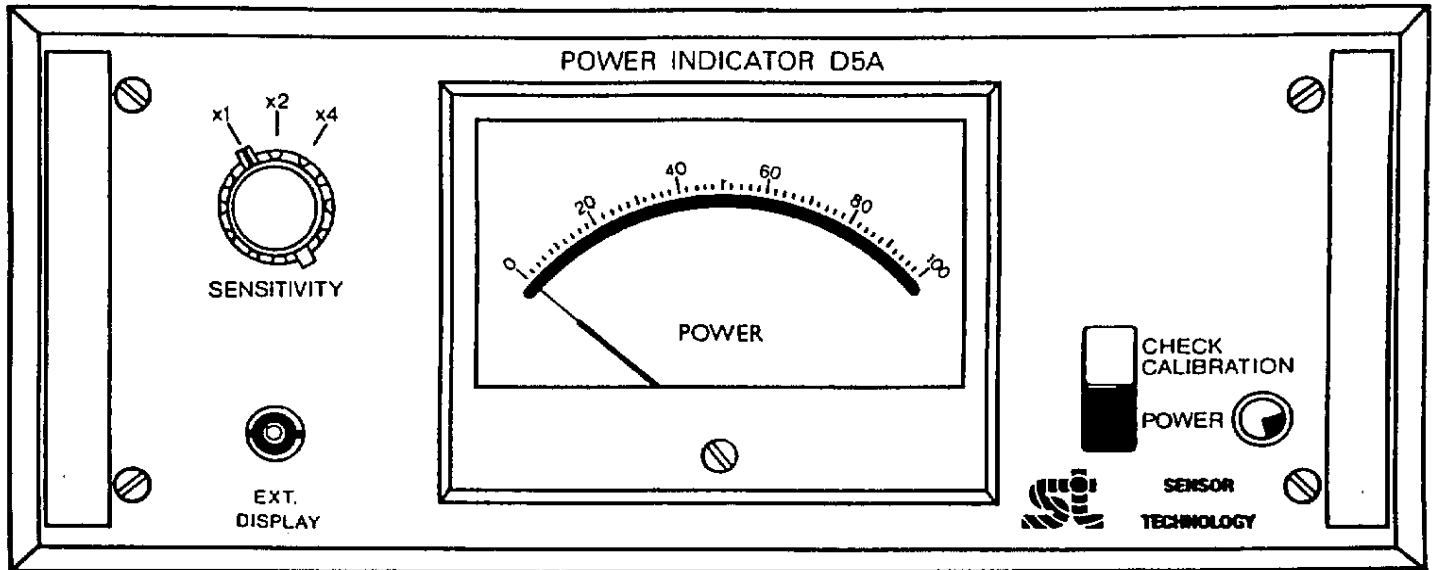


D5A Analogue power computing indicator



HANDBOOK

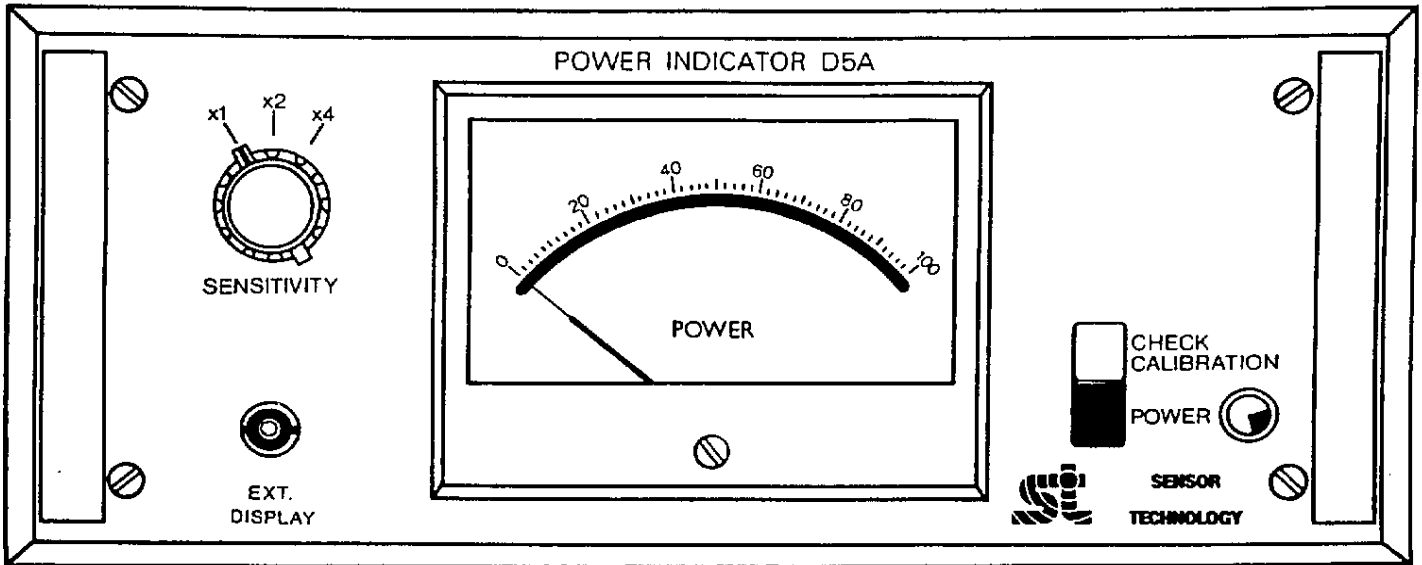
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D5A Analogue power computing indicator

STL 5
Issue 2

D5B Digital power computing indicator



This module is designed to operate from the outputs provided by the D3A/B Torque Display and D6A/B R.P.M. Indicator, and gives a display of power by multiplying the two signals. It matches the D3A/B and D6A/B in size and style, and is generally supplied with them in a common case. The instrument can be calibrated to indicate power in units to the customer's requirements, e.g. watts, horsepower. An internal check is provided which simulates both inputs at F.S.D. and gives a corresponding check reading, thus ensuring correct calibration of the instrument.

