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## WARRANTY

EESIFLO products will be replaced, repaired, put in good operating condition, or the purchase price refunded, at the option of EESIFLO, free of charges except transportation, if defective in their manufacture, and if notice of the said defect is received by EESIFLO within one year from date of delivery. The cost of such replacement, repair or refund of purchase price shall be the exclusive remedy for any breach of warranty, and EESIFLO shall not be liable to any person for consequential damages for injury or commercial loss resulting from any breach of warranty. EESIFLO makes no warranty of fitness for a particular purpose, and makes no other Warranty, express or implied, including implied warranty arising from course of dealing or usage of trade.

## INTRODUCTION

EASZ11X works on the non-contact principle of ultrasonics.

A pulse of energy emits from the transducer at the speed of sound and is detected upon its return. The transmitter can distinguish the difference between a correct echo and other ambient noise.

When the signal returns, EASZ11X measures the time period and then knowing the speed of sound, it can accurately calculate the distance from the material to the transducer. The EASZ11X can measure distance, level and open channel flow.

In distance mode the EASZ11X measures distance from the transducer. This means the 20mA will be the furthest point and the 4mA will be the closest point.

In level mode the EASZ11X measures level in a tank. This means at the furthest point or when the tank is empty, the instrument will read 4mA. At the closest point the tank will be full and the instrument will read 20mA.

The Open Channel flow meter uses a level measurement from the EASZ11X and converts the reading into a flow measurement.

A microprocessor then controls the output functions of the relays, display and the analogue output signals.

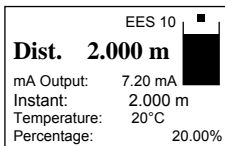
## QUICK START FOR DISTANCE

EASZ11X was designed to be user friendly with a very simple configuration program. This allows the technician to set up EASZ11X without the aid of a complicated source-code book. There are no references to any codes in EASZ11X. The set up procedure is all menu-driven with the aid of questions and multiple-choice answers.

1. Connect up the power to the instrument and the transducer connections as described on the EASZ11X board or in the EASZ11X manual under terminal connections on page 62.

PLEASE NOTE, ALL CONNECTORS ARE CAPABLE OF BEING UNPLUGGED FROM THE PCB.

2. Aim the transducer at a wall about 2 m away and check the display. It should read the following.



If the reading is above 2.000 m then move the transducer closer to the wall.

If the reading is below 2.000 m then move the transducer away from the wall.

You may now proceed and check other parameters.

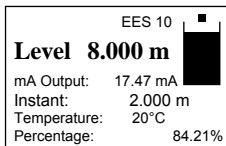
## QUICK START FOR LEVEL

1. Connect up the power to the instrument and the transducer connections as described on the EASZ11X board or in the EASZ11X manual under terminal connections on page 62.

PLEASE NOTE, ALL CONNECTORS ARE CAPABLE OF BEING UNPLUGGED FROM THE PCB.

2. Press **SCROLL**
3. Use **▲** **▼** to get to the default security Code **5159** and then press **ENTER**
4. Use **▲** **▼** to select level and then press **ENTER**
5. Press **RUN**

Aim the transducer at a wall about 2.000 m away and check the display. It should read the following.



If the Level reading is below 8.000 m then move the transducer closer to the wall.









If the Level reading is above 8.000 m then move the transducer away from the wall.

You may now proceed and check other parameters.



## QUICK START FOR FLOW

1. Connect up the power to the instrument and the transducer connections as described on the EASZ11X board or in the EASZ11X manual under terminal connections on page 62.

PLEASE NOTE, ALL CONNECTORS ARE CAPABLE OF BEING UNPLUGGED FROM THE PCB.

2. Press 
3. Use   to get to the default security Code 5159 and then press 
4. Use   to select flow and then press 
5. Press 

Aim the transducer at a wall about 1.5 m away and check the display. It should read the following.

	EES10	
Flow:	64.86 Lt/S	
T:	00001513408 Lt	
Head:	0.500 m	
mA Output:	5.03 mA	
Instant:	1.502 m	
Temperature:	20°C	
Percentage:	6.48%	

If the head reading is below 0.500 m or below 64.86 Lt/s then move the transducer closer to the wall.

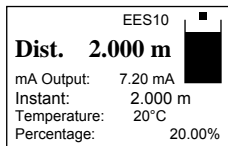
If the head reading is above 0.500 m or above 64.86 Lt/s then move the transducer away from the wall.

You may now proceed and check other parameters.

## CHANGING PARAMETERS

### Step 1

Simply press . The SECURITY CODE prompt should be displayed.



Scroll



Up



Down





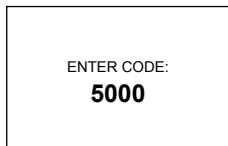
Enter



Run

### Step 2

Enter the code 5159 by pressing the   keys.



Scroll



Up



Down




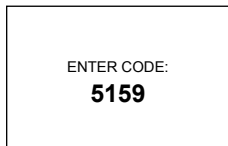
Enter



Run

### Step 3

To confirm security code press 



Scroll



Up



Down

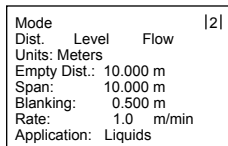


Enter

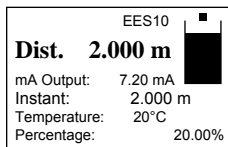


Run

If Code has been accepted, the screen will display



If Code has not been accepted, the screen will display



If the security code has been changed and forgotten then contact the nearest EESIFLO agent for override code  
To carry on with programming go to page 21.

## SPECIFICATIONS

### Transmitter

#### Enclosure

- Polycarbonate
- Rated at IP65

#### Power Supply

- 220 VAC or 110 VAC
- 24 VDC

#### Power consumption

- Transmitter 8 VA

#### Dimensions

- 180 mm x 180 mm x 60 mm

#### Weight

- 1.37 kg

#### Temperature

- -30°C to 65°C

#### Operating Frequency

- 42 kHz

#### Range

- 15 m on liquids or solids

#### Accuracy

- +/- 0.25%

#### Indication

- 64 x 128 dot graphical LCD display

#### Fail-safe Analog

- 3.6 mA, 4 mA, 20 mA, 21 mA, or Hold value

#### Configuration

- 5 touch button keys

#### Blanking distance

- Min. 0.3 m

#### Rate of change

- 0.01 to 20 m/min

#### Analog Output

- 1 x 4-20 mA max. Impedance 750 ohms, Isolated

#### Digital Output

- 3 x 8 A SPDT 220 VAC Relays

## SPECIFICATIONS

### Transducer

#### **EES 10**

**Application, non-corrosive liquids.**

Maximum range

- Liquids 15 m
- Solids 5 m

Beam angle

- 10 deg

Face material

- Polyurethane

Body material

- UPVC

Temperature range

- -20°C to +80°C

Protection

- IP68

Mounting

- 1 inch BSP

Min Blanking

- Under ideal conditions 0.3 m

#### **EES 10C**

**Application, non-corrosive liquids with Temperature Compensation.**

Maximum range

- Liquids 15 m
- Solids 5 m

Beam angle

- 10 deg

Face material

- Polyurethane

Body material

- UPVC

Temperature range

- -20°C to +80°C

Protection

- IP68

Mounting

- 1 inch BSP

Min Blanking

- Under ideal conditions 0.3 m

Temperature Compensation

- Built in temperature compensation

**EES 10F****Application,  
dusty solids.**Maximum range

- Solids 15 m

Beam angle

- 10 deg

Face material

- Polyurethane foam

Body material

- UPVC

Temperature range

- -20°C to +80°C

Protection

- IP64

Mounting

- 1 inch BSP

Min Blanking

- Under ideal conditions 0.3 m

**EES 10T****FLANGED PTFE LINED****Application, corrosive liquids.**Maximum range

- Liquids 15 m

Beam angle

- 10 deg

Face material

- PTFE

Body material

- UPVC

Temperature range

- -20°C to +80°C

Protection

- IP68

Mounting

- 3 inch or 4 inch flange,  
ANSI 150

Min Blanking

- Under ideal conditions 0.3 m

**EES 10S****FLANGED STAINLESS STEEL****Application, corrosive liquids.**Maximum range

- Liquids 15 m

Beam angle

- 10 deg

Face material

- Stainless steel

Body material

- UPVC

Temperature range

- -20°C to +80°C

Protection

- IP68

Mounting

- 3 inch or 4 inch flange,  
ANSI 150

Min Blanking

- Under ideal conditions 0.3 m

## INSTALLATION

### Transmitter

The transmitter is weather proof so it can be mounted outside. Although EASZ11X is protected to IP65 it is recommended that it be installed inside another suitable enclosure.

The LCD display should not be facing direct sunlight as this can cause the display to fail. EASZ11X should be fixed to a wall or chassis plate using the four holes provided.

Do not install EASZ11X in areas of high vibration as this may cause failure.

Do not install EASZ11X in the close vicinity of electrical cable, SCR's or variable speed drives.

