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Signal Conditioners, Trip Amplifiers and Transmitters

## INT-X-P and INT-X-L

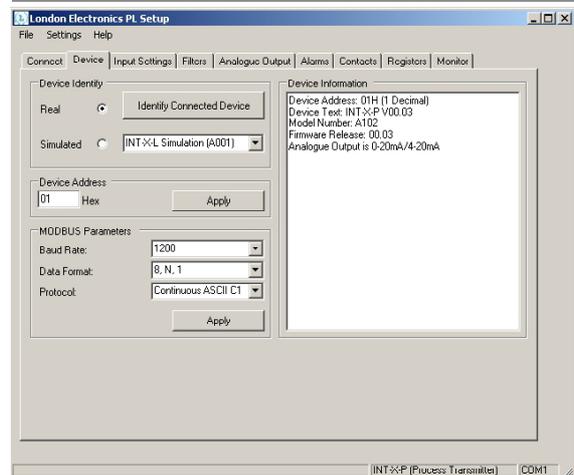
**Programming instructions**

Digital Scaling and calibration with or without a PC  
User friendly, time-saving design  
Fast installation and commissioning

Programming with a handheld programmer



Programming with a PC Application



This manual is suitable for programmers with software version **P 00.09**  
Software version will appear on the display when you first plug it in.

This manual is suitable for PC application with software version 1.0.4.3

Author: Graham Laming. Manual revision 4 dated 8 January 2019



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# Introduction

Please contact us if you need help, if you have a complaint, or if you have suggestions to help us improve our products or services for you.

If you contact us about a product you already have, please tell us the full model number and serial number, so that we can give you accurate and fast help.

This product has a 2 year warranty. We will put right or replace any item which is faulty because of bad workmanship or materials. This warranty does not cover damage caused by misuse or accident.

## **IMPORTANT**

If this equipment is important to your process, you may want to buy a spare to cover possible failure or accidental damage in the future.

This is because at some times, for example during our factory shutdown periods, you may have to wait several weeks for an equivalent replacement. Or, we may have no stock at the time you urgently need it.

You may also need to pay extra carriage charges if you want a fast, guaranteed courier service. Warranty repairs or replacements are normally returned with a standard courier service.

We do not offer any compensation for losses caused by failure of this instrument.

If you do not agree with these conditions, please return this item now, in unused, clean condition, in its original packaging and we will refund the purchase price, excluding any carriage paid.

We thought you'd prefer to know about possible delays and extra charges now, rather than during a panic.

We always try to improve our products and services, so these may change over time. You should keep this manual safely, because future manuals, for new designs, may not describe this product accurately.

We believe these instructions are accurate, and that we have competently designed and manufactured the product, but please let us know if you find any errors.

# Warnings



**Please carefully read all warnings and ONLY install the item when you are sure that you understand and can comply with all aspects.**

- \* The handheld programmer and its connecting cable are NOT electrically isolated from the transmitter input signal. If there is any chance that the input signal could exceed 30V RMS, 43V peak or 60V DC above ground potential during the programming routine, you should not connect to the transmitter's programming port. (IEC1010 safety limits). Instead, perform calibration and then UNPLUG the programming cable from the transmitter BEFORE you connect the input signal.
- \* Connect the equipment according to current IEE regulations and separate all wiring according to IEC1010.
- \* Don't touch any circuitry after you have connected the equipment, because there may be lethal voltages on the circuit board or connector terminals.
- \* We designed this equipment for Pollution-Degree 2 environments only. This means you must install it in a clean, dry environment.
- \* Only adjust on-board switches or connections with the power turned off and the input signal disconnected.
- \* Make sure all screw terminals are tight before you switch the equipment on.
- \* Only clean the equipment with a soft dry lint-free cloth. Do not use any solvents.

***Safety First .....Don't assume anything..... Always double check.  
If in doubt, ask someone who is QUALIFIED to help you in the subject.***

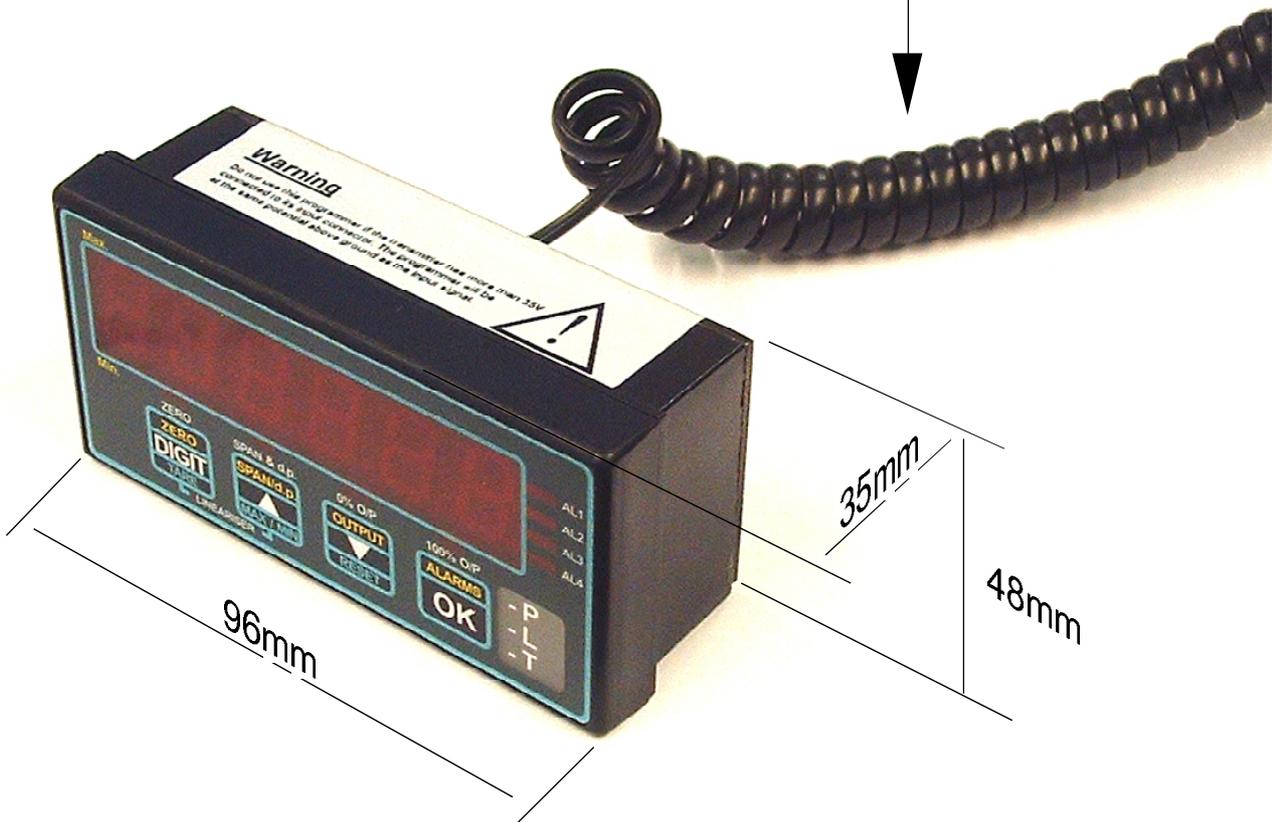
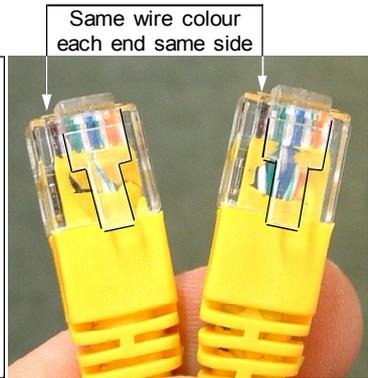
# Dimensions and weights

Case width	: 96 mm
Case forward projection	: 35 mm
Case height	: 48 mm
Typical programmer weight	: 200 grams
Operating conditions	: 0 to 50 degrees C , 10 to 90%rh non-condensing
Storage conditions	: -20 to +70 degrees C, 10 to 90%rh non condensing
Case sealing	: IP40
Case Material	: Polycarbonate
Cable dimensions	: Accepts 8 pole RJ45 data plug
Flammability Class	: V0 (UL94)

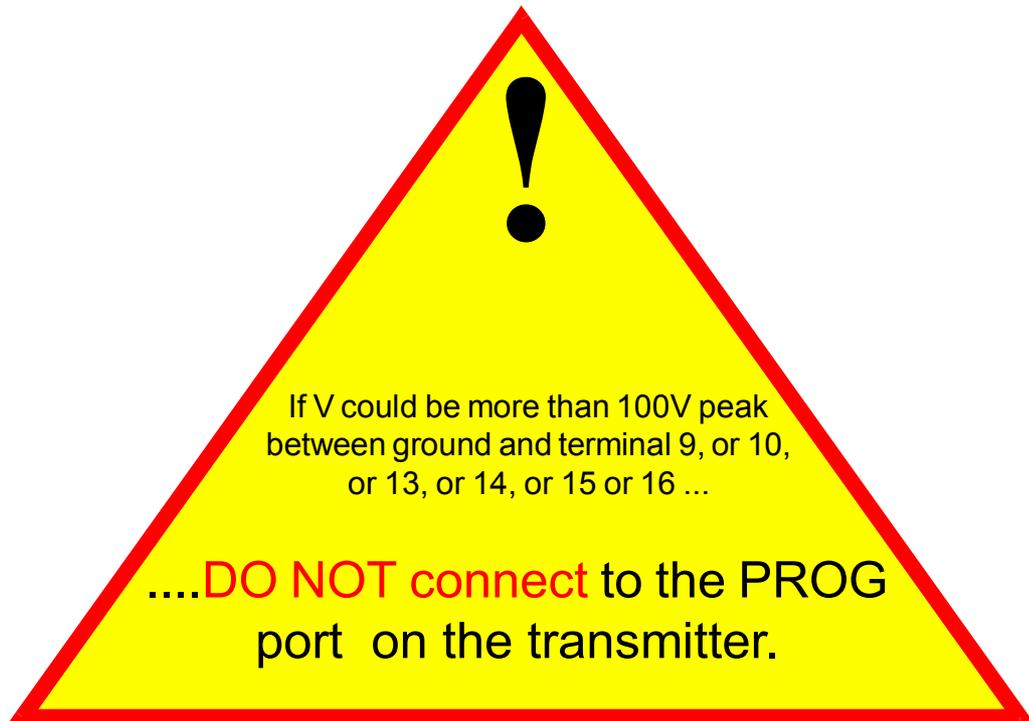
**Kit part number = 9200-2330**  
**= Handheld programmer and cable**

2 metres of data cable with detachable 8 pin plug at each end. Connects to transmitter programming port.

You can also use a normal 1:1 wired Ethernet CAT5 patch cable, 2m or less.



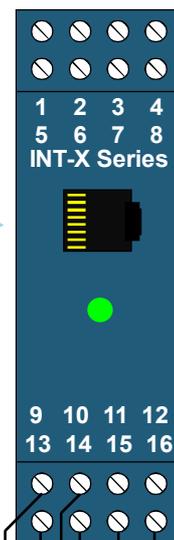
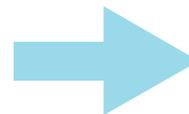
# Connection to a Transmitter



## WARNING:

The programmer port is electrically isolated from the input signal up to 100V

To Programmer  
or PC

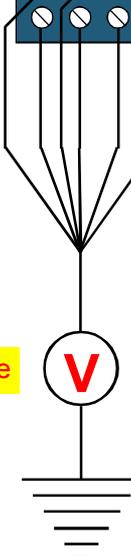


Use the cable supplied with the handheld programmer, which is a coiled 8 core data cable, 2 m long.

Do not extend the cable, as the extra capacitance may cause the data to become corrupted.

Do NOT connect to an ethernet port.

See safety warning note



# Calibration methods

There are two ways you can calibrate your transmitter.

1. Direct connection of real-time low and high input signal levels, which you scale the transmitter against. (Zero and Span)
2. Theoretical scaling, where you use the keyboard to enter expected zero and full scale sensor signals, and the measurement amounts these relate to .



Shortly after CAL.SrC appears, the display will change to show either dirECT or tHEor as below.

Note: The lineariser feature has not yet been released.

## Examples of Direct Calibration...

1. If you want to calibrate a weighing system by loading it with known calibration weights.
2. If you want to calibrate a straight-sided tank gauging system by filling the tank with a known amount of liquid.
3. If you are performing a calibration check against a calibration reference, such as humidity cells, pH buffers etc.

Press UP or DOWN arrow to change



## Examples of Theoretical Calibration...

1. If you do not yet have your sensor, but know what its published calibration settings are. For example, you plan to use a pressure sensor, which will give 4-20mA for 0-250 Bar. You can enter the input range of 4-20mA and the measurement range of 0-250.
2. If you are a distributor, supplying a transmitter to an end user who will be buying his sensor from another source. He has told you on his order what he would like the scaling to be.

Press UP or DOWN arrow to change



When you have chosen the Calibration type, it will be saved in your transmitter's memory, so you will not need to repeat the procedure.

You may now calibrate your transmitter using your preferred method, on the following pages...

