

## IC600 Reference and operators manual



The IC600 and IC600 'plus' are Position display unit's that can be retro-fitted to almost any machine as long as a Quadrature encoder can be fitted. They are fully programmable and can display Millimetre's, Centimetres, inches or fractal inches or a combination of units i.e. millimetre's and inches at the same time.

IC600 Dimensions	188 mm x 102 mm x 33 mm
IC600 Display visible	122 mm x 22 mm



IC600 in mm mode



IC600 in Dual mode

Screens shown are above are 60% full size

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## A quick tour of the IC600

### The IC600 Display

The IC600 display is a 2 line by 20 character LCD Display, this enables us to display both numbers and text, which makes installation and operation of the IC600 both quick and easy.

### The IC600 Keypad

The IC600 keypad has been kept to a minimum to ease learning, this enables the operator to feel at ease with the unit very quickly. The keypad consists of just 3 buttons;



This button allows the operator to change the measuring unit in use i.e. MM, CM, IN



This button is used after power up to calibrate the IC600 and to ENTER values during installation.



This button allows a change in the number of decimal places displayed it also allows the operator to re calibrate the IC600 if required.

## OPERATION

After power up the IC600 will self test to confirm that all the parameters are correct and display "OK"



The display will now show the version of firmware,



This is followed by the Suppliers logo screen,



The display will now change to the operating screen, this screen will vary depending upon the model of 600 that you have.

If you are using the "IC600" the screen will prompt you to move to a position and press SET

If you are using the "IC600 PLUS" the screen will display the current position (this is the position at power off assuming the gauge has not moved)

## CONFIGURATION

There are 2-configuration menu's used to setup the IC600, Simple and Advanced

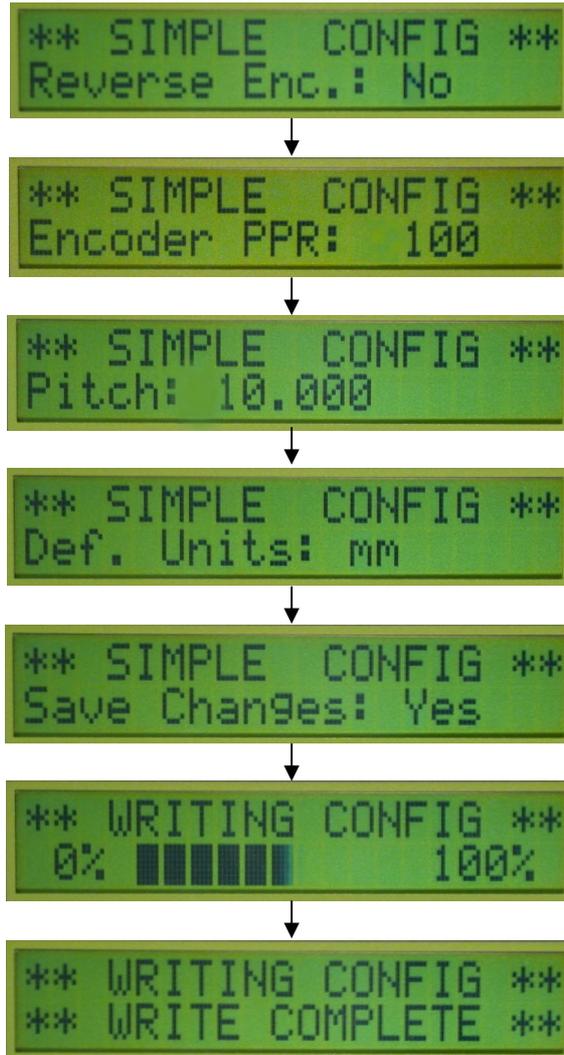
### 1) SIMPLE CONFIGURATION



The "SIMPLE CONFIGURATION" mode is accessed by pressing and holding the "SET" button from the Firmware screen until "SIMPLE CONFIG" is displayed.