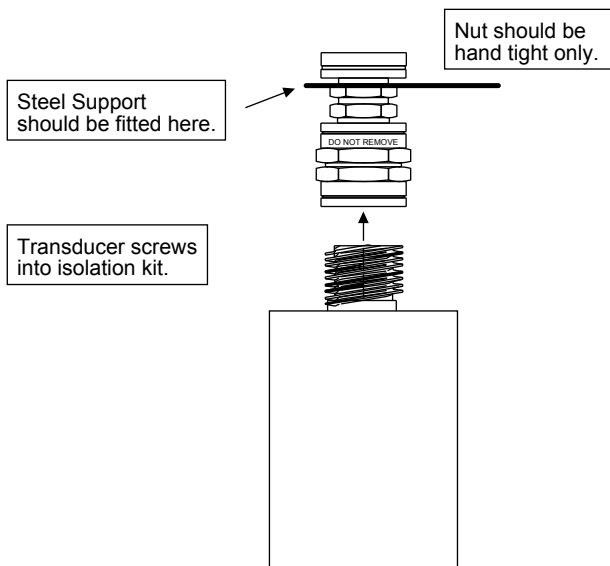
## INSTALLATION

### Transducer

The installation of the transducer is the most important section of this manual and has been divided into 7 sub sections.

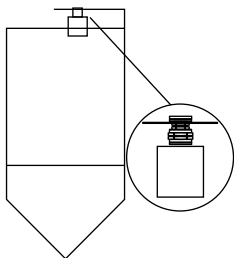
1. The transducer must be fitted at 0.500 m above the highest point of level.

2. Always use the plastic isolation kit. This kit must be fitted to a rigid support and must not be allowed to swing. Use mild steel or a suitable plastic. Do not use stainless steel as this can cause ringing and may increase the blanking distance.



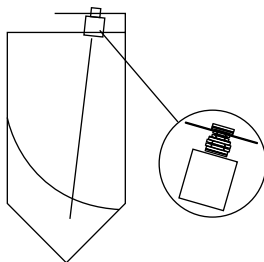
3. The transducer must be perpendicular to the material it is measuring with a clear line of sight and not above beams or filling points.

#### Liquid level measurement.



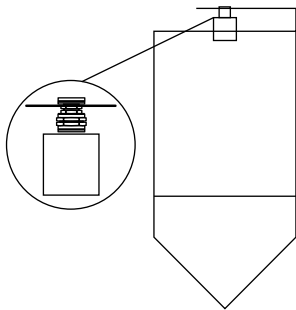
Transducer at 90 deg to surface.

#### Solid level measurement.

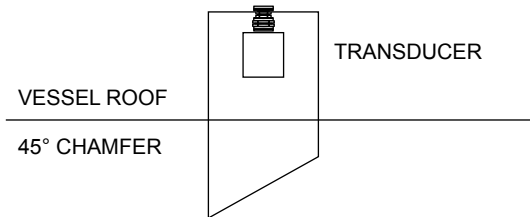


Transducer at 90 deg to surface.

4. If the transducer is in a coned vessel, it must be positioned over the middle of the cone. This ensures that the transducer receives the true echo and not one from the sides of the cone.



5. When a standpipe is being used it must be as wide as possible and preferably be made of plastic. The base **MUST** have a 45 degree chamfer to reduce the echo size from the bottom of the standpipe. No welding should be present on the inside of the pipe as this causes false echoes. Always increase the blanking 150 mm past the end of the standpipe.








6. If any large electrical equipment is installed in the vicinity, then earthed steel conduit must be used.

7. An extension of up to 100 m using RG62U cable is possible. All connections must be soldered together. It is advisable to install the transducer cable inside steel conduit, especially if large electrical spikes (interference) are present.

## KEY DESCRIPTION

EASZ11X is "user friendly" having only 5 keys and a menu driven display. The keys are listed below with their appropriate functions.

-  This is used to initially access the programming and then to run through the various menus.
-  This key is used to INCREASE the value in the various commands. This key also starts the simulation mode increasing in level. See page 54 for details.
-  This key is used to DECREASE the value in the various commands. This key also starts the simulation mode, decreasing in level. See page 54 for details.
-  When a value has been changed it is only accepted by pressing the ENTER key. The ENTER key whilst in run mode scrolls through the relay status screen and onscreen EASZScope screen. See page 38 for details.
-  When programming is complete, press RUN to return EASZ11X back to the run mode.

## SECURITY CODE

To advance to the programming mode the correct security code must be entered. The factory default code is 5159. This code can be changed in the programming mode. If you forget the security code please contact your local EESIFLO agent for the override code.

**CONFIGURATION DISTANCE / LEVEL**

<b>DISTANCE / LEVEL MODE</b>			
<b>BASIC</b>	<b>OPTIONS</b>	<b>DEFAULTS</b>	
SECURITY CODE	0-9999	5159	
MODE	DISTANCE/LEVEL/ FLOW	DISTANCE	
UNITS	METERS/FEET	METERS	
EMPTY DISTANCE	0.4-15.00 m	10 m	
SPAN	0.1-15.00 m	10 m	
BLANKING	0.3-14.90 m	0.50 m	
RATE OF CHANGE	0.01-20.0 m/min	1.00 m/min	
APPLICATION	LIQUIDS/SOLIDS	LIQUIDS	
FACTORY RESET	NO/YES	NO	
TEMPERATURE COMPENSATION	OFF/ON	OFF	
SIMULATE	NO/YES	NO	
SET PASSWORD	NO/YES	NO	
BACKLIGHT	OFF/ON (1-60MIN)/PERM	2MIN	
LOSSTIME	30-900SEC	300SEC	
FAILSAFE	3.6mA, 4.0mA, 20mA, 21mA, Hold	Hold	
ENGINEERING UNITS	NONE, aaa-zzz, AAA- ZZZ,0-9	NONE	
MAXIMUM VALUE	0-99999	10000	
DECIMAL POINT	0-3	2	
ZERO OFF SET	-50 mm TO 50 mm	0	
SETUP RELAYS	NO/YES	NO	

<b>DISTANCE / LEVEL MODE continued</b>			
<b>BASIC</b>	<b>OPTIONS</b>	<b>DEFAULTS</b>	
RELAY1 TO RELAY 3	OFF/LO/HI	OFF	
SETPOINT	SPAN	0 m	
RESET POINT	SPAN	0 m	
PUMP CYCLE	OFF/FIFO/ROTATE	OFF	
CLEAR RELAYS	NO/YES	NO	
SETUP LINEARISER	NO/YES	NO	
ACTIVATE LINEARISER	NO/YES	NO	
SETPOINT	1-21	1	
HEIGHT	0m-SPAN	0 m	
PERCENTAGE	0-100%	0%	

## **DISTANCE / LEVEL MODE**

Please see page 29 for Open Channel Flow.

### **SECURITY CODE**

Security code to advance to programming.

DEFAULT 5159

### **MODE**

Choose between Distance, Level.

DEFAULT Distance

### **UNITS**

Choose between Feet and Meters.

DEFAULT Meters

### **EMPTY DISTANCE**

This is the distance from the face of the transducer to the bottom of the tank.

DEFAULT 10.00 m

### **SPAN**

This figure is the measuring range of the instrument i.e. distance from the bottom of the tank to the highest point being measured. Remember, the material must not approach within 0.50 meters of the transducer face or within the blanking distance of the transducer.

DEFAULT 10.00 m

### **BLANKING**

This is the area where an echo cannot be processed because the return echo would be received while the transducer is still firing.

DEFAULT 0.50 m

### **RATE OF CHANGE**

This is used to set up the rate of change of the level output. The rate of change governs the rate at which the instrument output change. By increasing the rate of change (4.00 m/min) it will allow the EASZ11X to monitor rapid changes in level. If the level moves faster than 1 m/minute

in measurement increase the rate of change. If a more stable output is required decrease the rate of change (0.30 m/min).

DEFAULT 1.00 m/min

### **APPLICATION**

This selection can be used to select either liquid or solid applications. The solid application will provide more power to locate the correct echo.

DEFAULT Liquids

### **FACTORY RESET**

This prompt will reset all values entered back to factory setting except the password. Please write down all settings before using this function.

DEFAULT No

### **TEMPERATURE COMPENSATION**

Sets temperature compensation on or off.

DEFAULT Off

### **SIMULATE**

Simulates the level, relay outputs and mA outputs with the rate of change, selected.

DEFAULT No

### **SET PASSWORD**

This prompt will allow you to change the default factory code. Should the factory code be forgotten please contact a local EESIFLO agent for an override password.

DEFAULT No

### **BACKLIGHT**

Choose between switching on the backlight for 1 - 60 minutes, switch off the backlight or to switch the backlight permanently on.

DEFAULT 2 Min

### **LOSSTIME**

This is the amount of time between last receiving a correct echo and going into the Fail-safe condition. This time period is timed in seconds. This cannot be reduced to less than 30 seconds.

DEFAULT 300 Sec

**FAILSAFE**

If a loss of echo condition is reached then the 4-20mA output will follow the configured settings 3.60mA, 4mA, 20mA, 21mA or Hold the reading at the last recognized echo. This is usually due to a cable being cut or the instrument not being set up correctly.

DEFAULT Hold

**ENGINEERING UNITS**

This prompt will allow you to display in your own engineering units and can be made up from alphanumeric characters.

DEFAULT None

**MAXIMUM VALUE/DECIMAL POINT**

This is the maximum value the engineering units can be displayed instead of reading meters (m) or feet (ft).

DEFAULT 10000

After the maximum value is set the number of decimal points can be adjusted.

DEFAULT 2

**ZERO OFFSET**

Choose between -50 mm to 50 mm for setting the offset of the instrument.

DEFAULT 0

**SETUP RELAYS**

Select yes to enter the relay menu and set up the relay parameters.

DEFAULT No

**RELAY1**

The relays can be used either for a high alarm or a low alarm. A high alarm has its reset below the set point, and a low alarm has its reset above the set point. The relays can also be set up to have pump cycling enabled.

DEFAULT Off

**SET POINT**

This is the value where the relay will set.

DEFAULT 0 m

**RESET POINT**

This is the value where the relay will reset.