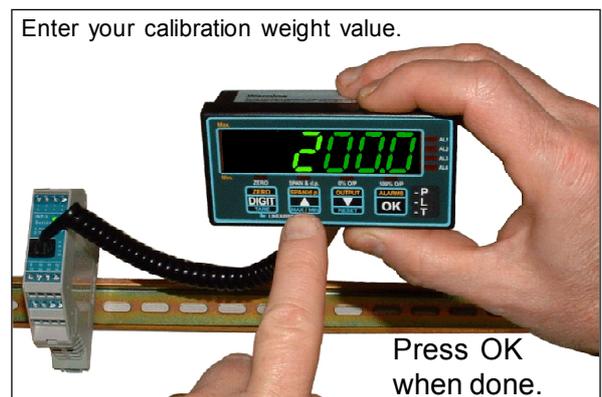
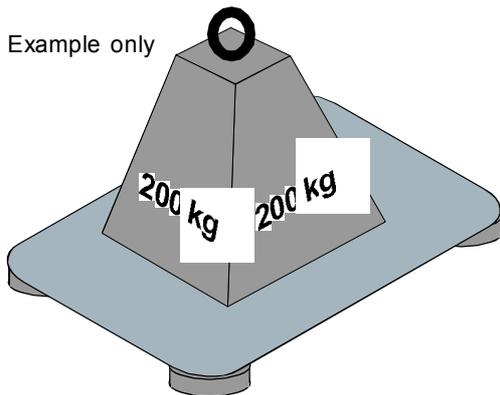
# Direct calibration

Set your calibration method to DIRECT - see previous page.

As an example, let us assume we want to calibrate a weighing platform, rated at 250kg. We have a 200kg calibration weight. (Use at least 60% rated load for calibration. 100% ideally)

First, we will calibrate the full scale (SPAN) reading. We do SPAN first, because in the SPAN procedure we can set the **decimal point** position of our measurement, to set resolution.

**SPAN Calibration** . Apply your calibration load and press the SPAN button for 3 seconds. Display will show 'direct', 'set HI'. Press OK. You will see that one digit is brighter than the others.

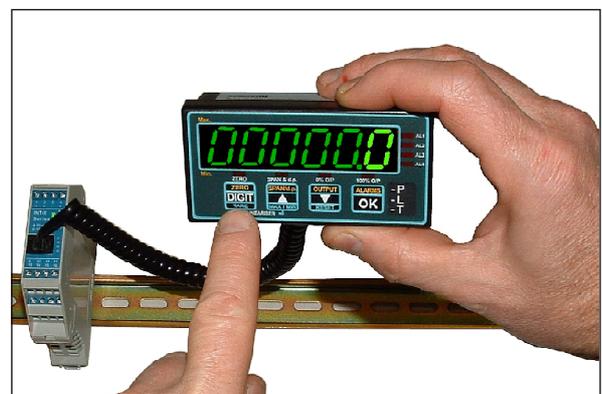
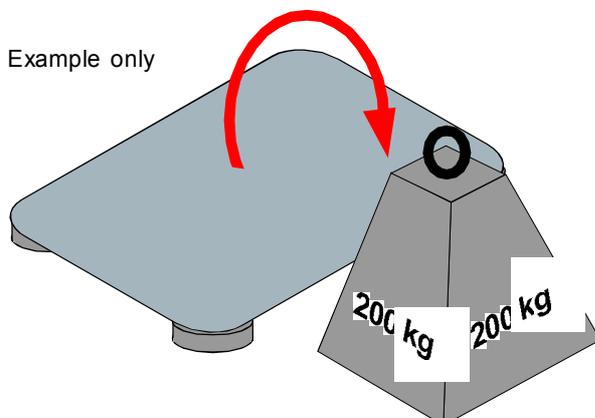


You can edit the value of a brightened digit with the UP/DOWN buttons. You can brighten other digits with the DIGIT button.

Go through each digit in turn, to set the desired value of your calibration load. Press OK when done.

To set the **decimal point position**, press the SPAN button for 3 seconds whilst in the numeric setting stage . You'll see all decimal points light, with one brighter than the rest. Use UP or DOWN buttons to move the brightest decimal point and press OK when in the desired position.

**ZERO Calibration.** Remove your load and press the ZERO button for 3 seconds. Display will show 'direct', 'set LO'. Press OK. You will see that one digit is brighter than the others.



You can edit the value of a brightened digit with the UP/DOWN buttons. You can brighten other digits with the DIGIT button. Go through each digit in turn, to set all digits to 0. Press OK when done.

# Theoretical calibration

As an example, let us assume we want to calibrate the transmitter for a loadcell input.

Let us also assume that we know from the calibration sheet which came with the loadcell, that it has a sensitivity of 0 to 2.2451mV/V and a rated capacity of 0 to 5000kg

The INT-X-L generates 10 V of excitation for the loadcell. So we can simply multiply the mV/V figure by 10 to get our full scale mV value.

Most loadcells are balanced to give 0mV at 0 load.

This means that for a load range of 0 to 5000 kg we expect a signal range of 0 to 22.451mV

We need to enter these figures into the transmitter...

**Start with the full scale SPAN setting...**

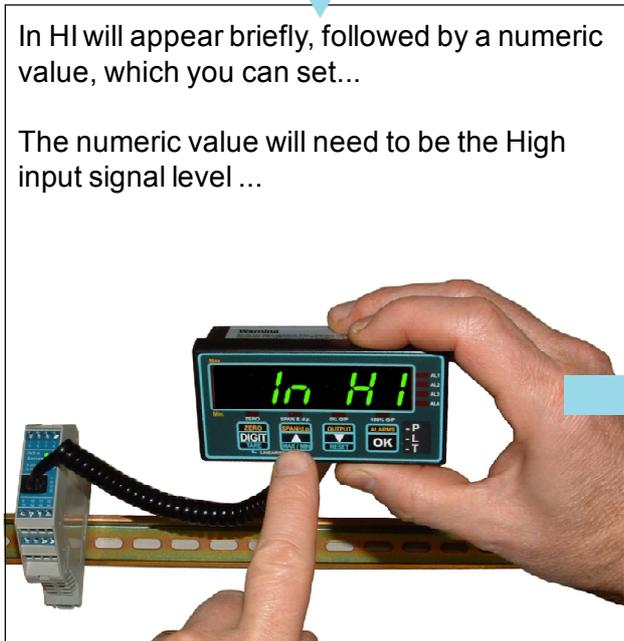


Press the Span button for around 3 seconds.

The display will briefly show **thEor**, to confirm that we are in the theoretical setup mode.

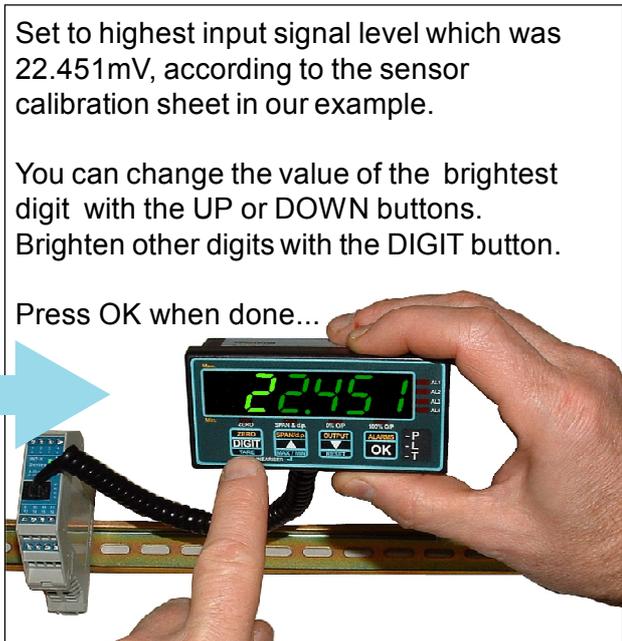
If you have an INT-X-P transmitter, you may also be asked to confirm whether your signal is a voltage "DC V" or a current "DC A".

Choose with the up or down arrows and press OK.



In HI will appear briefly, followed by a numeric value, which you can set...

The numeric value will need to be the High input signal level ...



Set to highest input signal level which was 22.451mV, according to the sensor calibration sheet in our example.

You can change the value of the brightest digit with the UP or DOWN buttons. Brighten other digits with the DIGIT button.

Press OK when done...

# Theoretical calibration

...Continued from previous page

**rd HI** will appear briefly, followed by a numeric value, which you can set...

The numeric value will need to be the High display reading value ...



Set to highest reading value, which was 5000 according to the sensor calibration sheet in our example.

You can change the value of the brightest digit with the UP or DOWN buttons. Brighten other digits with the DIGIT button.

Press OK when done...



To change decimal point position, press the SPAN button for around 3 seconds while you're in the rdHI setup...



You can change the position of the decimal point, relating to rd HI (and rd LO)

This may be useful if you want to increase the resolution of the transmitter.

The resolution affects several of the transmitter's important functions, such as ...

- ...the resolution of the analogue output signal
- ...the resolution of your alarm relay action.
- ...the resolution of the serial data output value.

As an example, assume you have a sensor with 10 tonne capacity.

If you scale the transmitter for 0 to 10, the resolution will only be 1 part in 10

Your analogue output will change in 10% steps. Your precision of alarm setting would be to within 1 tonne.

The resolution of serial data would be within 1 tonne.

However, if you include a decimal point you could control the resolution, as in these examples :-

- 0-10.0 which gives 1% resolution
- 0-10.00 which gives 0.1% resolution
- 0-10.000 which gives 0.01% resolution

You cannot get more resolution than 1 part in 60000. This is the limit of resolution in the A/D converter.

**Note:** If you change the decimal point position, you must reset the rdLO and rdHI values also.

Next .... how to set the theoretical ZERO calibration...

Use the UP arrow button to move the decimal point to your desired position.

Press OK when done.



# Theoretical calibration

Continued from previous pages. ZERO setting ...

Press the ZERO button for around 3 seconds.

**theor** will appear briefly, to confirm that you are in the theoretical calibration mode.

The numeric value will need to be the low input signal value ...



Next, **In Lo** will appear briefly. Set to the low input value, which was 0mV according to the sensor calibration sheet in our example.

You can change the value of the brightest digit with the UP or DOWN buttons. Brighten other digits with the DIGIT button.

Press OK when done.



**rd LO** will now appear briefly, followed by a numeric value, which you can set...

The numeric value will need to be the low reading value ...



Set to the low reading value, which was 0kg according to the sensor calibration sheet in our example.

You can change the value of the brightest digit with the UP or DOWN buttons. Brighten other digits with the DIGIT button.

Press OK when done...

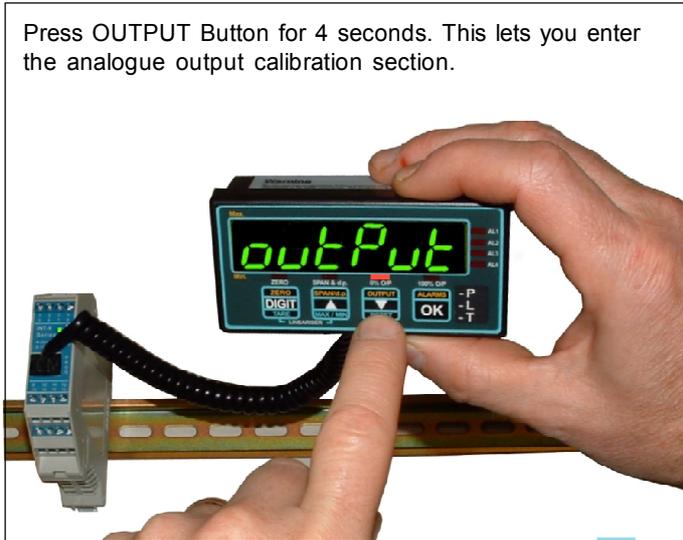


This completes the Theoretical calibration routine. Please remember to remove the programmer from the transmitter, to allow alarm, serial data and analogue output to function properly.

# Analogue Output signal type

Only adjust the analogue output settings if the transmitter input has already been calibrated. This is because the analogue output is adjusted against the real measurement values - for example, kg, Deg. C, Bar, RPM.

Press OUTPUT Button for 4 seconds. This lets you enter the analogue output calibration section.

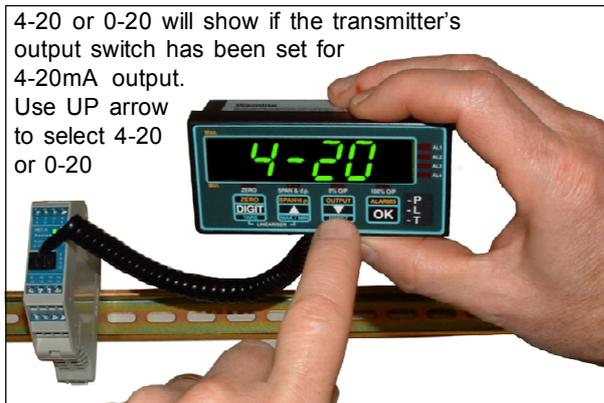


**Note:** The analogue output is disabled while the programmer is plugged into the transmitter.

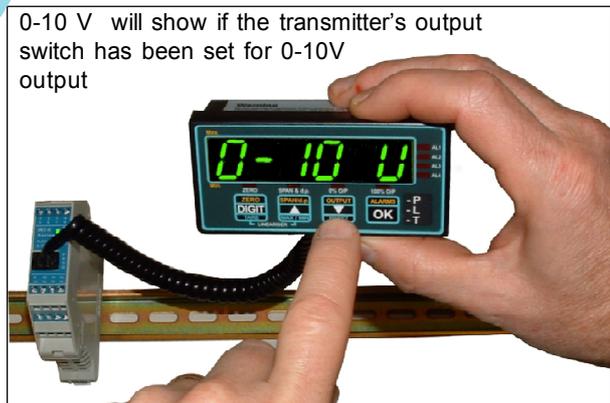
After a few seconds, the display will change, to show which output signal type is active.

DC Current or DC Voltage ...

4-20 or 0-20 will show if the transmitter's output switch has been set for 4-20mA output. Use UP arrow to select 4-20 or 0-20



0-10 V will show if the transmitter's output switch has been set for 0-10V output



The transmitter can give either mA or Voltage output, scaled and isolated. If you want to change from voltage to current output, or from current to voltage output, you will need to move some jumper switches inside the transmitter.