SIMPLE CONFIGURATION		
Parameter	Options	Default
Reverse encoder	Yes / No	No
Encoder PPR	1 - 1000	100
Pitch	1 - 100	10 mm
Default units	mm/cm/in	mm
Save changes	Yes / No	Yes

## SIMPLE CONFIGURATION SCREENS



This page shows all the screen's used within the Simple configuration from entry into Simple configuration to saving and exiting the routines, to change any value simply turn the encoder until the required value is displayed then press "SET" to store the value and step onto the next parameter

## 2) ADVANCED CONFIGURATION



The "ADVANCED CONFIGURATION " is be accessed by pressing and holding the "UNIT" and "MODE" buttons from the Firmware screen until "ADVANCED CONFIG" is displayed.

ADVANCED CONFIGURATION		
Parameter	Options	Default
Reverse encoder	Yes / No	NO
Encoder PPR	1 to 1000	100
Pitch	1 to 100	10
Default units	mm	mm
Enable mm	Yes / No	Yes
Precision mm(decimal places)	0,1,2	2
Enable cm	Yes / No	Yes
Precision cm	0,1,2,3	3
Enable inches	Yes / No	Yes
Precision IN	0,1,2,3	3
Enable Fractal inches	Yes / No	Yes
Precision fractal	1/4 to 1/64 <sup>ths</sup>	1/64 <sup>ths</sup>
Enable dual display	Yes / No	Yes
Enable pulses	Yes / No	No
Dual unit (top line)	mm/cm/in	mm
Dual unit (bottom line)	mm/cm/in	in
Metric start position	1 to 500	100
Imperial start position	1 to 36	4 in
Show speed bar	Yes / No	Yes
Show max speed	Yes / No	No
Save changes	Yes / No	Yes

## **MODIFYING PARAMETERS**

To change the value of any parameter within "SIMPLE" or "ADVANCED" configuration modes the encoder must be turned either clockwise or Anti-clockwise, turning the encoder will either increment or decrement the selected parameter.

To accept and enter a value the "SET" button is used, each time the "SET" button is pressed the current (on screen) value is accepted and the IC600 moves onto the next parameter.

If required the IC600 can be pre-programmed from the factory to reduce the time required to install the unit, however if any gearing is to be used we would strongly recommend that the Pitch is adjusted to allow for any effective gearing

## PARAMETER EXPLANATION'S

### Reverse encoder

If you find that the display counts the wrong way, up instead of down this parameter may be used. The output from the encoder could be swapped over (A,B/B,A) but obviously it is much easier to swap it in software.

### Encoder PPR

This is the number of Pulses Per Revolution of the encoder.

### Pitch

This refers to the pitch of the leadscrew on the machine this can be manipulated if any gearing is used during the installation.

### Default units

When the IC600 powers up the units specified in this parameter will be used if Default units are set to inches the IC600 will power up in inches regardless of the units at switch off.

### Enable mm - cm - in - 1/64<sup>ths</sup>

This option allows the user to enable the units that can be selected with the mode button any units that are NOT enabled will not be seen when mode is used

### Precision

This parameter allows you to select the number of decimal places for the individual units (mm, cm, in, 1/64<sup>ths</sup>) the maximum value is 3 decimal places the minimum is 0 decimal places

### Enable Dual display

This parameter allows the IC600 to display two units of measurement the units as selected by Dual unit (top line) and Dual unit (bottom line)

### Enable pulses

This parameter is only used for installation purposes, pulses can't be easily used as a unit of measurement, you can however use this function to tell you how many pulses per revolution your encoder is if for any reason it is not known.

### Start position

When the IC600 powers up it will display "position to XXX and press set" Where XXX is the start position, the default for this is 100 mm or 4 inches. The start position can be anywhere throughout the travel of the backgauge. If you want to start towards the rear of the machine simply change the start position to a convenient number i.e. 500mm.

### NOTE

The IC600 'plus' will not display "position to XXX" at power up it will display the current position.

### Show speed

This parameter can be useful for providing a visual indication that the backgauge is moving it appears as a bar display on the right-hand side of the display.