DEFAULT 0 m

**PUMP CYCLE**

Select the type of pump control that is required.

The EASZ11X has two pump cycling routines which can be used to efficiently distribute the run cycles between various pumps that serve a common purpose.

The ROTATE pump routine will use the relay set points configured for the pumps that require cycling, and rotate these set points among the pumps with the COMPLETION of each cycle.

NOTE: The COMPLETION of a cycle is reached once all pumps have switched OFF.

The FIFO (First In First Out) routine will use the relay set points configured for the pumps that require cycling, and rotate these set points among the pumps for subsequent cycles.

NOTE: The FIFO routine ensures that the lead pump will always switch off first.

HINT: It is advisable to configure the reset points for the pumps that require cycling to the same level.

DEFAULT Off

**CLEAR RELAYS**

Clears the number of cycles as well as the run hours recorded for the particular relay specified.

DEFAULT No

**RELAY2**

As above.

DEFAULT Off

**RELAY3**

As above.

DEFAULT Off

**SETUP LINEARISER**

This prompt will allow you to input a curve to linearise the vessel. The span is divided by 21 and you can input the new height for each point as well as the corresponding percentage fill at that point. EASZ11X prompts you at each point.

DEFAULT No

**ACTIVATE LINEARISER**

This function activates the lineariser.

DEFAULT No

**SET POINT**

This is the number at which point the user is inputting a linearised point.

**HEIGHT/PERCENTAGE**

Height is the distance from the bottom of the tank to a corresponding point where a suitable percentage can be determined.

DEFAULT 0.00 m

Enter the percentage volume of vessel at a corresponding height.

DEFAULT 0.00 %

Set point 1	
Height	0.00 m
Percentage	0.00 %

Set point 4	
Height	1.50 m
Percentage	15.00 %

Set point 2	
Height	0.50 m
Percentage	5.00 %

Set point 5	
Height	2.00 m
Percentage	20.00 %

Set point 3	
Height	1.00 m
Percentage	10.00 %

Set point 6	
Height	2.50 m
Percentage	25.00 %

Set point 7	
Height	3.00 m
Percentage	30.00 %

Set point 8	
Height	3.50 m
Percentage	35.00 %

Set point 9	
Height	4.00 m
Percentage	40.00 %

Set point 10	
Height	4.50 m
Percentage	45.00 %

Set point 11	
Height	5.00 m
Percentage	50.00 %

Set point 12	
Height	5.50 m
Percentage	55.00 %

Set point 13	
Height	6.00 m
Percentage	60.00 %

Set point 14	
Height	6.50 m
Percentage	65.00 %

Set point 15	
Height	7.00 m
Percentage	70.00 %

Set point 16	
Height	7.50 m
Percentage	75.00 %

Set point 17	
Height	8.00 m
Percentage	80.00 %

Set point 18	
Height	8.50 m
Percentage	85.00 %

Set point 19	
Height	9.00 m
Percentage	90.00 %

Set point 20	
Height	9.50 m
Percentage	95.00 %

Set point 21	
Height	10.00 m
Percentage	100.00 %

## CONFIGURATION FLOW

FLOW MODE			
BASIC	OPTIONS	DEFAULTS	
SECURITY CODE	0-9999	5159	
MODE	DISTANCE/LEVEL/ FLOW	DISTANCE	
UNIT	METERS/FEET	METERS	
EMPTY DISTANCE	0.4-15.0 m	2 m	
SPAN	0.1-15.0 m	1.5 m	
BLANKING	0.3-14.9 m	0.5 m	
RATE OF CHANGE	0.01-20.0 m/min	0.50 m/min	
APPLICATION	LIQUIDS/SOLIDS	LIQUIDS	
FACTORY RESET	NO/YES	NO	
TEMPERATURE COMPENSATION	ON/OFF	OFF	
SIMULATE	NO/YES	NO	
SET PASSWORD	NO/YES	NO	
BACKLIGHT	OFF/ON (1-60MIN)/PERM	2MIN	
LOSSTIME	30-900SEC	300SEC	
FAILSAFE	3.6mA, 4.0mA, 20mA, 21mA, Hold	Hold	
FLOW UNITS	SEE LIST	LT/SEC	
MAXIMUM VALUE	1-99999	1000	
ZERO OFF SET	-50 mm TO 50 mm	0 mm	
TOTALISER COUNT	1-1000000	1	
TOTALISER UNITS	A-Z, a-z, 0-9	Lt	
TOTALISER RESET	NO/YES	NO	
FLOW CURVE	SEE LIST	V-NOTCH	

<b>FLOW MODE continued</b>			
<b>BASIC</b>	<b>OPTIONS</b>	<b>DEFAULTS</b>	
SETUP RELAYS	NO/YES	NO	
RELAY1 TO RELAY 3	OFF/LO/HI/COUNTER	OFF	
SETPOINT	SPAN	0 m	
RESET POINT	SPAN	0 m	
PUMP CYCLE	NO/FIFO/ROTATE	NO	
COUNT VALUE	1-1000000	1000	
CLEAR RELAYS	NO/YES	NO	
SETUP LINEARISER	NO/YES	NO	
ACTIVATE LINEARISER	NO/YES	YES	
SETPOINT	1-21	1	
HEIGHT	0m-SPAN	0 m	
PERCENTAGE	0-100%	0%	

## FLOW MODE

### **SECURITY CODE**

Security code to advance to programming.

DEFAULT 5159

### **MODE**

Choose Flow.

DEFAULT Distance

### **UNITS**

Choose between Feet and Meters.

DEFAULT Meters

### **EMPTY DISTANCE**

This is the distance from the face of the transducer to the bottom of the flume.

DEFAULT 2 m

### **SPAN**

This figure is measuring the range of the instrument i.e. distance from the bottom of the flume to the highest point being measured.

Remember, the material must not approach within 0.5 meters of the transducer face or within the blanking distance of the transducer.

DEFAULT 1.5 m

### **BLANKING**

This is the area where an echo cannot be processed because the return echo would be received while the transducer is still firing.

DEFAULT 0.5 m

### **RATE OF CHANGE**

This is used to set up the rate of change of the level output. The rate of change governs the rate at which the instrument outputs changes. By increasing the rate of change (4.0 m/min) it will allow the EASZ11X to monitor rapid changes in flow. If the level moves faster than 0.5 m/min then increase the rate of change. If a more stable output is required decrease the rate of change (0.3 m/min).

DEFAULT 0.5 m/min

**APPLICATION**

This selection can be used to select either liquid or solid applications. The solid application will provide more power to locate the correct echo.

DEFAULT Liquids

**FACTORY RESET**

This prompt will reset all values entered back to factory setting except the password. Please write down all settings before using this function.

DEFAULT No

**TEMPERATURE COMPENSATION**

Sets temperature compensation on or off.

DEFAULT Off

**SIMULATE**

Simulates the head, Relay output and mA output at the rate of change selected.

DEFAULT No

**SET PASSWORD**

This prompt will allow you to change the default factory code.

Should the factory code be forgotten please contact a local EESIFLO agent for an override password.

DEFAULT No

**BACKLIGHT**

Choose between switching on the backlight for 1-60 minutes, switch off the backlight or to switch the backlight permanently on.

DEFAULT 2 Min

**LOSSTIME**

This is the time, in seconds, between last receiving a correct echo and going into the Fail-safe condition. Minimum 30 seconds.

DEFAULT 300 Sec

**FAILSAFE**

If the loss of echo condition is reached then the 4-20mA output will follow the configured settings 3.6mA, 4mA, 20mA, 21mA or Hold the reading at the last recognized echo. This is usually due to a cable being cut.

DEFAULT Hold

**FLOW UNITS**

Units can be set via the alphanumeric display to the desired value.  
DEFAULT LT/SEC

**MAXIMUM VALUE**

This is the maximum flow rate of the flume.  
DEFAULT 1000

**ZERO OFFSET**

Choose between -50 mm to 50 mm for small errors on the instrument.  
DEFAULT 0

**TOTALISER COUNT**

Choose a value where the counter will increment for a certain unit of flow between 1-1000000 when in Flow mode.  
DEFAULT 1

**TOTALISER UNITS**

Indication of units the totaliser is set up for.  
DEFAULT Lt

**TOTALISER RESET**

Reset the totaliser counter when in Flow mode.  
DEFAULT No

**FLOW CURVE**

The flow element can be selected. Select from the list below:

V-notch (5/2)

Venturi (3/2)

Parshall flume 1- 96 inch

Rectangular weir (3/2)

Own curve (21 point lineariser)

DEFAULT V-Notch

**SETUP RELAYS**

This prompt will allow a user to enter the menu to set up the relay parameters.  
DEFAULT No

**RELAY1**

The relays can be used either for a high alarm, a low alarm or counter in flow mode. The difference is that a high alarm has its reset below the set point, and a low alarm has its reset above the set point. The counter will output a pulse every time a certain value is reached from the totaliser, which increments by more than a user defined value when in flow mode.

The relays can also be set up to have pump cycling enabled.

DEFAULT Off

**SET POINT**

This is the distance value whereby the relay will set.

DEFAULT 0 m

**RESET POINT**

This is the distance value whereby the relay will reset.

DEFAULT 0 m

**PUMP CYCLE**

Select the type of pump control that is required.

The EASZ11X has two pump cycling routines which can be used to efficiently distribute the run cycles between various pumps that serve a common purpose.

The ROTATE pump routine will use the relay set points configured for the pumps that require cycling, and rotate these set points among the pumps with the COMPLETION of each cycle.

NOTE: The COMPLETION of a cycle is reached once all pumps have switched OFF.