How you should do this is explained in the connection manual of the transmitter.

Continued on next page...

# Analogue Output - how to scale

...settings continue from previous page...

Sets the measurement value which will cause the output to go to its lowest value

Example, if you want 4-20mA or 0-10V output to represent 500 to 1300 Degrees C measured value, set out LO = 500

To adjust, use the DIGIT key to move the bright digit, and use the UP or DOWN arrows to increase or decrease the value.

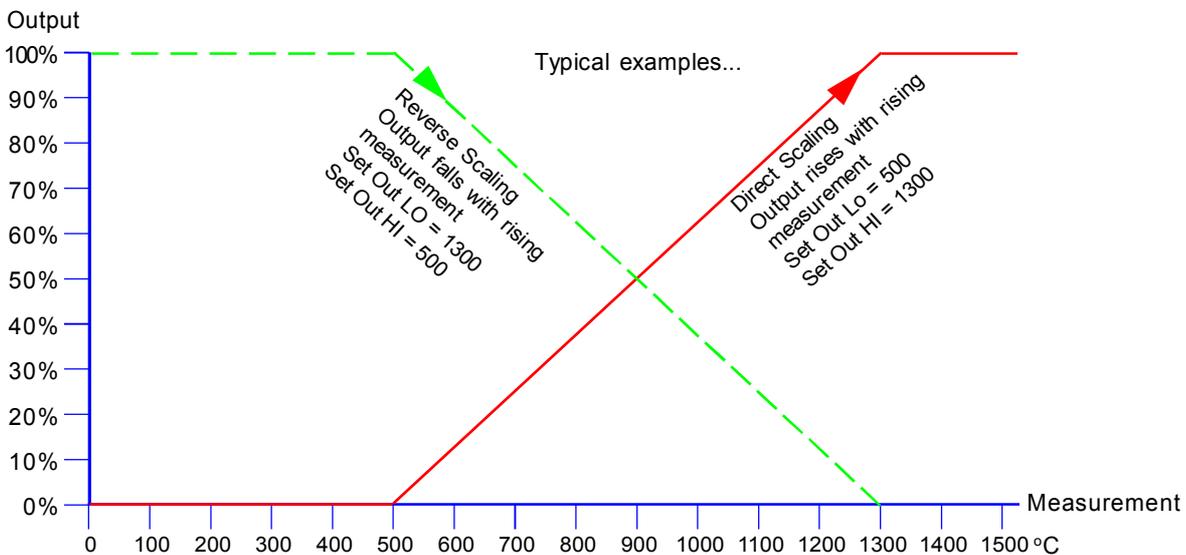
Press OK when done...

Sets the measurement value which will cause the output to go to its highest value

Example, if you want 4-20mA or 0-10V output to represent 500 to 1300 Degrees C measured value, set out HI = 1300

To adjust, use the DIGIT key to move the bright digit, and use the UP or DOWN arrows to increase or decrease the value.

Press OK when done...

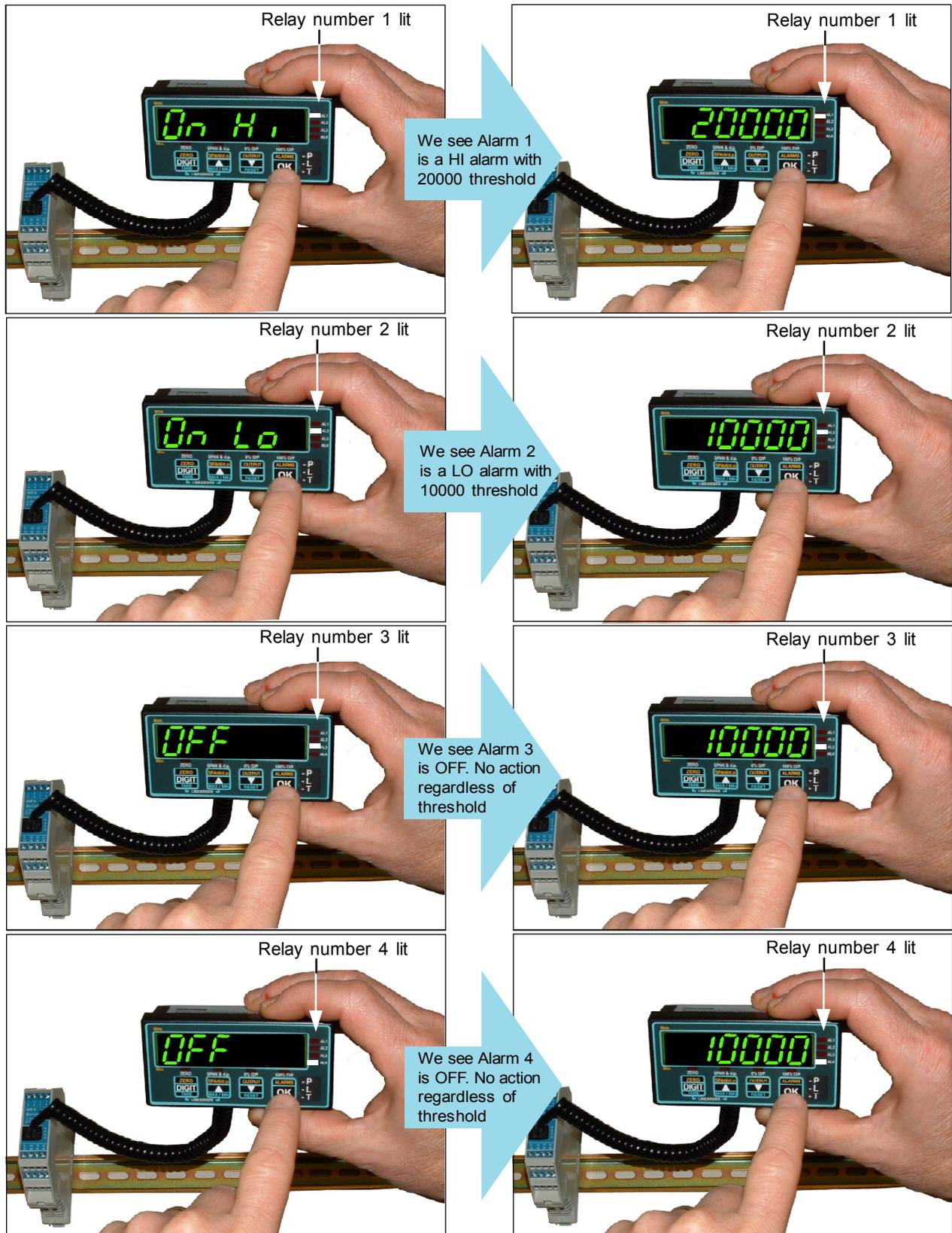


**Note:** Unplug the programmer when you have completed the setup. The analogue output will be disabled while the programmer is plugged into the transmitter

# Alarm Output settings - quick view

Press the 'Alarms' button to see alarm levels for each of the 4 relays. Alarm levels are in scaled engineering units, such as kg, Bar, Deg. C etc. The relay identifier LEDs tell you which channel you are viewing. The display will time-out and return to measurement display after 2 seconds.

The momentary screen on the left tells us if this alarm is High, Low or switched OFF. This is followed by the alarm setpoint value. Any alarm can be set to be HI, LO or OFF.



# Alarm Output settings - Alarm action

There are 3 alarm actions to choose from :-

- OFF : An alarm relay whose Action has been set to OFF will remain permanently inactive, regardless of setpoint value or input signal level.
- On HI : An alarm relay whose Action has been set to On HI will trip when the measured variable equals or exceeds the setpoint value.
- On LO : An alarm relay whose Action has been set to On LO will trip when the measured variable equals or falls below the setpoint value.



Press OK to select this alarm disabled (off)...

Or, press the UP or DOWN button to go to the next option...



Press OK to select this as a HI alarm ...

Or, press the UP or DOWN button to go to the next option...



Press OK to select this as a LO alarm ...

Or, press the UP or DOWN button to go to the next option...

Next...  
The alarm threshold ...

# Alarm Output settings - Setpoint value

After you choose your alarm action, you will be able to set the threshold or setpoint for each alarm.

You will see one digit brighter than the rest.

You can alter the value of this digit with the UP and DOWN buttons. You can select other digits to alter with the DIGIT button.



When you have adjusted all digits to match the setpoint value, press OK and you will move on to the Hysteresis setting.

The display will briefly show '**HySt**' followed by a numeric value, which you can adjust in the same way as we adjusted the threshold or setpoint value.

The hysteresis is the amount by which the reading must move into the non-alarm area, beyond the setpoint value, before it will reset the alarm relay.

For example, consider an Active High alarm setpoint at 1000 with Hysteresis of 40. The alarm will occur when the measurement rises to 1000, and will reset only if the measurement drops below 960.

Click the OK button to transfer your settings to the transmitter.

# Filter & Last digit Count-By

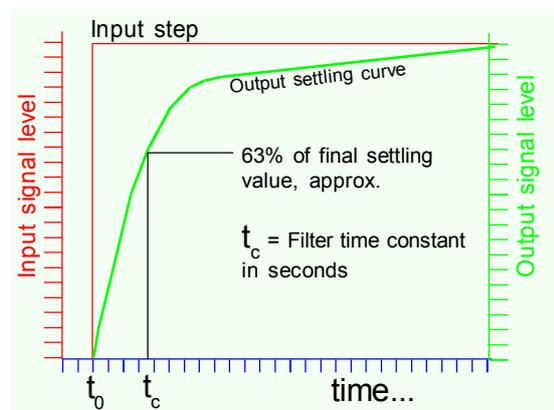
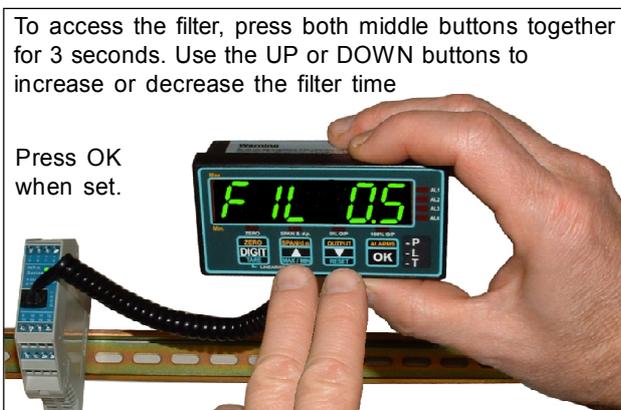
The filter and last digit count-by settings can be found after the alarm settings. They can help to improve stability of the output signal if the input is unstable, at the cost of speed and resolution.

Press the two middle buttons together for around 3 seconds.  
You'll see "FIL X.X" where you can change X.X to suit your process.

This X.X value shows the filter time constant in Seconds, and you can set it in 0.5 second steps from 0 to 5.0 seconds.

A larger time constant will increase the stability of your output signal if the input is unstable. However, a larger time constant will give a slower response speed.

Generally, this means that you should use a Filter time which is sufficient to stabilise your output, but not so large that it slows down the output response too much.



You will now see the **LSt function**, which sets the resolution of your scaled measurement.

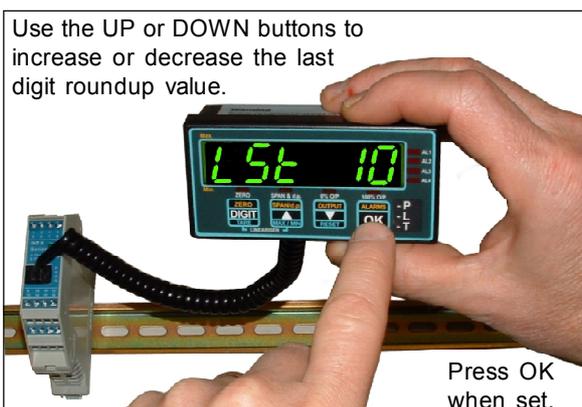
Let us assume your input signal relates to a measurement of 0-1000kg  
Assume also that your output is scaled to give 4-20mA for 0-1000kg

If you set LSt = 50, the measurement resolution will be to 50 parts in 1000

This means the analogue output will move in 5% steps as the input increases, as follows...  
4.000mA, 4.800mA, 5.600mA etc.

This is useful if your measurement signal is unstable, perhaps due to vibration on the sensor, and you want to present a stable measured value, perhaps to a remote display.

In most cases, LSt is set to 1 to give best resolution.



Value	How the scaled value increments
LSt = 1*	Sequence 0,1,2,3,4,5,6 ...
LSt = 2	Sequence 0,2,4,6,8,0...
LSt = 5	Sequence 0,5,10,15...
LSt = 10	Sequence 0,10,20,30...
LSt = 20	Sequence 0,20,40,60...
LSt = 50**	Sequence 0,50,100,150...

\* Best resolution, but most sensitivity to input signal jitter

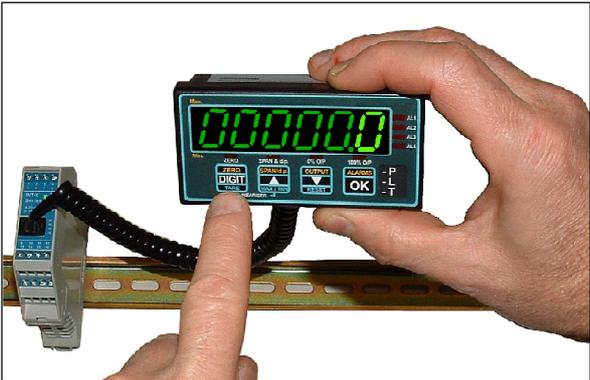
\*\* Lowest resolution, but highest stability

# Factor and Add/Subtract functions

**Factor:** You can set a figure here to multiply your measurements by a fixed amount. For example, to correct for variations in gravity, in weighing applications.