### Show Max speed

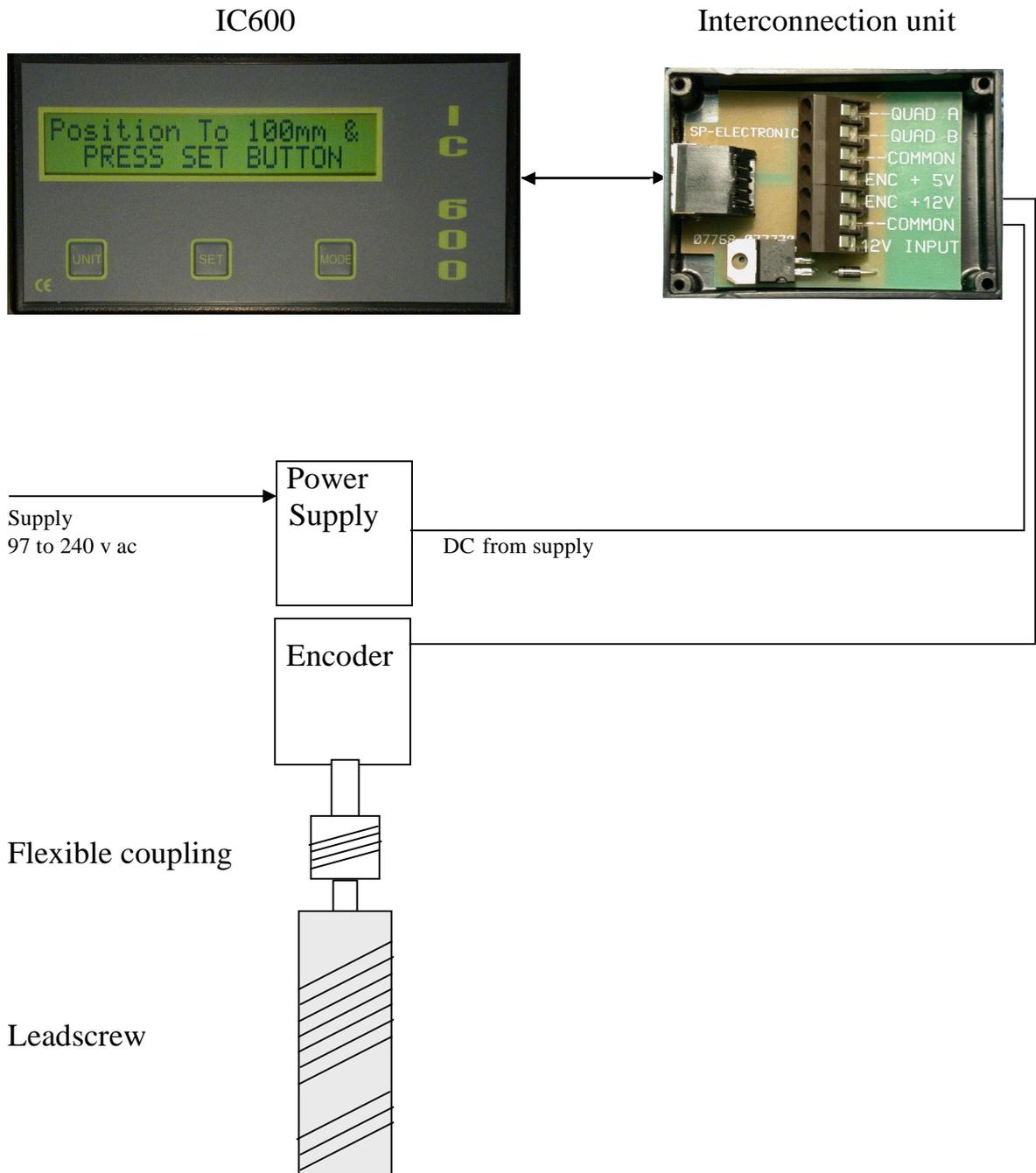
The max speed is a permanent bar on the left-hand side of the display; it should only be used at the time of installation to show the maximum speed achieved by the backgauge. If for any reason the bar reaches the top of the display it is recommended that the encoder be geared typically a 2:1 reduction would be used.