The FIFO (First In First Out) routine will use the relay set points configured for the pumps that require cycling, and rotate these set points among the pumps for subsequent cycles.

NOTE: The FIFO routine ensures that the lead pump will always switch off first.

HINT: It is advisable to configure the reset points for the pumps that require cycling to the same level.

DEFAULT No

**COUNT VALUE**

Choose a value where the relay will pulse between 1-1000000 when in Flow mode.

DEFAULT 1000

**CLEAR RELAYS**

Clears the number of cycles as well as the run hours recorded for particular relay specified.

DEFAULT No

**RELAY2**

As above.

DEFAULT Off

**RELAY3**

As above.

DEFAULT Off

**SETUP LINEARISER**

This prompt will allow you to input a curve to linearise the flume. The span is divided by 21 and you can input the new height for each point as well as the corresponding percentage fill at that point. EASZ11X prompts you at each point.

DEFAULT No

**ACTIVATE**

This function activates the lineariser.

DEFAULT Yes

**SET POINT**

This is the number at which point the user is inputting a linearised point.

**HEIGHT/PERCENTAGE**

Height is the distance of the flume from the bottom to a point where a suitable percentage volume can be determined.

DEFAULT 0.00 m

Enter the percentage volume of flume at a corresponding distance away from the bottom of the vessel or flume.

DEFAULT 0.00%

Set point 1	
Height	0.00 m
Percentage	0.00 %

Set point 2	
Height	0.075 m
Percentage	1.12 %

Set point 3	
Height	0.150 m
Percentage	3.16 %

Set point 4	
Height	0.225 m
Percentage	5.80 %

Set point 5	
Height	0.300 m
Percentage	8.94 %

Set point 6	
Height	0.375 m
Percentage	12.50 %

Set point 7	
Height	0.450 m
Percentage	16.43 %

Set point 8	
Height	0.525 m
Percentage	20.71 %

Set point 9	
Height	0.600 m
Percentage	25.30 %

Set point 10	
Height	0.675 m
Percentage	30.19 %

Set point 11	
Height	0.750 m
Percentage	35.36 %

Set point 12	
Height	0.825 m
Percentage	40.79 %

Set point 13	
Height	0.900 m
Percentage	46.48 %

Set point 14	
Height	0.975 m
Percentage	52.40 %

Set point 15	
Height	1.050 m
Percentage	58.57 %

Set point 16	
Height	1.125 m
Percentage	64.95 %

Set point 17	
Height	1.200 m
Percentage	71.55 %

Set point 18	
Height	1.275 m
Percentage	78.37 %

Set point 19	
Height	1.350 m
Percentage	85.38 %

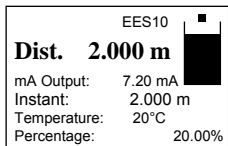
Set point 20	
Height	1.425 m
Percentage	92.59 %

Set point 21	
Height	1.500 m
Percentage	100.00 %

## WORKING WITH THE KEY PAD IN RUN MODE

In run mode the **ENTER** key has an alternative function.

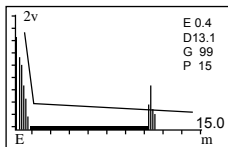
While in run mode the screen looks similar to the following:



Press **ENTER** once. The screen changes to the status screen of the relays.

Relay	State	Hour	Cycles
REL 1: OFF	LO	0	2
REL 2: ON	HI	1	2
REL 3: ON	HI	3	5

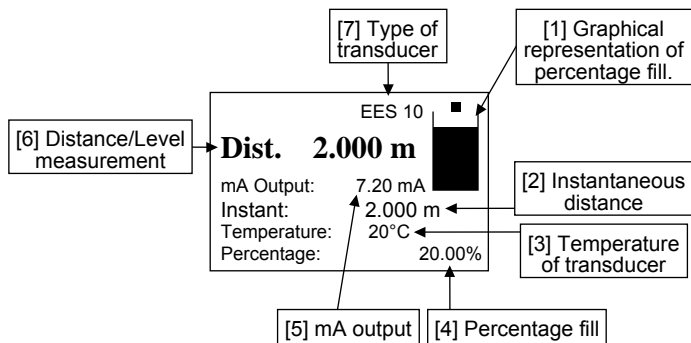
Press **ENTER** again and the screen goes to the onscreen EASZScope.



Note: The screen reverts back to normal run mode within 2 minutes

Pressing **ENTER** again while in the onscreen EASZScope screen will revert the screen into normal run mode.

## RUN MODE SCREEN IN DISTANCE/LEVEL MODE



1. The graphical representation of the percentage fill of the application.
2. The instantaneous distance that the instrument is measuring at that specific time. Please note that this value can change on each pulse.
3. The temperature, which is being measured at the transducer, if temperature compensation has been enabled.
4. The value of percentage fill of the instrument.
5. The mA output of the instrument.
6. The average Distance/Level value which is calculated.
7. Type of transducer used.

## THE RELAY STATE SCREEN

Press **ENTER** while in run mode to get the RELAY STATE SCREEN.

Relay	State	Hour	Cycles
REL 1: OFF	LO	0	2
REL 2: ON	HI	1	2
REL 3: ON	HI	3	5

Diagram annotations:

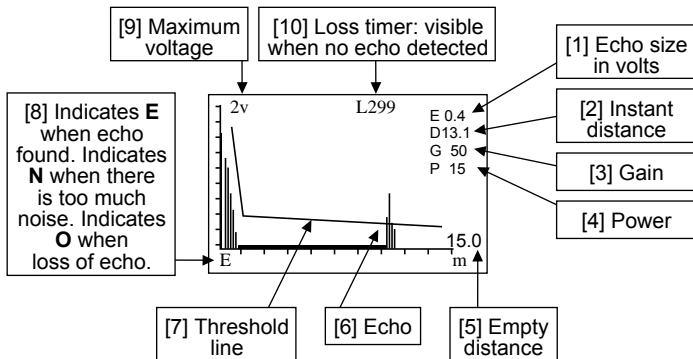
- [5] Relay number: points to the 'Relay' column header.
- [1] Description of column: points to the 'Cycles' column header.
- [2] Number of cycles: points to the value '5' in the 'Cycles' column for REL 3.
- [4] Relay state: points to the 'State' column header.
- [3] Hours relay has been on: points to the 'Hour' column header.

1. Relay state headings.
2. The number of cycles each relay has been through.
3. The number of hours each relay has been on.
4. The state at which the relay is at ON, OFF, HI, LO and CO-Counter.
5. The relay indication number.

## ONSCREEN EASZScope

Press **ENTER** twice while in run mode in order to get to the onscreen

EASZScope.

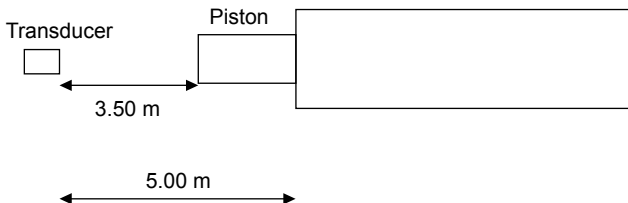


1. The maximum returned echo size in volts e.g. 0.4V
2. Displayed instant distance from transducer to substance or object being measured. e.g.13.1 m
3. The Gain needed to get the particular returned echo signal to give a particular measurement. e.g. 50%
4. The amount of power needed to obtain an echo. e.g. 15% power
5. Maximum distance or span. e.g. 15.0 m
6. Graphical representation of the echo received by the transducer.
7. Threshold line whereby any echoes below this line will not be accepted.
8. Indication of good echo, noise, or loss of echo. e.g. E for good echo, N for noise or O for loss of echo.
9. The maximum voltage scale of the Onscreen EASZScope.
10. The echo loss timer started when no signal is present.

See page 74 for details of EASZScope

## EXAMPLES

### Example 1 - Distance measurement



The above application deals with a moving piston:-

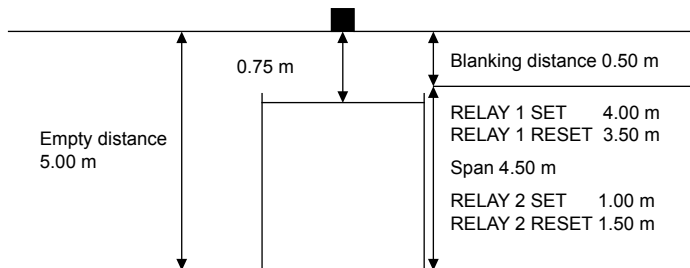
The maximum range for the piston is 5.00 m and the closest the piston can get to the transducer is 0.50 m (Due to the blanking of the transducer).

SECURITY CODE	5159
MODE	DISTANCE
EMPTY DISTANCE	5.00 m
SPAN	4.50 m
BLANKING	0.50 m
RATE OF CHANGE	1.00 m/min

Below is what EASZ11X will display on the above application.

EES10		■
<b>Dist.</b>	<b>3.500 m</b>	■
mA Output:	14.66 mA	
Instant:	3.500 m	
Temperature:	20°C	
Percentage:	66.66%	

The analogue output should be approximately 14.66mA.