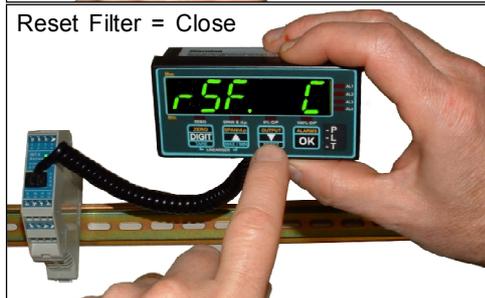
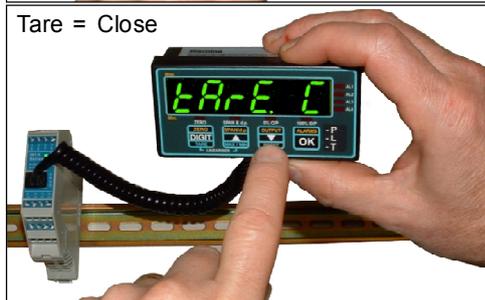
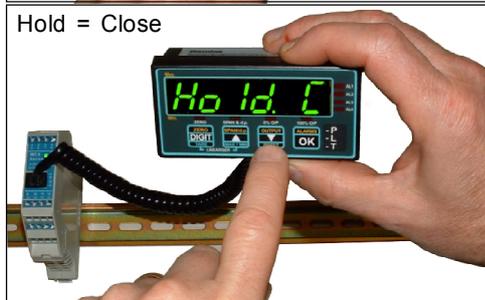
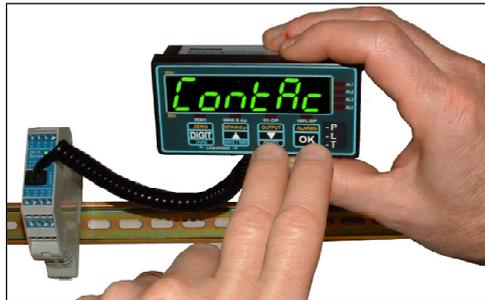


**Add / Subtract:** You can add or subtract a fixed amount from your readings. For example, you could enter the weight of container here, so that the measurement registers only the weight of the container contents.



# Contact Closure function

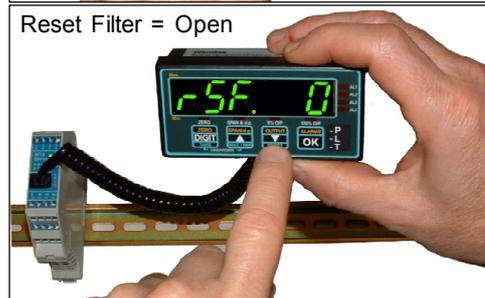
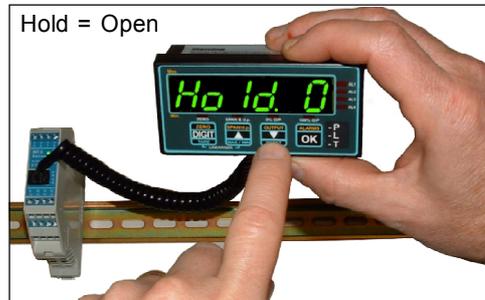
To access the Contact Closure function settings, press and release the 2 right-hand buttons simultaneously.



The INT-X has a contact-closure logic input. You can choose the function this logic port has from the drop-down list on this page.

The choices are...

- \* Disabled = No function
- \* Reset Filter on Contact opening
- \* Reset Filter on Contact closing
- \* Tare on Contact opening
- \* Tare on Contact closing
- \* Reset Peak/Valley on Contact opening
- \* Reset Peak/Valley on Contact closing
- \* Hold all activity while Contact open
- \* Hold all activity while Contact closed



Press OK at the end, and choose either TARE S to save tare on power down, or TARE N to clear tare on power down

# Tare function

To access the TARE function, press the ZERO button briefly...



The **'tARE'** prompt will appear for a second, to confirm that you are in the tare mode...



If you want to tare the transmitter, press OK when you see the **'SET'** prompt.

If you do not want to tare, press the UP button...



If you want to clear any stored tare value from the transmitter, press OK when you see the **'CLEAR'** prompt.

If you do not want to clear the stored value, press the UP button...

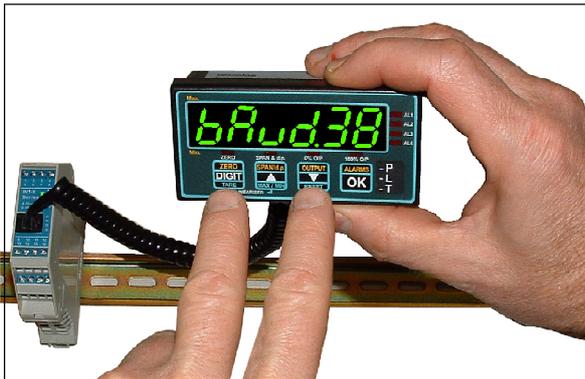


If you do not want to perform any tare function, press OK when you see the **'CANCEL'** prompt.

If you do not want to cancel your tare action, press the UP button

# Communications Settings

To access the Communications Settings, press the 1st and 3rd buttons together briefly...



## Baud Rate:

Choose from 03 = 300, 06=600, 12=1200, 24=2400.  
48=4800, 96=9600, 19-16200, 38=38400

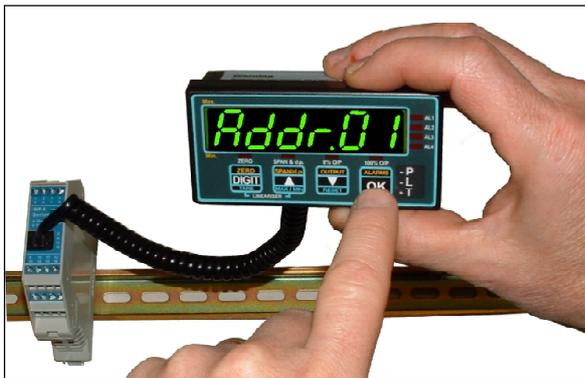
Use the UP or Down arrows to choose, and the OK button to accept.



## Data Format:

Choose from 701,7E1,7n2,801,8E1,8n2,8n1  
1st digit is bits, second parity, last stop bits.

Use the UP or Down arrows to choose, and the OK button to accept.



## Address:

Choose from 00 to FF

Use the DIGIT key to select which digit to change and the UP or Down arrows to increase or decrease, and the OK button to accept.

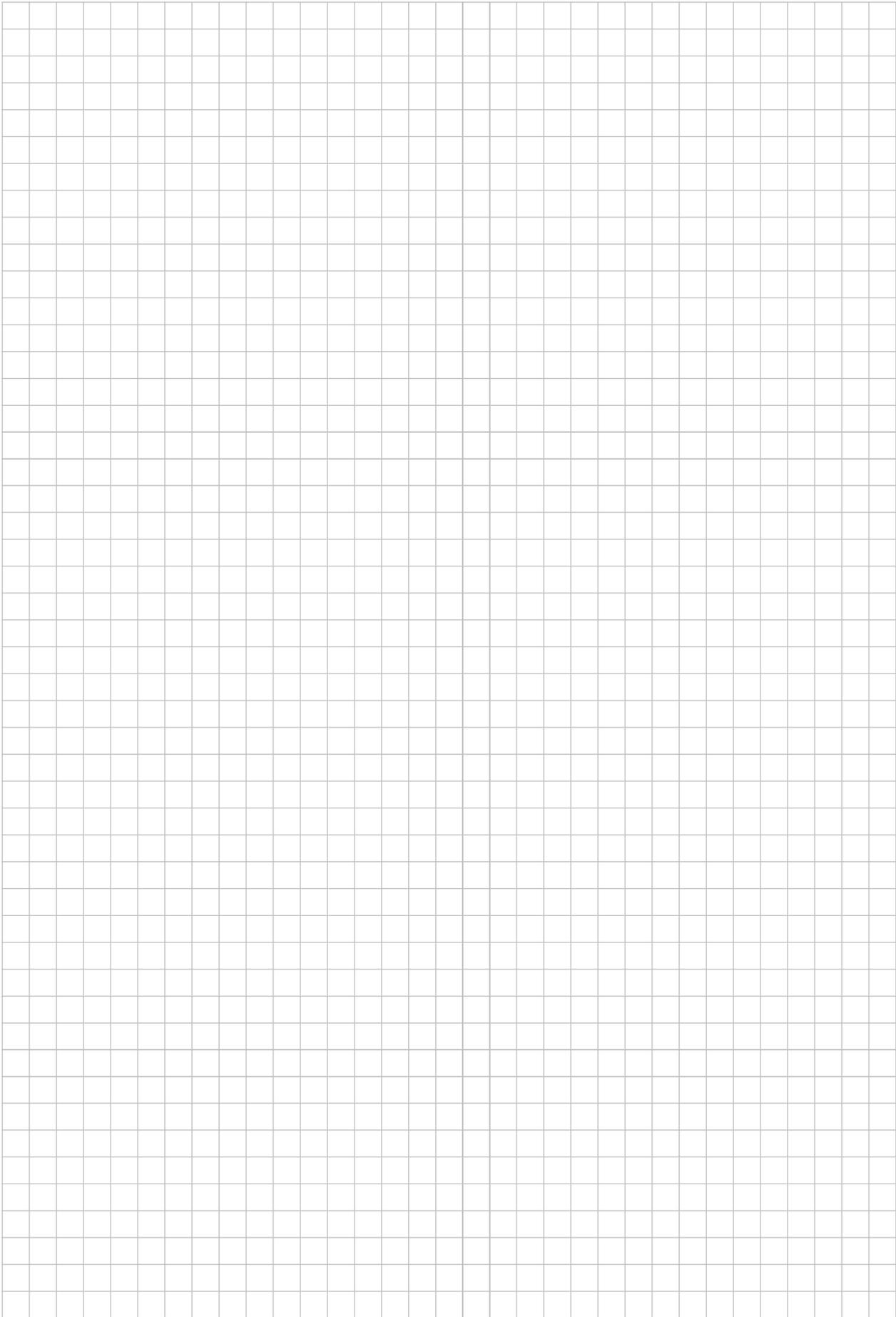


## Data Type:

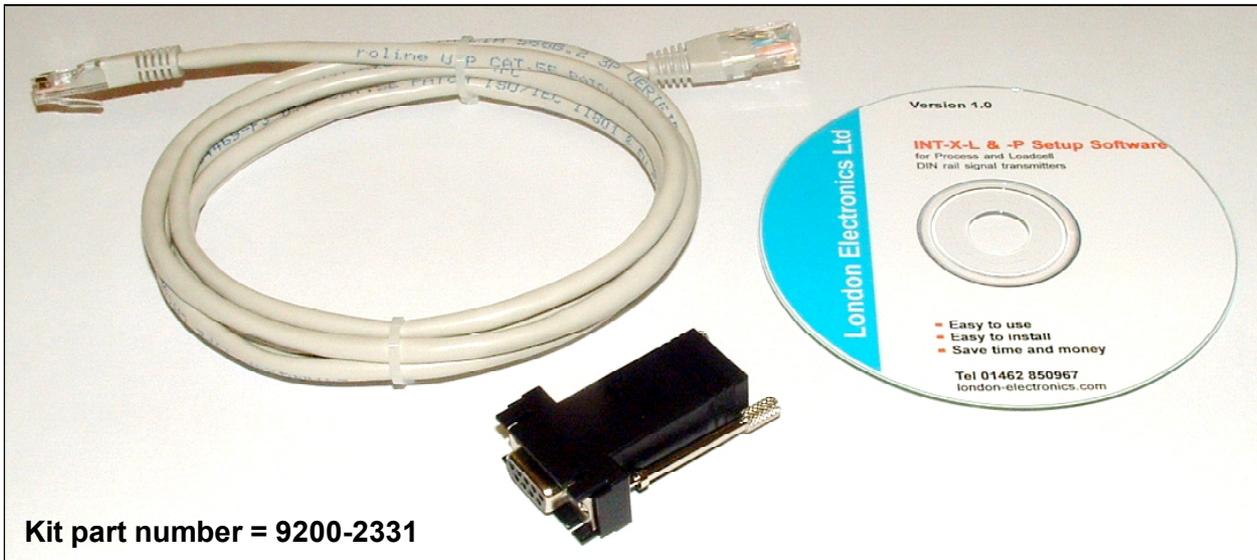
Choose from A=Modbus ASCII , r= Modbus RTU  
or C1 = Continuous ASCII to a remote display.

Use the UP or DOWN arrows to select and the OK button to accept.

# Notes



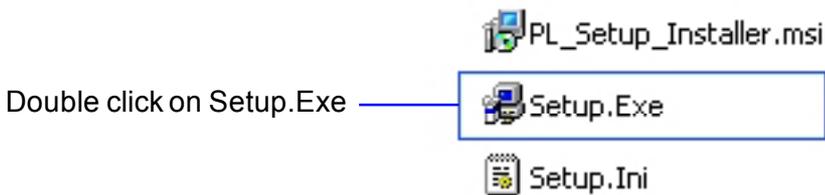
# PC Setup - What you'll need ...