### Save changes

If you have edited or changed any parameter and wish to keep the changes you should select "YES" if you select "NO" all the changes will be lost.

## INSTALLATION

Installation of the IC600 is very easy and straight forward, we do however recommend that you use a reputable company this will ensure your safety as the end user and also give trouble free operation.



## IC600 WIRING

The IC600 wiring is simple and can be accomplished in a matter of minutes.

The lead from the IC600 is terminated with an RJ45 connector this plug's into the interconnection unit, the DC output from the power supply is then connected to the +12v input and Common terminals respectively.

The encoder, if you are using a British encoder the connections are as follows.

Enc + 12v.....White  
Common.....Black  
Quad A.....Brown  
Quad B.....Red

The screen should also be connected to the Common terminal within the interconnection unit.

### DC SUPPLY

If the power supply was supplied as part of the IC600 kit the terminations will have been made and tested at the factory.

Common.....BLACK  
12v Input.....BLACK + RED TIP

Once the IC600 is installed and configured it will require an initial datum, the default is 100mm (set in Advanced Config) simply move the backgauge forward to 100mm and press SET the display should now agree with the actual position of the backgauge.

## SPECIFICATION

### IC600

DC input	10 - 18 V
Current consumption	250 mA (with Encoder)
Max Quadrature speed	>50 kHz *
Max size displayed	> +/- 14800 mm > +/- 8450 Inches
2 X 20 LCD display	8 mm characters
Display resolution	0.01 mm **

### Firmware

IC600	Ver 1.70 - MR
IC600 'plus'	Ver 1.80 - MR

### Power supply (if supplied in kit)

AC input voltage	97 - 270 V
Overload protection	Pulsing mode auto recovery
DC output	12 Volts +/- 5%
Max current	1.2 A

### Encoder (if supplied in kit)

Type	British encoder
Model	758 - HV
Voltage	5 - 24 V DC
PPR	100 or 360
Shaft	10 mm Dia

### NOTE

\* Max speed equates to 1.25 m/s with a 10mm pitch leadscrew

\*\* Display resolution may vary depending upon pitch and gearing

## SETUP INFORMATION

Setup information is given and should only be used in the unlikely event that the setup held within the IC600 becomes corrupt. This sheet should be completed at the time of installation by the Engineer or installer.

ADVANCED CONFIG	
Parameter	Your Settings
Reverse encoder	
Encoder PPR	
Pitch	
Default units	
Enable mm	
Precision mm (decimal places)	
Enable cm	
Precision cm	
Enable inches	
Precision IN	
Enable Fractal inches	
Precision fractal	
Enable dual display	
Enable pulses	
Dual unit (top line)	
Dual unit (bottom line)	
Metric start position	
Imperial start position	
Show speed bar	
Show max speed	

## TROUBLE SHOOTING

IC600 dead	Check that you have 12 volts at the interconnection unit (+V and Common)  Check all leads for damage
IC600 beeps and resets for no reason	Check the PSU it could be shutting down on over current or under voltage on the mains side or due to excessive noise on the supply
IC600 displays keystuck 100 or 010 or 001	The 100 indicates that the first switch is stuck the 010 for the second switch and 001 for third switch (first switch being units)
IC600 Inaccurate	If the error is consistent check the PPR and Pitch in setup and adjust to correct  If the error is not consistent check for loose or slipping couplings also check for loose wires in the interconnection unit, a poor supply can also cause this problem
IC600 won't display Required "UNITS"	Check the advanced setup to see if the units are enabled
IC600 has a * on the right Hand side of display	This advises the user that the count rate is almost at it's maximum rate and may require gearing down of the encoder.
IC600 won't go into prog mode (Advanced or simple)	To access Advanced or simple Config. the correct buttons must be pressed + held while the display shows "FIRMWARE" screen See Page 5 and Page 6.

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If you have any technical queries about this product please contact the technical support office on :-

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Due to ongoing development we reserve the right to change specification without prior notice

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