**Example 2 - Level measurement**

SECURITY CODE	5159
MODE	LEVEL
EMPTY DISTANCE	5.00 m
SPAN	4.50 m
BLANKING	0.50 m
RATE OF CHANGE	1.00 m/min
SETUP RELAYS	YES
RELAY 1	HI
RELAY 1 SET	4.00 m
RELAY 1 RESET	3.50 m
RELAY 2	LO
RELAY 2 SET	1.00 m
RELAY 2 RESET	1.50 m

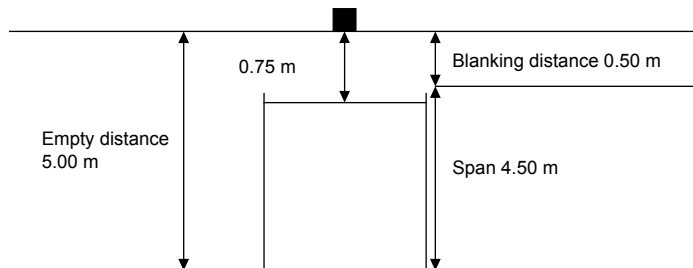
**TIP :**

Set the relay set and reset point further apart to avoid the relays from chattering.

Below is what EASZ11X will display on the above application.


EES10 	
<b>Level 4.250 m</b>	
mA Output:	19.11 mA
Instant:	0.750 m
Temperature:	20°C
Percentage:	94.44%

Relay 1 will switch on (set) when the level rises above 4.00 m and reset when the level goes below 3.50 m. Relay 2 will switch on (set) when the level drops below 1.00 m and reset when the level goes above 1.50 m.

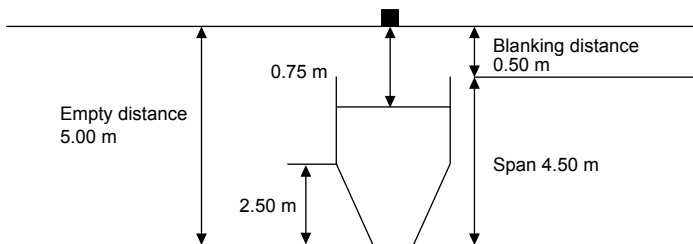
**Example 3 - Level measurement and engineering units**

SECURITY CODE	5159
MODE	LEVEL
EMPTY DISTANCE	5.00 m
SPAN	4.50 m
BLANKING	0.50 m
RATE OF CHANGE	1 m/min
ENGINEERING UNITS	LIT
MAXIMUM VALUE	40.00
DECIMAL POINT	40.00

Below is what EASZ11X will display on the above application.

EES10		
<b>ENG 37.77 LIT</b>		
mA Output:	19.11 mA	
Instant:	0.750 m	
Temperature:	20°C	
Percentage:	94.44%	

The analogue output should be approximately 19.11 mA.

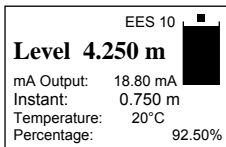
**Example 4 - Level measurement using the lineariser function**



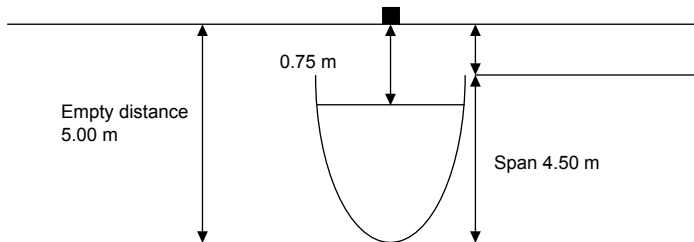
Before setting up the lineariser, check all other parameters are calculated for your application.

1. Scroll through the menus with either the  or  until the menu SETUP LINEARISER appears.
2. Use   to select YES and then Press .
3. A prompt ACTIVATE LINEARISER will appear. Use   to select YES and then press .
4. Set up each of the 21 points of the lineariser as needed by using   and then pressing  when the correct value is entered in each point of the lineariser.
5. When finished press .

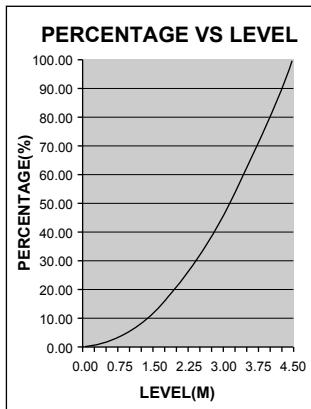
Below is what EASZ11X will display on the above application.



The analogue output should be approximately 18.80mA.

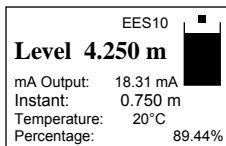
**Example 5 - Level measurement using the lineariser function with a non linear vessel**

SECURITY CODE	5159
MODE	LEVEL
EMPTY DISTANCE	5.00 m
SPAN	4.50 m
BLANKING	0.50 m
RATE OF CHANGE	1.00 m/min
SETUP LINEARISER	YES
ACTIVATE LINEARISER	YES
0.00 m	0.00%
0.225 m	0.25%
0.450 m	1.00%
0.675 m	2.25%
0.900 m	4.00%
1.125 m	6.25%
1.350 m	9.00%
1.575 m	12.25%
1.800 m	16.00%
2.025 m	20.25%
2.250 m	25.00%
2.475 m	30.25%
2.700 m	36.00%
2.925 m	42.25%
3.150 m	49.00%
3.275 m	56.25%
3.600 m	64.00%
3.825 m	72.25%
4.050 m	81.00%
4.275 m	90.25%
4.500 m	100%

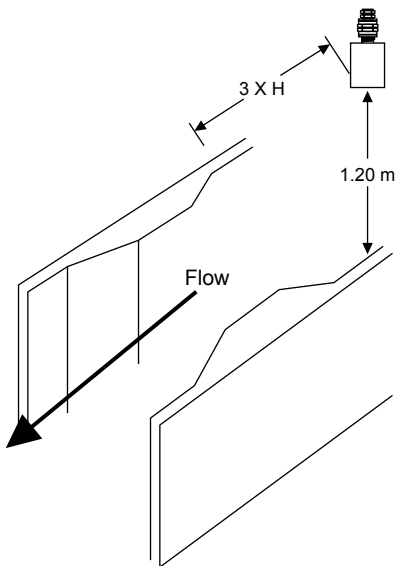


Note: Due to the curve of the graph being non-linear all 21 points are needed from the lineariser.

Below is what EASZ11X will display on the above application.



The analogue output should be approximately 18.31 mA.

**Example 6 - Venturi flume**

This is an example of a Venturi Flume application. The transducer is mounted 1.20 m above the zero of the flume, this is the Empty Distance. The Span is 0.60 m and the Blanking Distance is 0.60 m. The transducer must be fitted 3 x maximum head upstream. There is an external counter connected to the relay counter. The water flow must not dam up and cause a build-up inside the flume.



Please Note! The Empty Distance is to the zero of the flume and not the bottom of the flume.

SECURITY CODE	5159
MODE	FLOW
EMPTY DISTANCE	1.20 m
SPAN	0.60 m
BLANKING	0.60 m
RATE OF CHANGE	1.00 m/min
FAIL TIMER	300
FAIL SAFE	HOLD
FLOW UNITS	Lt/sec
MAXIMUM FLOW	1435
FLOW CURVE	Venturi
SETUP RELAYS	YES
RELAY1	Counter
RELAY 1 COUNTER VALUE	1000
RELAY2	HI
RELAY 2 SET	0.50 m
RELAY 2 RESET	0.49 m
TOTALISER RESET	NO
ZERO OFFSET	O

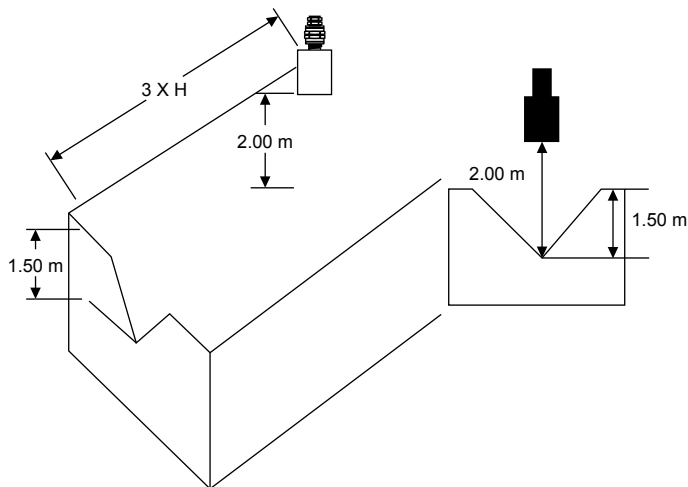
**TIP :**

Set the relay set and reset point further apart to avoid the relays from chattering.

Below is what EASZ11X will display on the above application. The relay will drive the counter for every 1000 Lt/s and 1m<sup>3</sup> of flow.

EES10		
Flow:	932.17 Lt/S	
T:	00001513408 Lt	
Head:	0.450 m	
mA Output:	14.39 mA	
Instant:	0.750 m	
Temperature:	20°C	
Percentage:	64.95%	

The analogue output should be approximately 14.39 mA. Relay 2 would set at above 0.500 m and reset at below 0.490 m.

**Example 7 – V-Notch**

This is an example of a V-Notch application. The transducer is mounted  $2.00 \text{ m}$  above the Notch in the V, this is the Empty Distance. The Span is  $1.50 \text{ m}$  and the Blanking Distance is  $0.50 \text{ m}$ . The transducer must be fitted  $3 \times$  maximum head-height upstream. There is an external counter connected to the relay counter. The water flow must not dam up and cause a build-up behind the weir.

Please Note! The Empty Distance is to the bottom of the V-Notch and not the bottom of the weir.