1. PC with 9 pin D serial port running Win 98, Win2000 or Win XP operating system
2. A powered INT-X transmitter
3. INT-X-L Programming Software CD
4. 2 metres CAT 5E Ethernet Patch cable (supplied with CD)
5. 9 Pin D to 8 way RJ45 connector adapter (supplied with CD)

To install:

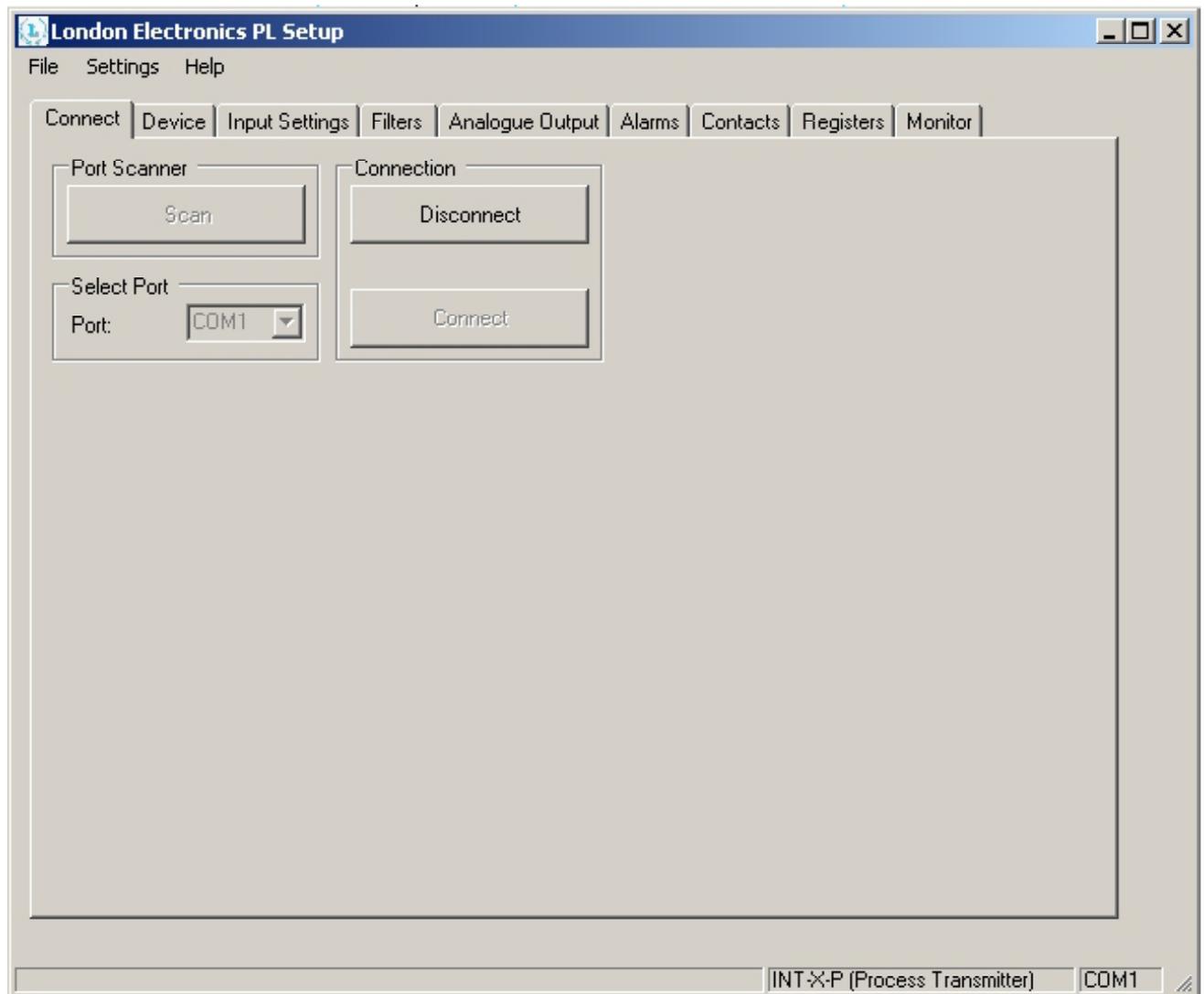
Load the CD and view its files with explorer.



You may need to update the Microsoft .NET Framework on your PC. You will get an on-screen message if this is necessary. We include the correct version on the CD, which you may use for this purpose.

The next few pages guide you through each of the sections of the PC Setup programme...

# PC Setup - Connection screen

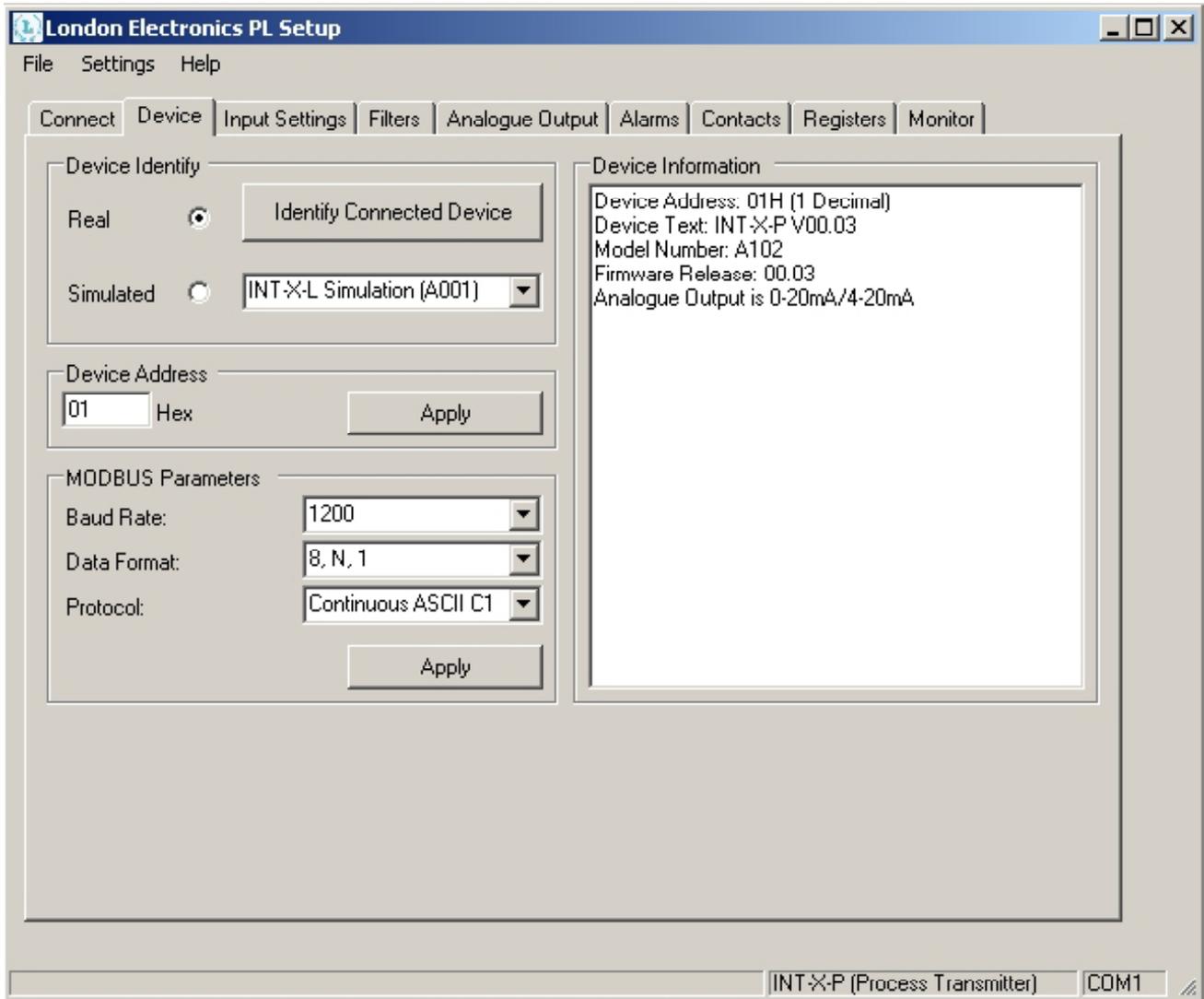


Ensure your transmitter is switched on and connected to your PC.

1. Click the SCAN button, the programme will find and identify all COM ports on your PC.
2. Select the COM port from the drop-down list, to which you connected the transmitter.
3. Click the Connect button to start communicating with the transmitter.

The software will automatically adapt its baud rate to suit that of the transmitter, and will be able to communicate with a transmitter having any address.

# PC Setup - Device screen



Click on the Device tab.

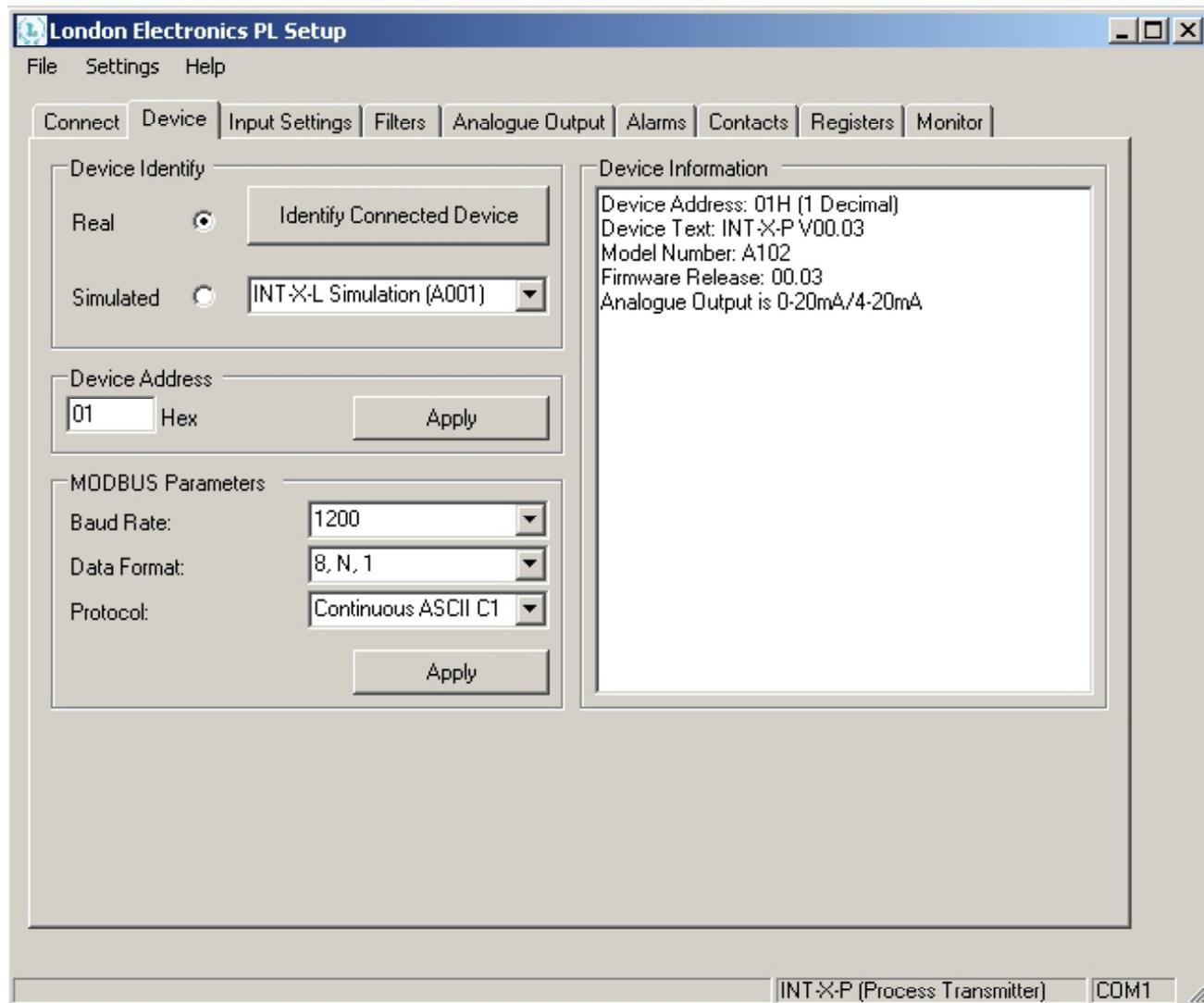
You should see a screen as shown here.

If you have a transmitter connected to your PC, click the Device Identify button, which should now populate the screen with the transmitter's details.

If you do not yet have a transmitter, but want to test the software, choose the 'Simulated' option and select a model from the simulation list.

Now see the following page ...

