effect the material temperature has on the air temperature in front of the transducer. Where the temperature of the material has no effect on the air temperature. Mode 24 should be set to 0, in which case Mode 23, Material Temperature will be ignored. However in cases where the material temperature heavily influences the temperature at the transducer Mode 24 should be set to 100 and temperature compensation will be performed accordingly.

- Setting Range : 0~100

25) Measuring Unit

This option determines system unit.

- Setting Range : METER, FEET

26) 12mA Output

SLM800S/1200S outputs 12mA regardless of measurement at this mode. This option is used with other equipments for testing.
Chapter 5  Digital Communication

The SLM1000 Series provides RS232/485 digital communication interface function as option

The kinds of data and its format are as follows;

**Output Data**

1. **Kinds of Output Data**

   1) Distance Data
      - Distance from the sensor to the surface of measuring material. Unit is mm

   2) Temperature Data
      - This is temperature data measured by built-in temperature sensor. Unit is 1°C

2. **Data Format**

   Data is edited by ASCII and the sequence as follows

   A. Baud Rate is 4800bps

   B. 1 Data Frame consists of Total 13byte

   C. Data Frame outputs per second

   D. The number located at 10000 means 10000mm digit number

   E. +/- means above/below zero in temperature. The number located at 10 means 10 degree digit number in °C/°F
# Chapter 6  Troubleshooting

This section describes some problem symptoms, with suggestions as to what to do.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>What to Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display blank, transducer not firing.</td>
<td>Check power supply</td>
</tr>
<tr>
<td>Display shows “S”, “ ERROR! LOST ECHO”</td>
<td>“S” means there is an abrupt liquid change or an obstacle in the beam path is detected. Check the obstacle and get rid of it.</td>
</tr>
<tr>
<td>Display shows “ BOTTOM SET ERROR”.</td>
<td>Measuring range is bigger than setting data of maximum range. Go to 03, and set the bigger bottom distance</td>
</tr>
</tbody>
</table>
## SLM1000 Series

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Factory Set</th>
<th>Entered Value</th>
<th>Value Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Password Identity</td>
<td>412</td>
<td>0 ~ 1000</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>Measure Type</td>
<td>Level</td>
<td>Level/Distance/Space</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>Bottom Distance</td>
<td>8.00/12.00/15.00m</td>
<td>0 ~ 8.00/12.00/15.00m</td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>4mA SetPoint</td>
<td>0.00m</td>
<td>0 ~ 10.00m</td>
<td></td>
</tr>
<tr>
<td>05</td>
<td>20mA SetPoint</td>
<td>8.00/12.00/15.00m</td>
<td>0 ~ 8.00/12.00/15.00m</td>
<td></td>
</tr>
<tr>
<td>06</td>
<td>Blankling</td>
<td>0.35m/0.50m</td>
<td>0.35m~/0.50m~</td>
<td></td>
</tr>
<tr>
<td>07</td>
<td>HH On</td>
<td>11.00m</td>
<td>0 ~ 8.00/12.00/15.00m</td>
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<tr>
<td>08</td>
<td>HH Off</td>
<td>10.00m</td>
<td>0 ~ 8.00/12.00/15.00m</td>
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<td>09</td>
<td>H On</td>
<td>10.00m</td>
<td>0 ~ 8.00/12.00/15.00m</td>
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<td>10</td>
<td>H Off</td>
<td>9.00m</td>
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<tr>
<td>11</td>
<td>L On</td>
<td>2.00m</td>
<td>0 ~ 8.00/12.00/15.00m</td>
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<tr>
<td>12</td>
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<td>3.00m</td>
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<td>14</td>
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<tr>
<td>15</td>
<td>Measure Response</td>
<td>2</td>
<td>1,2,3,4</td>
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<tr>
<td>16</td>
<td>Transmit Power</td>
<td>3 (XDS800/1200)</td>
<td>1~5</td>
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</tr>
<tr>
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<td></td>
<td>4 (XDS1500)</td>
<td></td>
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<tr>
<td>17</td>
<td>Error Current Set</td>
<td>3.8mA</td>
<td>3.8mA/Hold/21mA</td>
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<tr>
<td>18</td>
<td>Fail Safe Time</td>
<td>120s</td>
<td>20~1800 seconds</td>
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<tr>
<td>19</td>
<td>Detection Threshold</td>
<td>4 (XDS800/1200)</td>
<td>4~15</td>
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<td>5 (XDS1500)</td>
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<tr>
<td>20</td>
<td>Detection Method</td>
<td>First Echo</td>
<td>First/Second Echo</td>
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<tr>
<td>21</td>
<td>Sound Velocity</td>
<td>331.5m/s</td>
<td>200~500m/s</td>
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<tr>
<td>22</td>
<td>Velocity T Factor</td>
<td>0.6m/°C</td>
<td>-2.0~+2.0m/°C</td>
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<tr>
<td>23</td>
<td>Material Temp.</td>
<td>25°C</td>
<td>0~100°C</td>
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<td>24</td>
<td>Material T weighting</td>
<td>0%</td>
<td>0~100%</td>
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<td>25</td>
<td>System Unit</td>
<td>Meter</td>
<td>Meter/Feet</td>
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<td>26</td>
<td>12mA Output</td>
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