SECURITY CODE	5159
MODE	FLOW
EMPTY DISTANCE	2.00 m
SPAN	1.50 m
BLANKING	0.50 m
RATE OF CHANGE	1.00 m/min
FAIL TIMER	300
FAIL SAFE	HOLD
FLOW UNITS	Lt/sec
MAXIMUM FLOW	1222
FLOW CURVE	V-NOTCH
SETUP RELAYS	YES
RELAY1	Counter
RELAY 1 COUNTER	1000
RELAY 2	HI
RELAY 2 SET	1.45 m
RELAY 2 RESET	1.35 m
TOTALISER RESET	NO
ZERO OFFSET	O

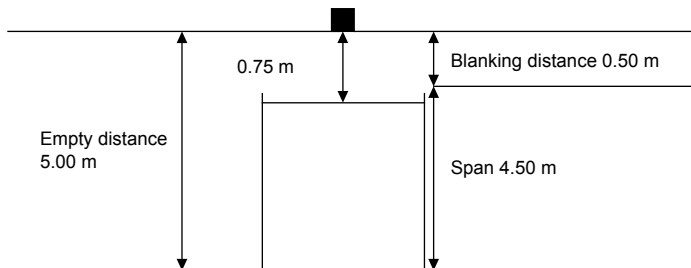
**TIP :**

Set the relay set and reset point further apart to avoid the relays from chattering.

Below is what EASZ11X will display on the above application. The relay will drive the counter for every 1000 counts.

EES 10		■
Flow:	444.60 Lt/S	
T:	00001513408 Lt	
Head:	1.000 m	
mA Output:	9.82 mA	
Instant:	1.000 m	
Temperature:	20°C	
Percentage:	36.38%	

The analogue output should be approximately 9.82 mA. Relay 2 will set above 1.45 m and reset below 1.35 m.

**Example 8 - Working with the Simulator**

Set up instrument with the following parameters.

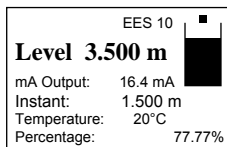
SECURITY CODE	5159
MODE	LEVEL
EMPTY DISTANCE	5.00 m
SPAN	4.50 m
BLANKING	0.50 m
RATE OF CHANGE	1.00 m/min
SETUP RELAYS	YES
RELAY 1	HI
RELAY 1 SET	4.00 m
RELAY 1 RESET	3.50 m
RELAY 2	LO
RELAY 2 SET	1.00 m
RELAY 2 RESET	1.50 m

**TIP :**

Set the relay set and reset point further apart to avoid the relays from chattering.

In order to activate the simulator proceed with the following:

1. Scroll through the menus with either the  or  until the option Simulate appears.
2. Use   to select YES and then press .
3. Press  to exit the menu.
4. Press  or  to start the simulator to increase or decrease the level at the rate of change.

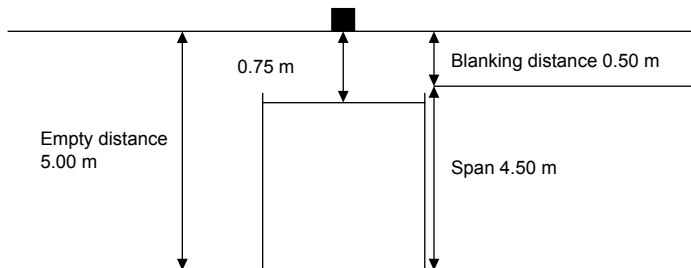


Relay 1 will set above 4.00 m and reset below 3.50 m

Relay 2 will set below 1.00 m and reset above 1.50 m.

5. Press  to stop or start the simulator.

NOTE: In order for the instrument to go back to normal measurement mode, go back to the menus and select NO for the Simulate option or reset the power to the instrument.

**Example 9 - FIFO (First In First Out) Pump cycling.**

SECURITY CODE	5159
MODE	LEVEL
EMPTY DISTANCE	5.00 m
SPAN	4.50 m
BLANKING	0.50 m
RATE OF CHANGE	1.00 m/min
SETUP RELAYS	YES
RELAY 1	HI
RELAY 1 SET	1.50 m
RELAY 1 RESET	1.00 m
PUMP CYCLING	FIFO
RELAY 2	HI
RELAY 2 SET	3.50 m
RELAY 2 RESET	2.50 m
PUMP CYCLING	FIFO
RELAY 3	HI
RELAY 3 SET	4.00 m
RELAY 3 RESET	3.00 m
PUMP CYCLING	FIFO

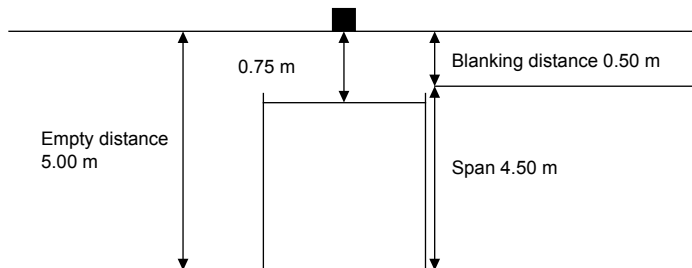
**TIP :**

Set the relay set and reset point further apart to avoid the relays from chattering.

The following will occur in the FIFO pump cycling routine:

RELAY	Status	Time on in hrs
Sequence 1 Level 1.30 m		
Relay 1	OFF	0
Relay 2	OFF	0
Relay 3	OFF	0
Sequence 2 Level 2.20 m		
Relay 1	ON	1
Relay 2	OFF	0
Relay 3	OFF	0
Sequence 3 Level 3.60 m		
Relay 1	ON	2
Relay 2	ON	1
Relay 3	OFF	0
Sequence 4 Level 4.30 m		
Relay 1	ON	3
Relay 2	ON	2
Relay 3	ON	1
Sequence 5 Level 2.80 m		
Relay 1	OFF	4
Relay 2	ON	3
Relay 3	ON	2

RELAY	Status	Time on in hrs
Sequence 6 Level 2.20 m		
Relay 1	OFF	4
Relay 2	OFF	4
Relay 3	ON	3
Sequence 7 Level 0.80 m		
Relay 1	OFF	4
Relay 2	OFF	4
Relay 3	OFF	4
Sequence 8 Level 1.80 m		
Relay 1	ON	5
Relay 2	OFF	4
Relay 3	OFF	4
Sequence 9 Level 0.80 m		
Relay 1	OFF	6
Relay 2	OFF	4
Relay 3	OFF	4
Sequence 10 Level 1.80 m		
Relay 1	OFF	6
Relay 2	ON	5
Relay 3	OFF	4

**Example 10 - Rotate Pump cycling.**

SECURITY CODE	5159
MODE	LEVEL
EMPTY DISTANCE	5.00 m
SPAN	4.50 m
BLANKING	0.50 m
RATE OF CHANGE	1.00 m/min
SETUP RELAYS	YES
RELAY 1	HI
RELAY 1 SET	1.500 m
RELAY 1 RESET	1.000 m
PUMP CYCLING	ROTATE
RELAY 2	HI
RELAY 2 SET	3.50 m
RELAY 2 RESET	2.50 m
PUMP CYCLING	ROTATE
RELAY 3	HI
RELAY 3 SET	4.00 m
RELAY 3 RESET	3.00 m
PUMP CYCLING	ROTATE

**TIP :**

Set the relay set and reset point further apart to avoid the relays from chattering.

The following will occur in the Rotate pump cycling routine:

RELAY	Status	Time on in hrs
Sequence 1 Level 1.30 m		
Relay 1	OFF	0
Relay 2	OFF	0
Relay 3	OFF	0
Sequence 2 Level 2.20 m		
Relay 1	ON	1
Relay 2	OFF	0
Relay 3	OFF	0
Sequence 3 Level 3.60 m		
Relay 1	ON	2
Relay 2	ON	1
Relay 3	OFF	0
Sequence 4 Level 4.30 m		
Relay 1	ON	3
Relay 2	ON	2
Relay 3	ON	1
Sequence 5 Level 2.80 m		
Relay 1	ON	4
Relay 2	ON	3
Relay 3	OFF	2

RELAY	Status	Time on in hrs
Sequence 6 Level 2.20 m		
Relay 1	ON	5
Relay 2	OFF	4
Relay 3	OFF	2
Sequence 7 Level 0.80 m		
Relay 1	OFF	6
Relay 2	OFF	4
Relay 3	OFF	2
Sequence 8 Level 1.80 m		
Relay 1	OFF	6
Relay 2	ON	5
Relay 3	OFF	2
Sequence 9 Level 0.80 m		
Relay 1	OFF	6
Relay 2	OFF	6
Relay 3	OFF	2
Sequence 10 Level 1.80 m		
Relay 1	OFF	6
Relay 2	OFF	6
Relay 3	ON	3

## FAULT FINDING

There are three categories of possible faults. The malfunction of the instrument, loss of echo, and wrong reading.

The biggest problem is to identify the malfunction. If the instrument is not working satisfactorily then remove the transmitter and transducer to the workshop. Connect the power and the transducer directly, not using any extension cable. Aim the transducer to a wall about 1.5 m away, making sure that it is perpendicular to the wall. Now reset the instrument by the Factory Reset prompt. The Instrument should now read Distance 1.50 m. If it does not read the above then there is a malfunction with the instrument and it should be returned for repair.

If the above works and it still does not work in the field then there are many possible problems. A list of possible problems follow.

### **Loss of echo.**

Check all transducer cable connections and that the joints are soldered together.

Check that you have used RG62U co-axial for an extension cable.

Only use RG62U co-axial cable.

Check the specification of the transducers as agitated surfaces and solids do not reflect as powerful a signal as flat surfaces.

Aim the transducer straight down if used on liquids and perpendicular if used on solids.

Check if the transducer face is dirty.