# PC Setup - Device Screen



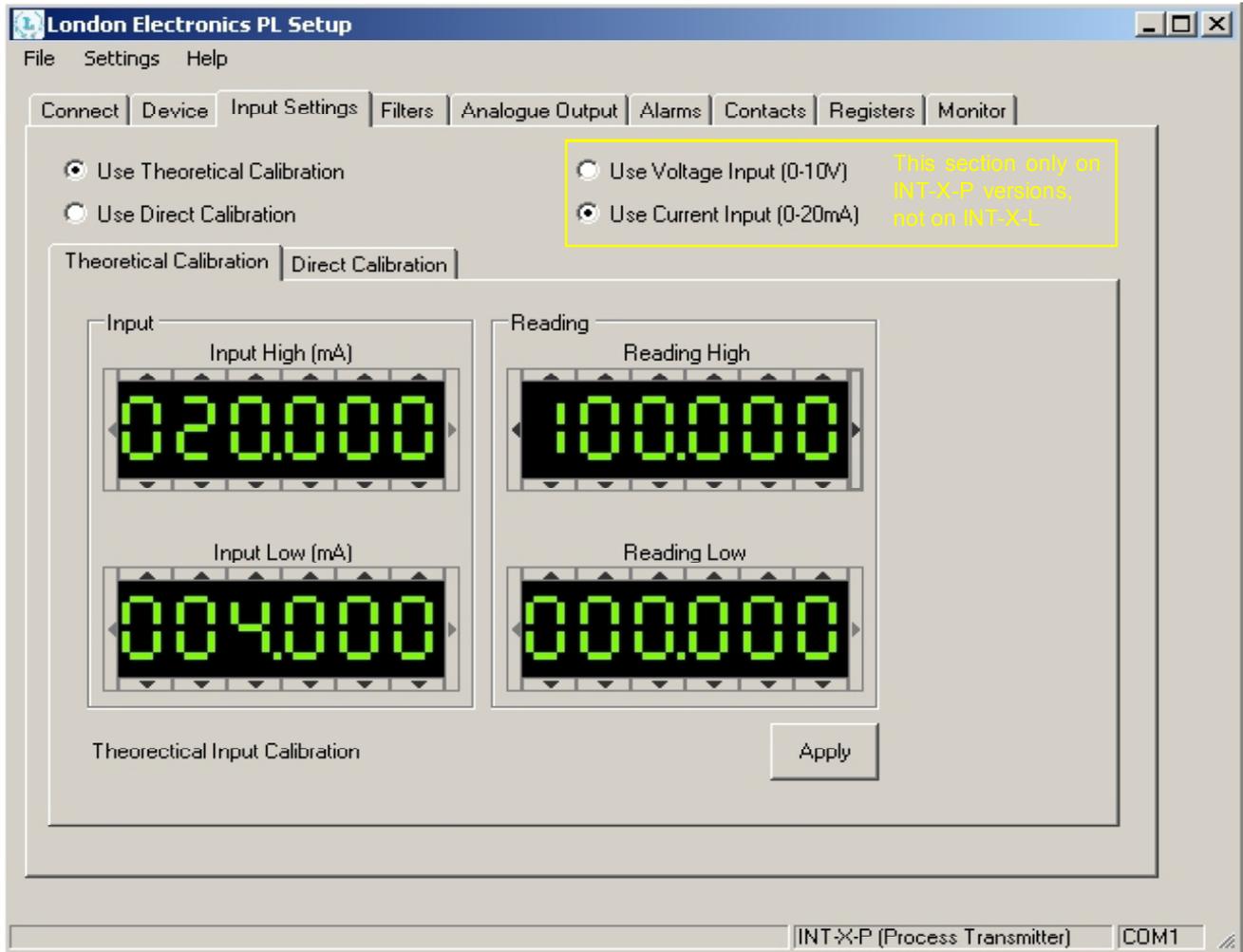
You will now be able to see the transmitter's device software version and communication settings.

The Device Information box contains useful version numbers which you should have ready to pass on to us whenever you ask for technical support.

You can edit the following settings ....

1. Device Address 00 to FF
2. Baud Rate 300, 600, 1200, 2400, 4800, 9600, 19200 or 38400
3. Data Format 8N1, 8N2, 8E1, 8O1, 7N2, 7E1 or 7O1
4. Data Protocol. ASCII or RTU, or Continuous ASCII output.

# PC Setup - Input Settings - theoretical



Use Theoretical Input settings to calibrate your transmitter against expected signals and desired readings. (If you want to calibrate using live input signals, choose Direct Calibration on the next page)

For example, you may have a loadcell which has a sensitivity of 5.0000 mV/V and a capacity of 50000 kg

For loadcell inputs, the transmitter gives 10V Excitation, so your signal level will be 0 to 50.000mV for a reading of 0 to 50000 kg.

Enter your figures as shown above, using the UP/DOWN arrows to increase or decrease the value of each digit.

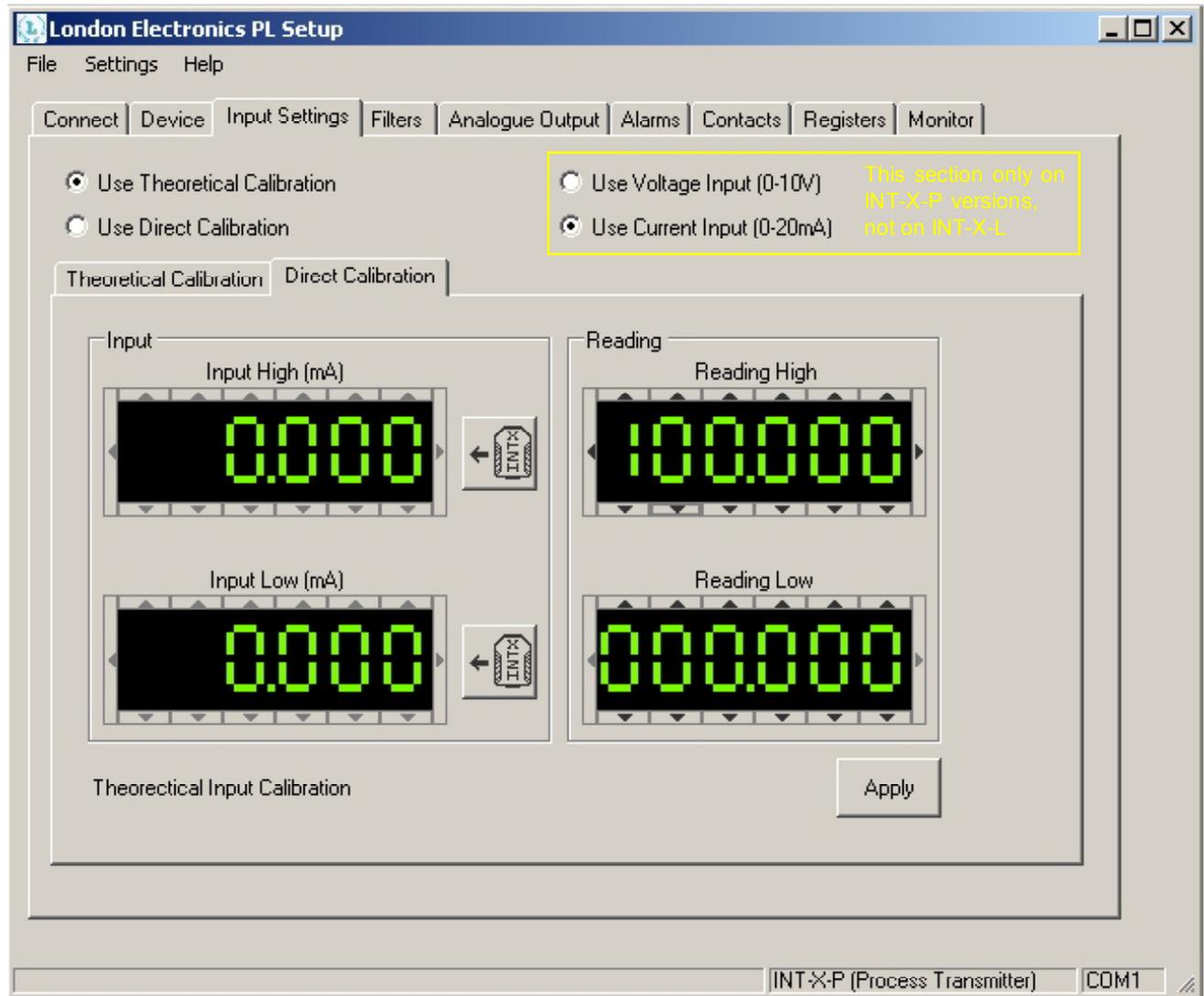
You can move the decimal point position with the LEFT and RIGHT buttons in the Reading High section. The Reading Low section will automatically have the same decimal point position.

The Input signal decimal point position is fixed.

The INT-X-P process input version lets you choose between 4-20ma or 0-10V input.

Click the Apply Button to transfer your new settings to the transmitter.

# PC Setup - Input Settings - direct



If you want to calibrate your transmitter with real signals from your process, select Direct Calibration. For example let us assume you want to calibrate a weighing system with a known calibration load. This load should be as big as possible within the capacity of your system, for best results. We suggest calibration weights should be at least 25% of system capacity.

## Full Scale Calibration

Apply your known weight to the platform. When the load is steady, click the upper INT-X button which will tell the transmitter to sample the signal and store it. You will be asked to confirm your choice. Click OK if correct. You will now see the upper mV level from the loadcell, in the Input High box.

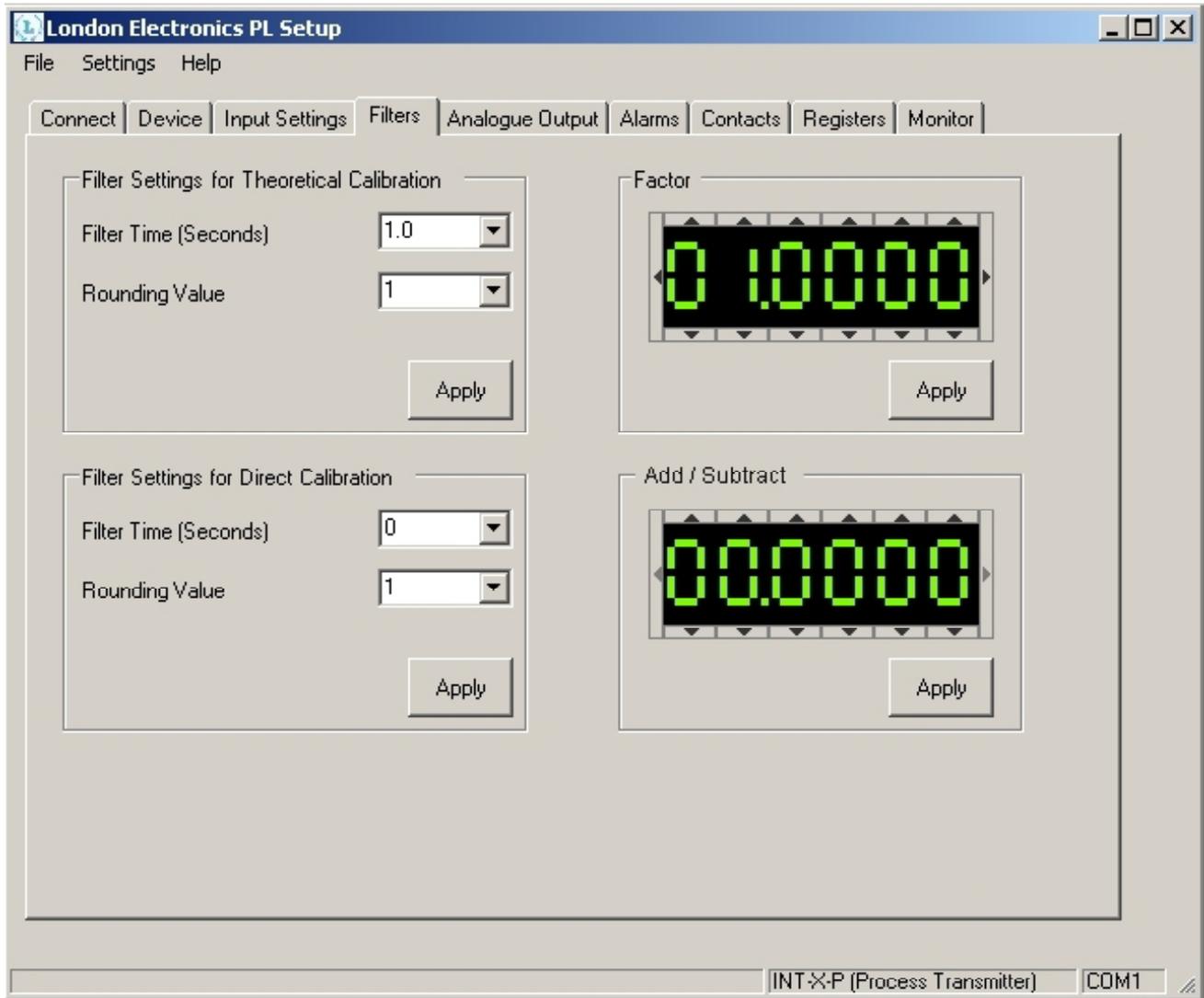
Enter the weight of your cal load in the Reading High section, using the UP/DOWN arrows to increase or decrease the value of each digit.

You can move the decimal point position with the LEFT and RIGHT buttons in the Reading High section. The Reading Low section will automatically have the same decimal point position.

## Zero Scale Calibration

Remove your known weight from the platform. When the platform is steady, click the lower INT-X button which will tell the transmitter to sample the signal and store it. You will be asked to confirm your choice. Click OK if correct. You will now see the lowerer mV level from the loadcell, in the Input Low box. **Click the Apply button to save these settings in your transmitter.**

# PC Setup - Filtering and rounding



You can change the filtering time-constant of the transmitter. This is useful if your process has a vibration or physical disturbance which might cause instability of your measurement.

A filter time of 0 gives the fastest response, with minimum averaging.  
A filter time of 5 gives the slowest response with maximum averaging.