### **Wrong reading, always reading close to Transducer.**

Check to see if the isolation kit has been used correctly and is only hand tight.

If using a flanged transducer always use a rubber gasket and only use plastic nuts and bolts. Only hand tighten the bolts.

Do not reduce blanking distance below 0.5 m unless consultation has been made with EESIFLO.

Electrical noise can cause this error. Remove noise.

**Wrong reading, anywhere in weir/channel.**

Check to see if there is a reflection from the wall. Please Note! A piece of wire across a tank can cause a big enough echo to be accepted.

Are the parameters correct? Reset to factory default and check that EASZ11X reads correctly. If the factory settings are OK then your parameters need to be changed. Re-check these parameters with a tape measure.

**Wrong reading, erratic.**

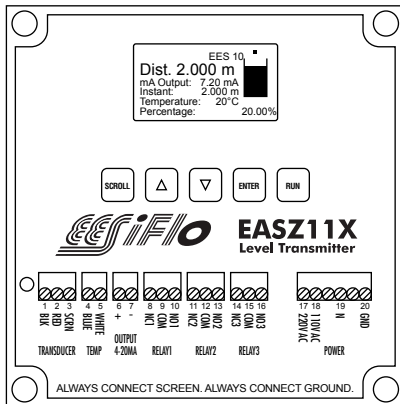
Reduce Rate of Change. Not many levels move faster than 1 meter/minute.

Make sure the application is set up correctly. On liquid applications it is very important that the liquid application is selected. Solid applications are only used for objects or substances being measured, which are in a solid form.

**Wrong reading, slow.**

Increase Rate of Change.

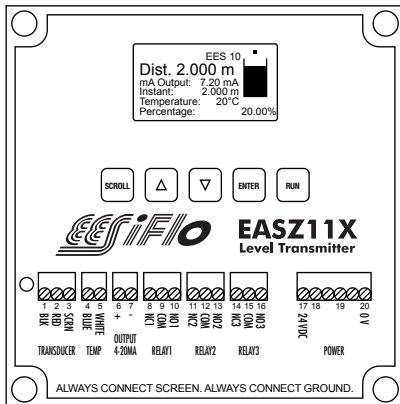
## TERMINAL CONNECTIONS for EASZ11X AC



1. Transducer wire black
2. Transducer wire red
3. Transducer screen
4. Blue wire temperature transducer
5. White wire temperature transducer
6. + 4-20 mA Output
7. - 4-20 mA Output
8. Relay 1 normally closed
9. Relay 1 common
10. Relay 1 normally open
11. Relay 2 normally closed
12. Relay 2 common
13. Relay 2 normally open
14. Relay 3 normally closed
15. Relay 3 common
16. Relay 3 normally open
17. 220v live
18. 110v live
19. Neutral
20. Ground

Please see page 72  
 if extension Cable  
 is used

## TERMINAL CONNECTIONS for EASZ11X DC

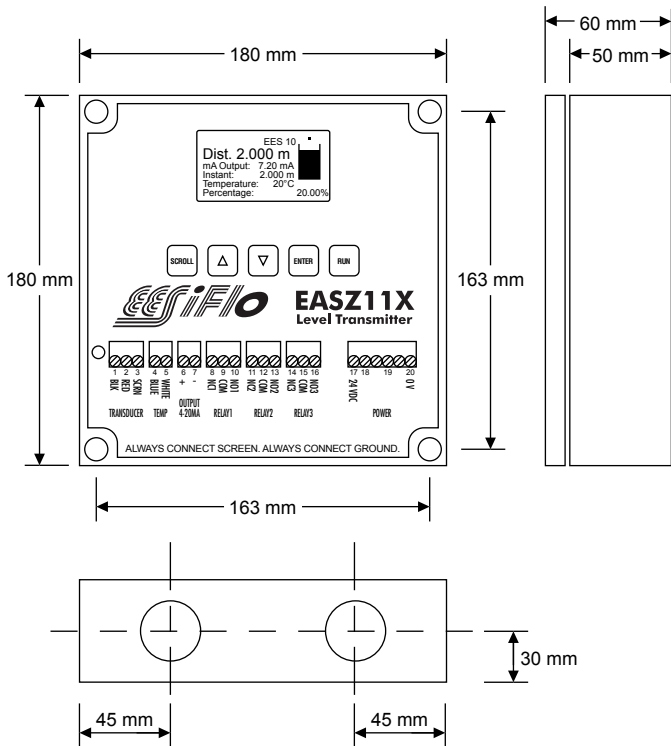


1. Transducer wire black
2. Transducer wire red
3. Transducer screen
4. Blue wire temperature transducer
5. White wire temperature transducer
6. + 4-20 mA Output
7. - 4-20 mA Output
8. Relay 1 normally closed
9. Relay 1 common
10. Relay 1 normally open
11. Relay 2 normally closed
12. Relay 2 common
13. Relay 2 normally open
14. Relay 3 normally closed
15. Relay 3 common
16. Relay 3 normally open
17. 24VDC
- 18.
- 19.
20. 0V

Please see page 72  
 if extension Cable  
 is used

## DIMENSIONS

### Transmitter

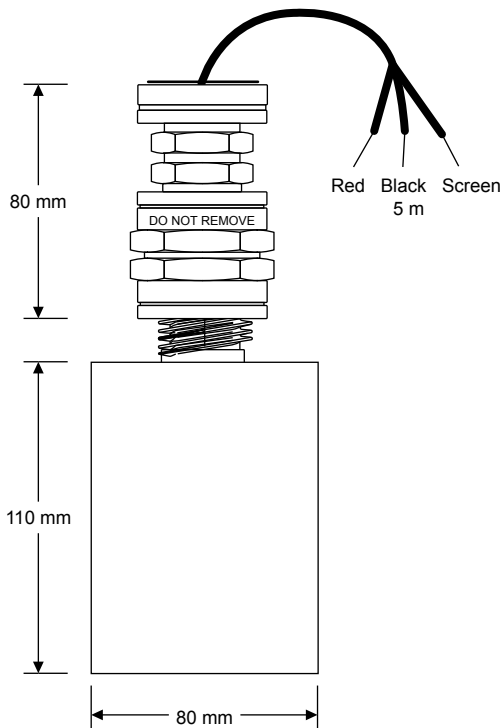


## DIMENSIONS

### Transducer EES 10 / EES 10C

Application, general use non-corrosive liquid.

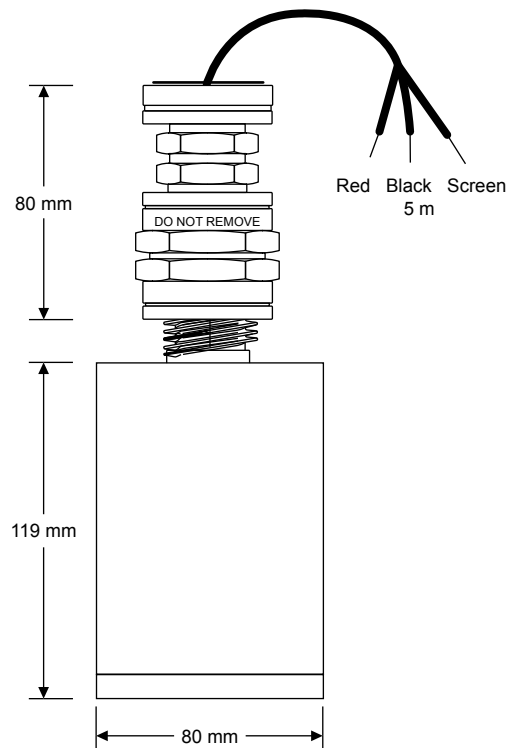
EES 10C has 2 extra wires. Blue and white for temperature compensation.



## DIMENSIONS

### Transducer EES 10F

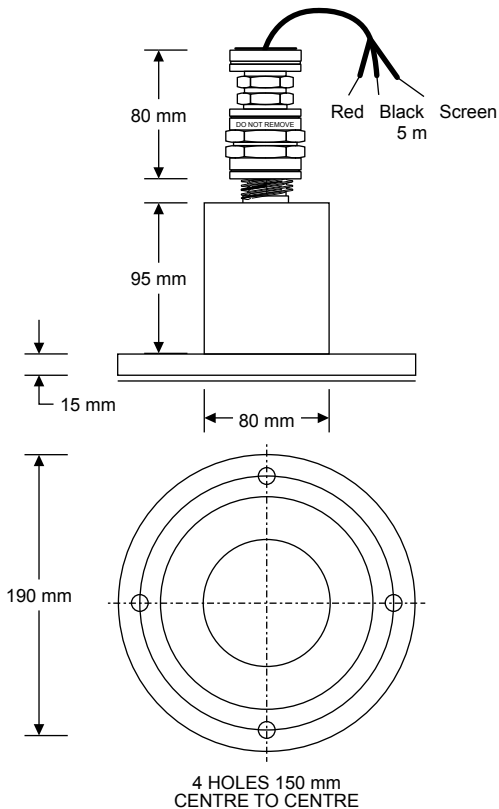
Application, solid or dusty environments. DO NOT USE ON LIQUIDS.



## DIMENSIONS

### Transducer EES 10T (3 INCH) PTFE

Application, corrosive liquids.



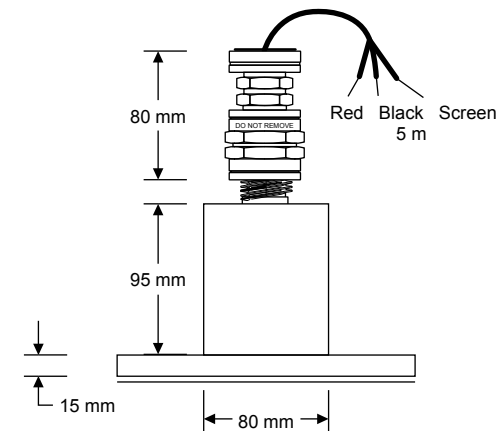
### IMPORTANT:

Always use a rubber gasket and only use plastic nuts and bolts. Only hand tighten the bolts.

## DIMENSIONS

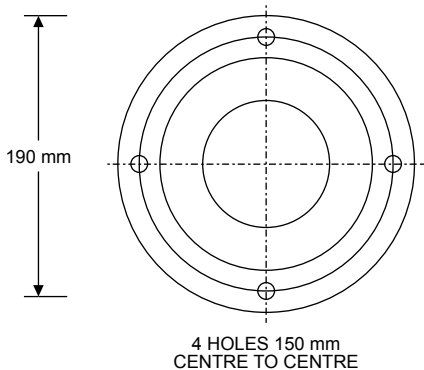
### Transducer EES 10S (3 INCH) Stainless Steel

Application, corrosive liquids.



### IMPORTANT:

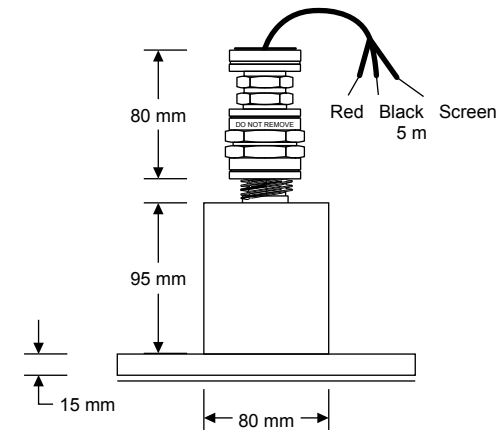
Always use a rubber gasket and only use plastic nuts and bolts. Only hand tighten the bolts.



## DIMENSIONS

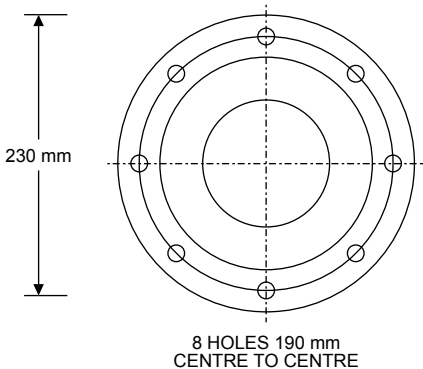
### Transducer EES 10T (4 INCH) PTFE

Application, corrosive liquids.



### IMPORTANT:

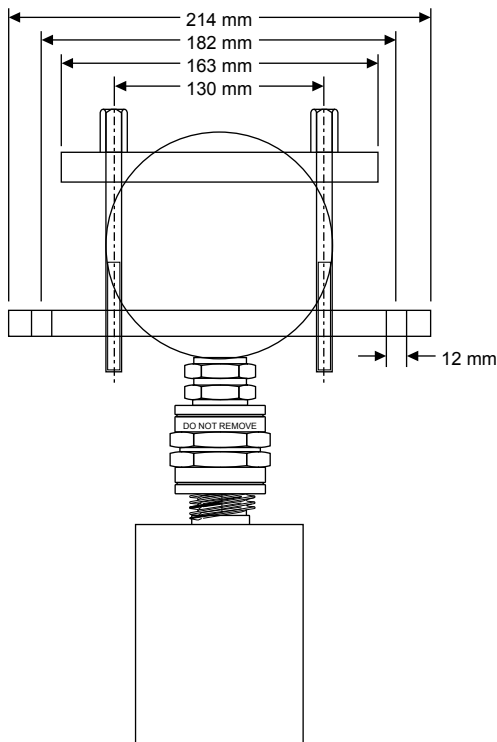
Always use a rubber gasket and only use plastic nuts and bolts. Only hand tighten the bolts.





## DIMENSIONS

### Aiming kit



## CABLE EXTENSION

Should it be necessary to extend the cable, EESIFLO only recommends RG62U co-axial cable as an extension cable. The temperature compensation must be a 2 core screened cable.

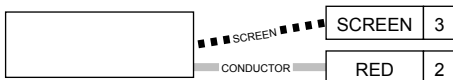
The connections must be SOLDERED and connected as below.

### The transducer cable to RG62U cable.



The red wire from the transducer is soldered to the single conductor on the RG62U cable and the black and screen from the transducer is soldered to the screen of the RG62U co-axial cable.

### RG62U cable connection on the EASZ11X.



The other end of the RG62U cable should be connected to the transducer connection on the circuit board with the core going to the red marked terminal and the screen going to the SCRN marked terminal.

The extra length of cable should not exceed 150 m. This distance could be shorter if the cable is run close to high voltage cables.

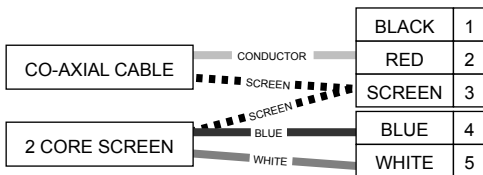
The transducer cable to Co-axial and 2 core screened cable for a temperature compensated transducer.



Solder all wires, the red wire from the transducer is soldered to the single conductor on the RG62U co-axial cable and the black and screen from the transducer is soldered to the screen of the RG62U co-axial cable. The blue wire is soldered to the blue wire and the white wire is soldered to the white wire on the 2 core screen cable. The screen on the 2 core cable must be connected to the screen on the co-axial cable and the screen on the transducer cable.

Apply insulation tape or heat shrink to the wires so they do not short.

**RG62U cable and 2 core cable connection on the EASZ11X.**



All wires should be connected as above, Co-Axial core to red, Co-Axial screen to screen. Blue and white from the temperature probe should be connected to blue and white on the board. The Black does not need a connection as it is already connected to the screen on the circuit board.

The extra length of cable should not exceed 150 m. This distance could be shorter if the cable is run close to high voltage cables.

## EASZScope

EASZScope is a software package designed by EESIFLO to enable the user of EESIFLO's range of EASZ11X ultrasonic level instruments to enjoy rapid programming and fault finding when using the EASZ11X range of products. Please note EASZScope is not normally supplied with the EASZ11X and must be purchased separately. There is an on screen EASZScope that comes with the instrument but the detail of the scope data is limited by the screen pixels and size.

### Background

The nature of ultrasonic level equipment dictates that an oscilloscope is needed to do fault finding on a level application. Most often the transducer is not mounted correctly and this can cause endless problems with even a simple application. Without an oscilloscope one would not necessarily determine this problem. Many technical personnel do not have access to an oscilloscope; hence the reason for the development of EASZScope.


### Operation

The EASZScope is equipped with an on-screen oscilloscope which enables the user to conduct fault finding in the simplest manner. It also has a full programming menu that enables the user to set-up the unit on installation and to make any necessary changes to the unit.


The traditionally simple manner of programming the EASZ11X range extends to the EASZScope. Once the access code has been entered correctly the complete programming menu opens up into a Windows based display. All parameters can be altered in this window. The parameters of the EASZ11X will be reflected on the display of the EASZScope.

## STARTING EASZScope

1. Switch off instrument and connect the EASZScope cable to the Instrument and Computer. Make sure all transducers are connected properly.

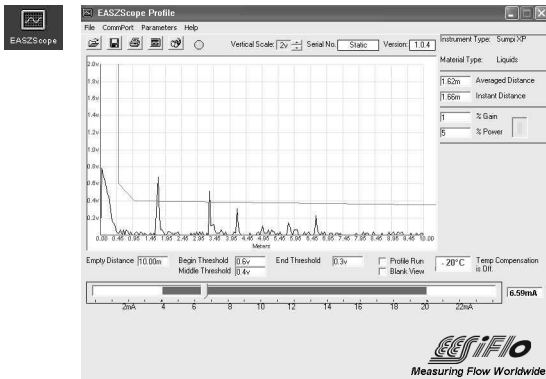
2. Switch instrument on and hold  for 1 second to start the

instrument sending information. The instrument has a maximum EASZScope timeout of 1 hour, whereby the instrument will stop

sending information to the computer. Press  again for 1


second to start the instrument sending information again.

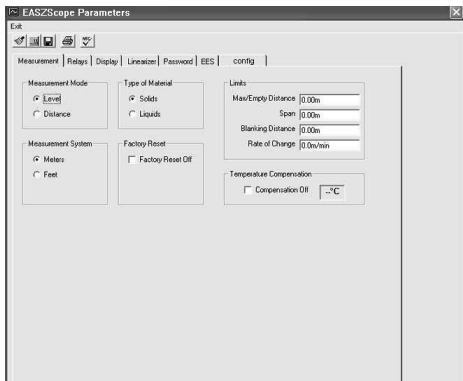
3. Click the EASZScope XP icon to launch program.




4. If the profile does not appear on screen the following must be done. Click on the Commport menu to setup the serial port, which the EASZScope cable has been inserted into.
5. Select Maximum speed 38400. The Stop bits, Parity and Flow Control should be grayed out.
6. Click OK
7. The instruments profile should now be on screen.

## PROGRAMMING IN EASZScope

1. Click on the  icon or Press F3 or Go to the menu Parameters and then select EASZ11X parameters
2. Enter the security code, 5159 is the default code. The following screen will appear:



3. All values that are saved on the EASZ11X will appear on the EASZScope programming page.
4. After all settings have been changed click on the save icon  to save data to the EASZ11X.