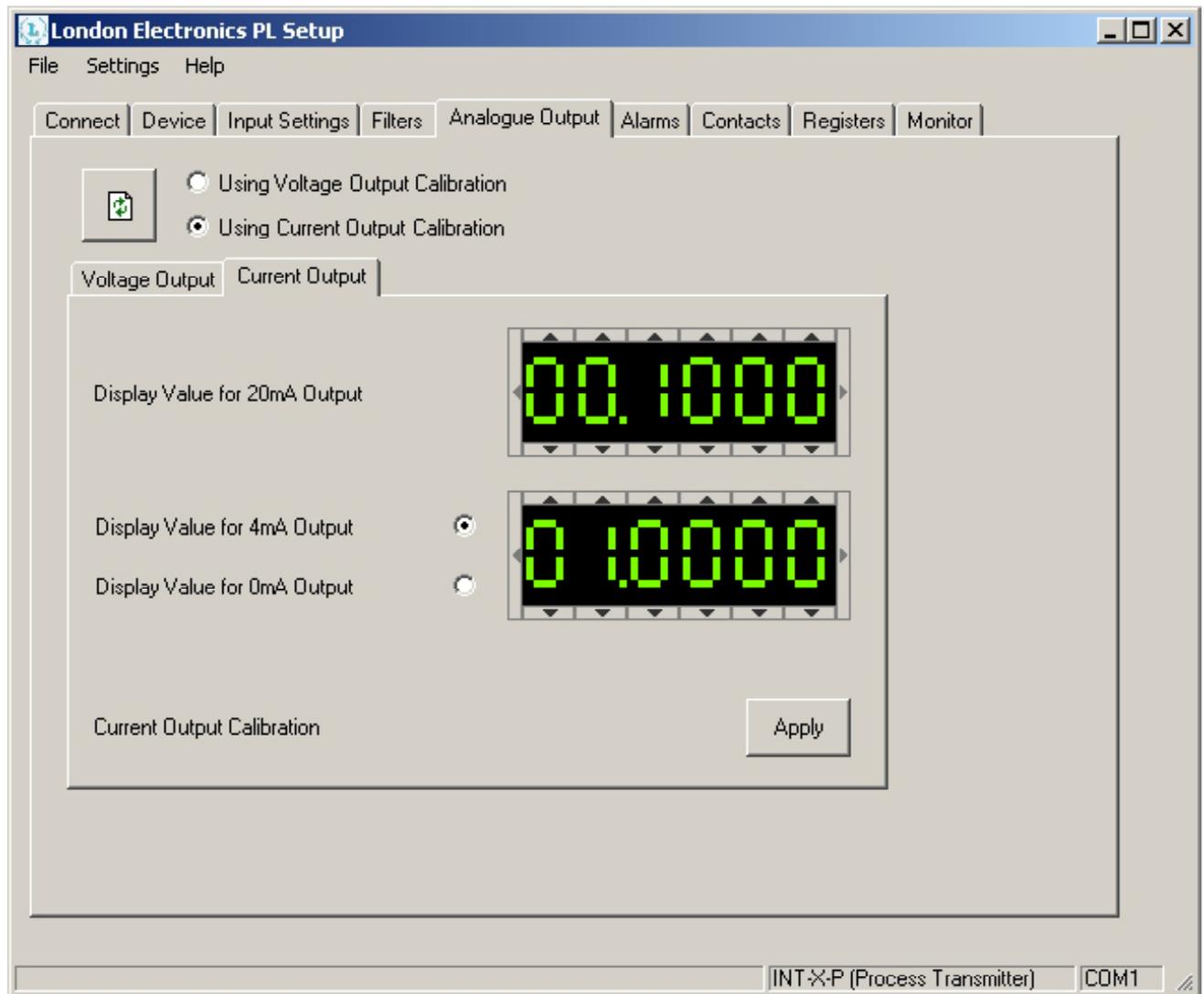
You can also change the resolution of your measurement with the Rounding Value.  
If you set your Rounding Value to 10, the conversion will increment in 10's.

You can set different Filtering and different Rounding performance to the two calibration methods.

**Factor:** You can set a figure here to multiply your measurements by a fixed amount. For example, to correct for variations in gravity, in weighing applications.

**AddSub:** You can add or subtract a fixed amount from your readings. For example, you could enter the negative weight of container here, so that the measurement registers only the weight of the container contents.

# PC Setup - Analogue O/P - Current

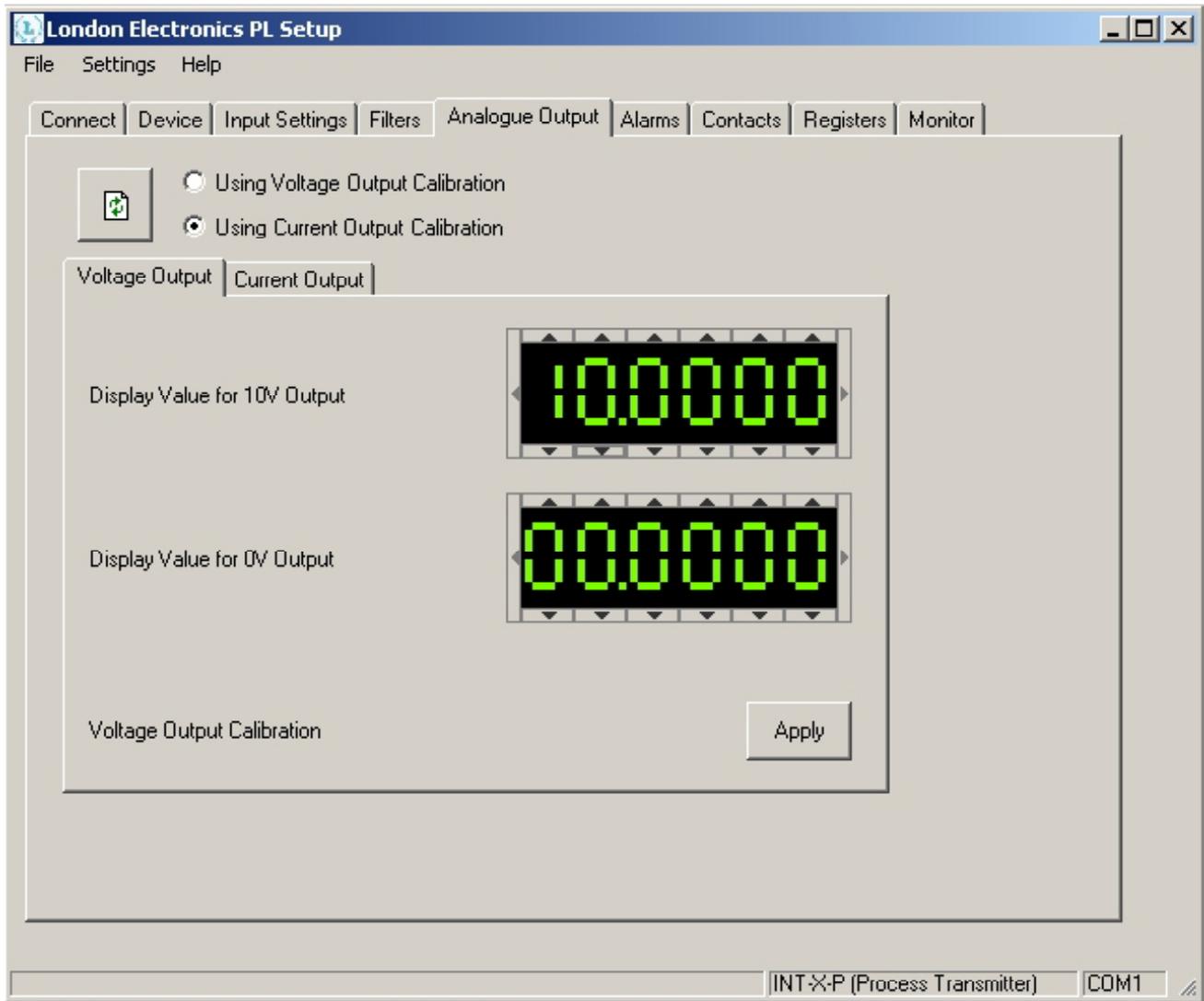


The transmitter can give either 0/4-20mA or 0-10V scaled and isolated analogue output. Switches inside the transmitter choose either the current or voltage output port. You can see which position the switches are in if you click this button ...  
You can choose the current output to cover either 0-20mA or 4-20mA

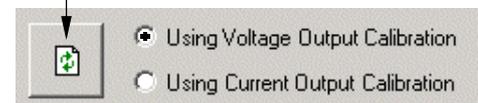


If you want to change the position of the analogue output switches, see the INT-X connection manual, which has full details.

# PC Setup - Analogue O/P - Voltage

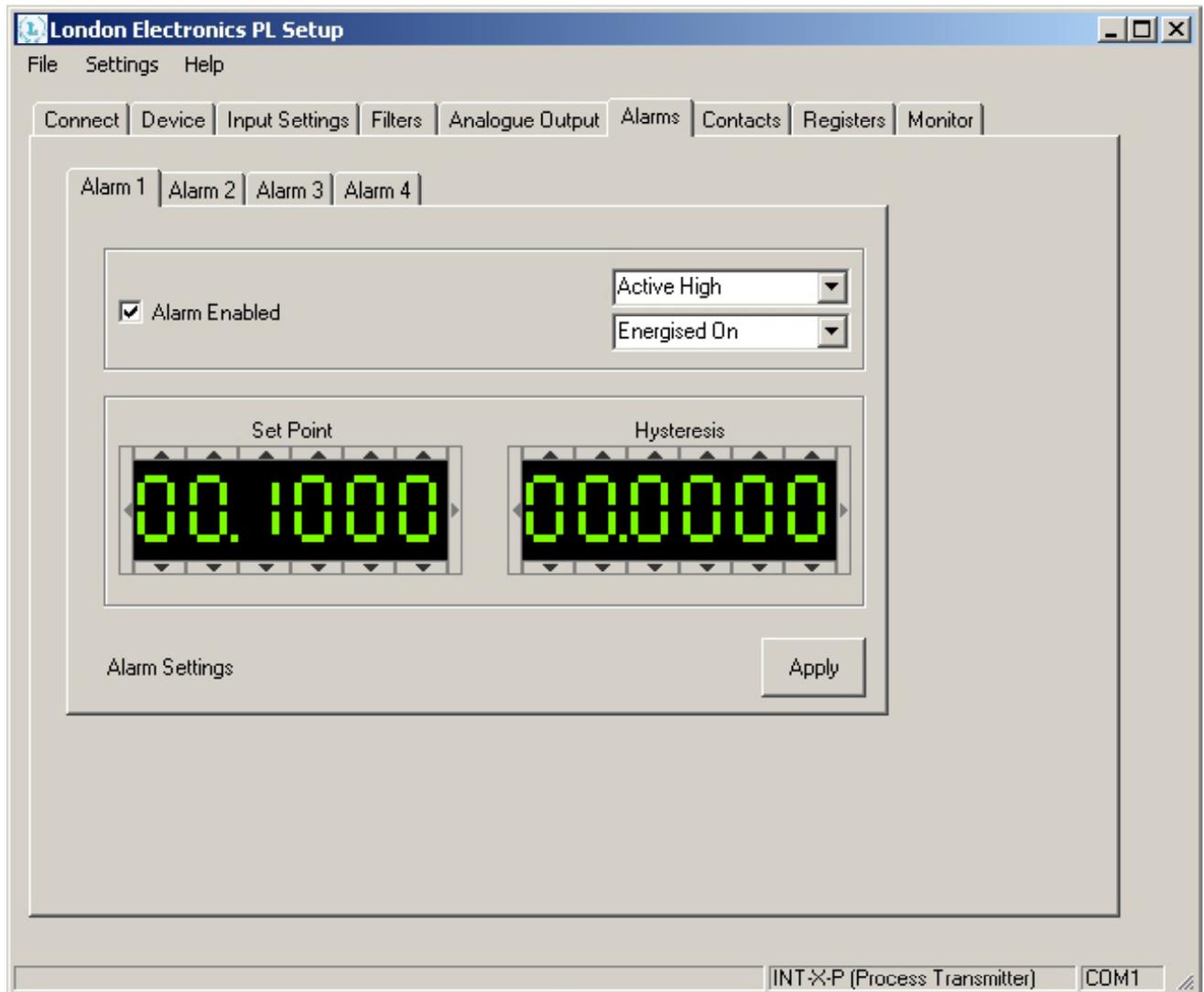


The transmitter can provide either 0/4-20mA or 0-10V scaled and isolated analogue output. Switches inside the transmitter choose either the current or voltage output port. You can see which position the switches are in if you click this button ... You can choose the current output to cover either 0-20mA or 4-20mA



If you want to change the position of the analogue output switches, see the INT-X connection manual, which has full details.

# PC Setup - Alarm Relays



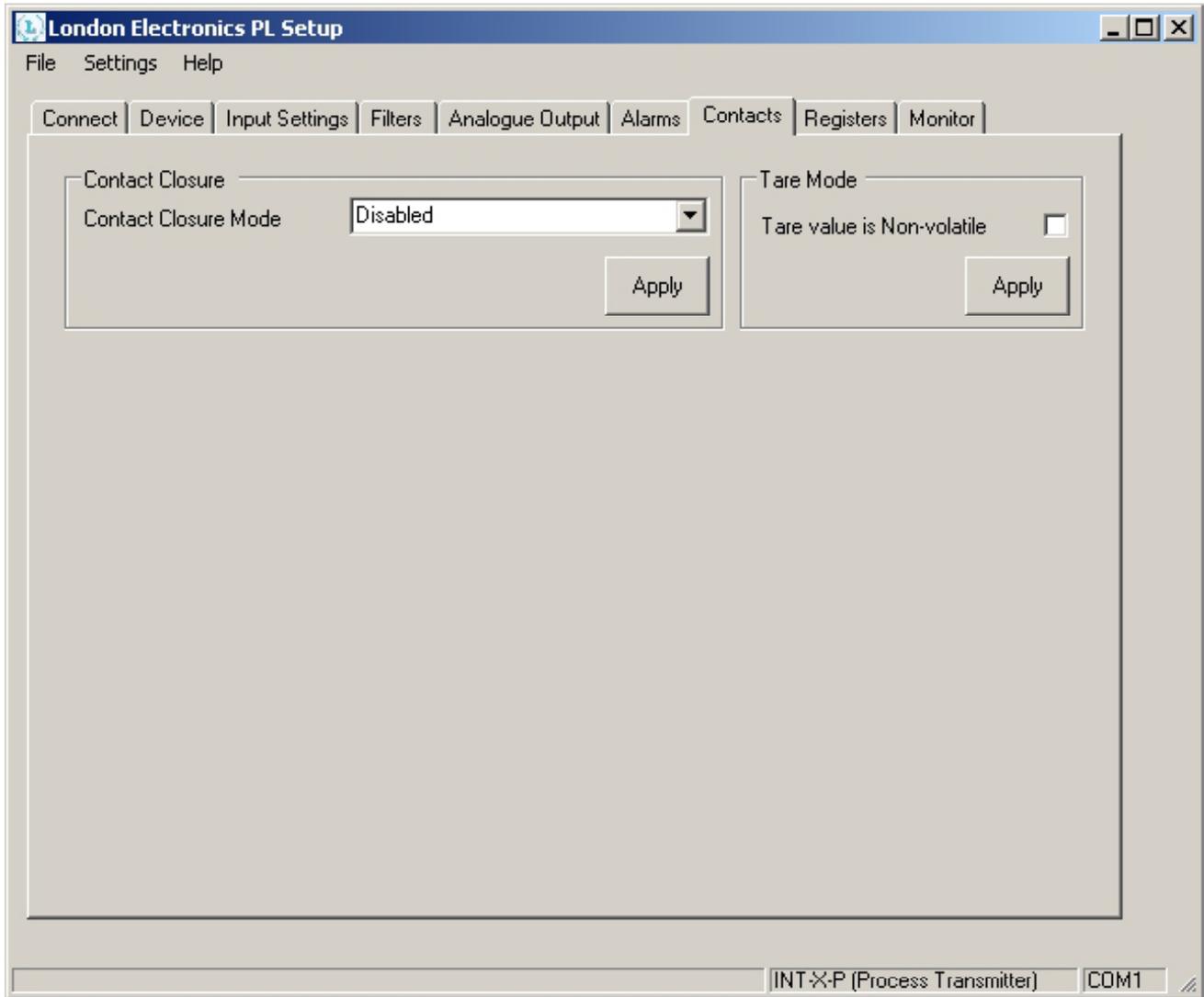
Each alarm relay can have its response tailored as follows:-

1. Alarm enabled - When ticked, the relay will respond to process changes. When not ticked, the relay will be permanently de-energised.
2. Active High or Active Low. Use Active High for alarms which are to occur when the input signal reaches or exceeds the setpoint value. Use active Low for alarms which are to occur when the input signal reaches or falls below the setpoint level.
3. Energised On or Energised Off. Energised On means the alarm relay will energise in the alarm state (non failsafe). Energised Off means the alarm relay will de-energise in the alarm state (failsafe)
4. Setpoint. The point at which an alarm will occur. Use Up and Down arrows to adjust.
5. Hysteresis. The amount by which the reading must move into the non-alarm area, beyond the setpoint value, before it will reset the alarm relay. Use Up and Down arrows to adjust.

For example an Active High alarm setpoint at 1000 with Hysteresis of 40.  
The alarm will occur when the measurement rises to 1000, and will reset only if the measurement drops below 960.

Click the Apply button to transfer your settings to the transmitter.

# PC Setup - Contact Closure input



The INT-X has a contact-closure input logic connection.  
You can choose what function this logic port has, from the drop-down list on this page.

The choices are...

- \* Disabled = No function
- \* Reset Filter on Contact opening
- \* Reset Filter on Contact closing
- \* Tare on Contact opening
- \* Tare on Contact closing
- \* Reset Peak/Valley on Contact opening
- \* Reset Peak/Valley on Contact closing
- \* Hold all activity while Contact open
- \* Hold all activity while Contact closed

You can also choose whether or not the tare offset will be saved when you switch off the transmitter.

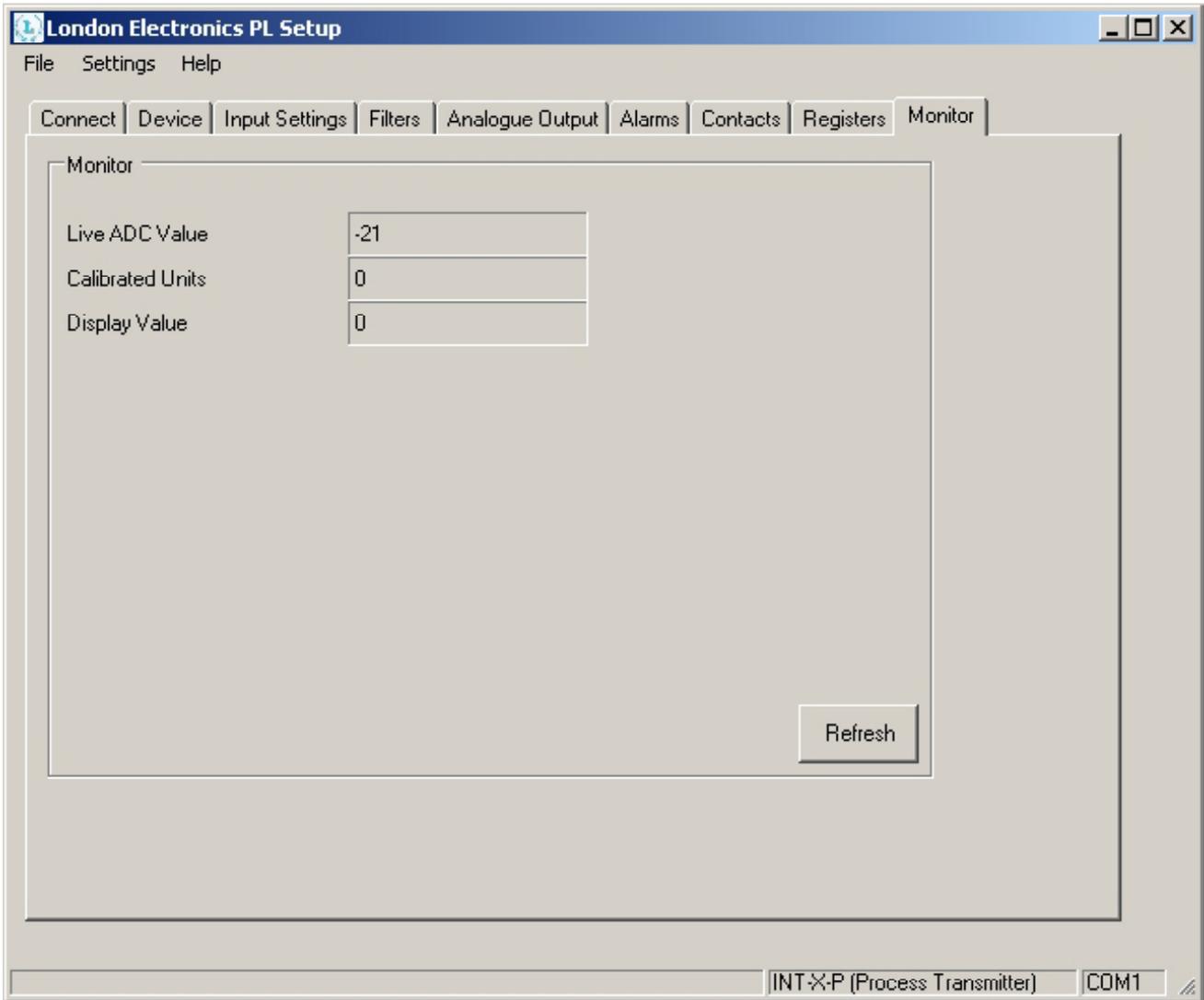
# PC Setup - Registers

Address(Dec)	Address(Hex)	EEP Value(Hex)	RAM Value(Hex)
16	0010H	0000H	0000H
17	0011H	0000H	0000H
18	0012H	0000H	0000H
19	0013H	0000H	0000H
20	0014H	0000H	0000H
21	0015H	0000H	0000H
22	0016H	0000H	0000H
23	0017H	0000H	0000H
24	0018H	0000H	0000H
25	0019H	0000H	0000H
26	001AH	0000H	0000H
27	001BH	0000H	0000H
28	001CH	0000H	0000H
29	001DH	8000H	0000H
30	001EH	0000H	0000H
31	001FH	0000H	0004H
32	0020H	0000H	0000H
33	0021H	0000H	0000H
34	0022H	0000H	0000H
35	0023H	0000H	0000H
36	0024H	0000H	0000H
37	0025H	0000H	0000H
38	0026H	0000H	0000H
39	0027H	0000H	0000H
40	0028H	0000H	0000H
41	0029H	0000H	0000H
42	002AH	0000H	0000H
43	002BH	0000H	0000H

You can view all device registers.  
Useful for certain diagnostic procedures.

Greyed-out register values are factory-fixed

# PC Setup - Monitor

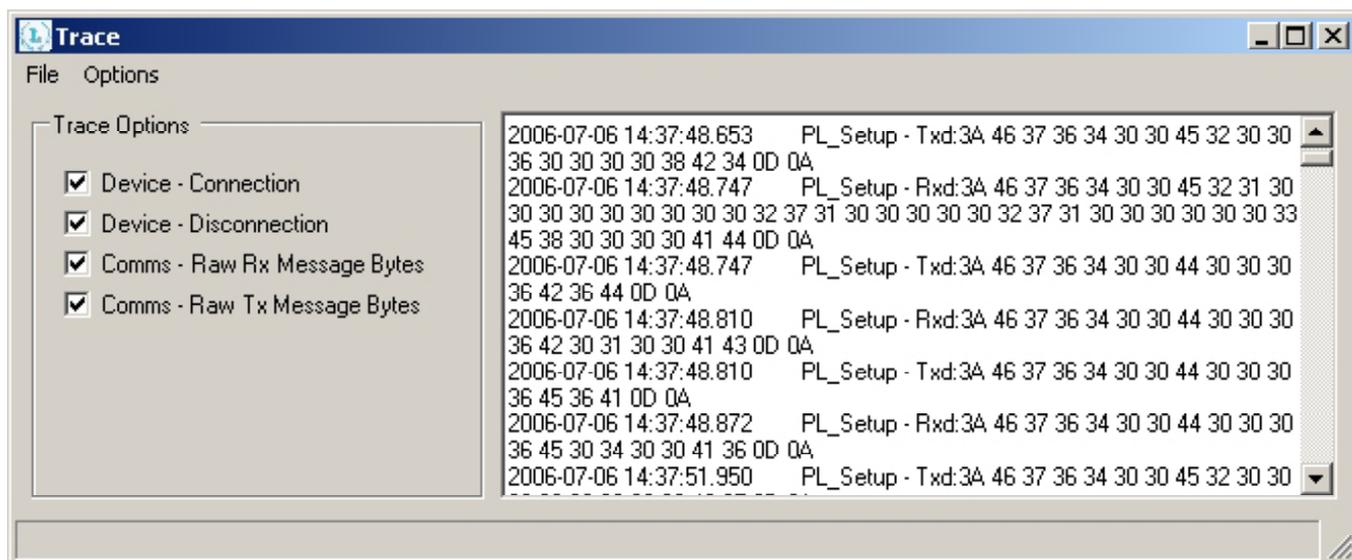


Another useful diagnostic feature.

With this screen, you can see the raw, unscaled Analog to Digital Converter result, the input millivolt level, and the Scaled reading in engineering units.

Click the Refresh button to get the latest values.

# PC Setup - Trace screen



This screen records all connection and communication activity.

You can select whether the trace includes connection, disconnection, transmission or reception activity, or any combination of those activities.

To access it, click on Help in the normal running screen and select 'Show Trace'

# PC Setup - How to Save and Load files

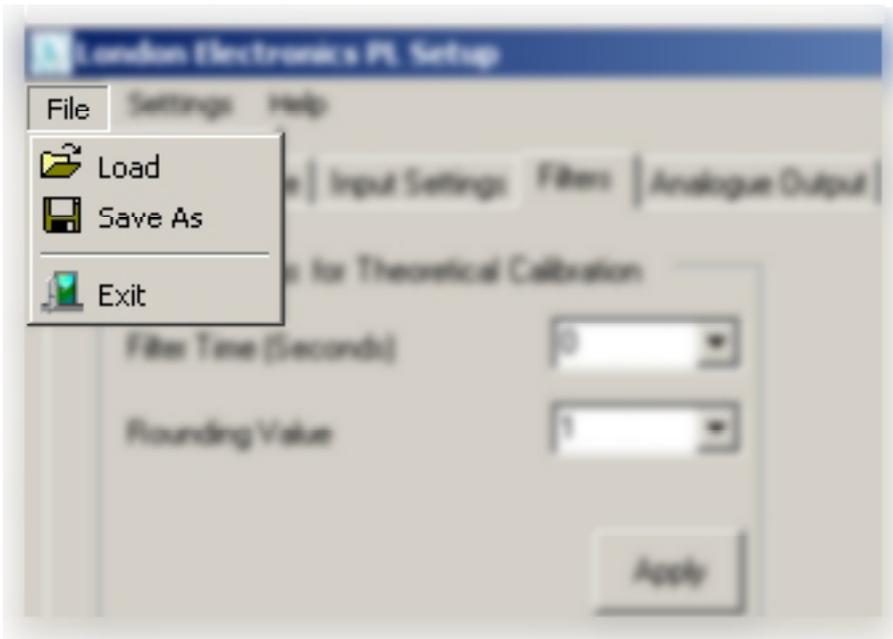
You can save a transmitter's setup details to file on your PC, for later recall or transfer to another transmitter.

This can be useful if you have regular requirements for a certain configuration, or if you want to keep a record of a particular transmitter's settings, or if you want to email and share settings with colleagues or customers.

You should first make a folder on your PC, dedicated to saving configuration files, called **London\_INTX**

To save a file, choose the '**Save As**' function and give your file a memorable name to help you find it easily in the future. Files will automatically have a .dmd extension.

To open a file from your PC, choose the 'Load' option. You must have the correct Device choice in the PC program. For example, you will not be able to load an INT-X-L file if your Device choice is for INT-X-P.



# PC Setup - On-screen LED colour

The 'Settings' Button will open this screen, which lets you choose the colour of the on-screen LEDs.



# Revisions

Rev. 1	15 October 2009	Added connection warning - page 7
Rev. 2	12 September 2012	Updated software version - front cover
Rev. 3	23 March 2018	Updated software version - front cover
Rev. 4	8 January 2019	Clarified Saving and Loading Files - page 38

# Notes