The D5A display is a 3.5" mirror scale analogue meter.

The D5B display is a .5in LED 3.5 digital display.

Input. 0 to +1 volt d.c. from both the D3A/B Torque and D6A/B R.P.M. Modules.

External Display. Socket giving 0 to +1 volt d.c. output for interfacing with chart recorders, digital voltmeters, oscilloscopes etc.

Accuracy. $\pm 1\%$ of full scale deflection.

Power. Supplied from D3A/B Transducer Display Module.

Case Dimensions.

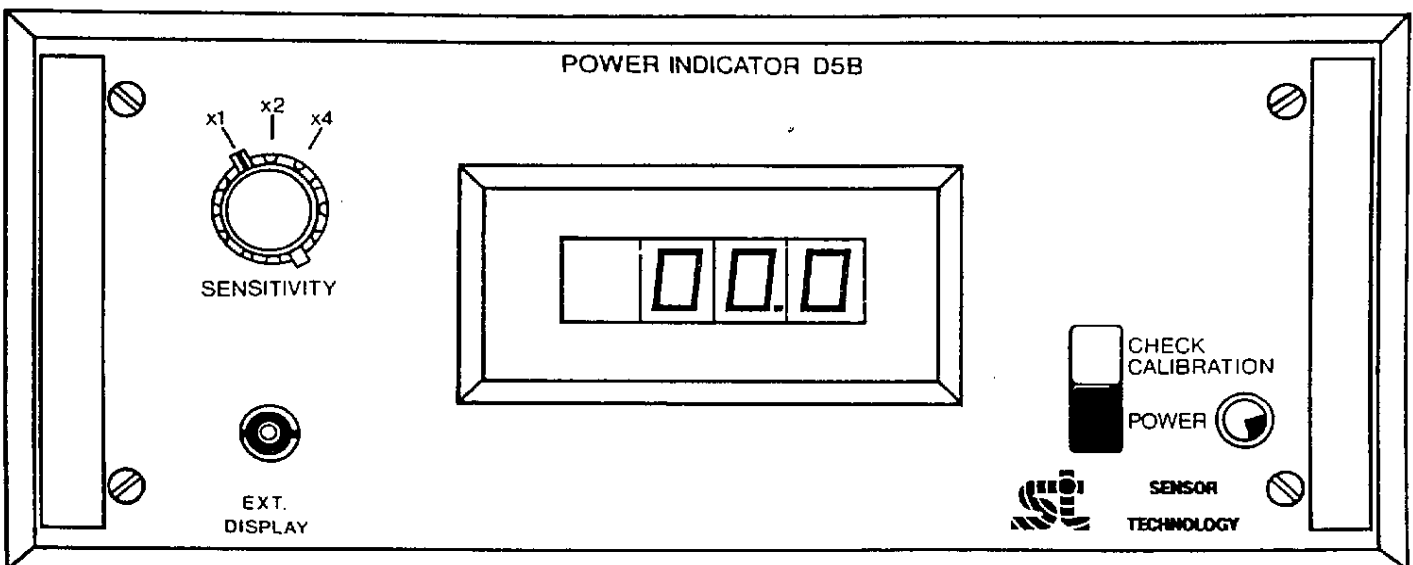
Width 305mm
Height inc. feet 143mm
Depth 203mm

Allow 50mm at rear for plug access.

Panel Dimensions.

Width 279mm
Height 102mm

Note: This unit is designed to fit standard modular cases with other units in the "D" range.



1. Introduction

The D5A Power Computer indicator module is designed to produce a reading of applied power by taking the signals from a D3A/B Transducer display and the D6A/B RPM Indicator. It provides an 0-1V external output for interface with recorders etc.

2. General Specifications

Input. Input signals are 0-+1V D.C.

Accuracy. \pm 2% of full scale deflection.

Power. Power is supplied from the D3A/B Transducer display.

Output. 0-+1V D.C.

Panel Dimensions. Width 305mm 12 ins.

Height 102mm 5.625 ins.

3. Description of controls

Front Panel

3.1 Power Button & Indicator Lamp

When the instrument is connected to a working D3A/B by means of the ten pin rear mounted socket, this button switches on and off the power to the D5A.

3.2 Check Calibration

With the sensitivity switch on X1, and the button pressed, the display will show 100% of full scale deflection provided the unit is in calibration.

3.3 Sensitivity Switch

Multiplies full scale to give greater resolution at the bottom end of the scale.

3.4 Output

BNC connector gives 0-+1V D.C. output for interface with recorders or plotters.

Rear Panel

3.5 RPM Input

BNC connector to be connected to the D6A/B RPM Indicator output connector.

3.6 Auxiliary Services

Receives all necessary power services from the D3A/B Transducer Display and also receives the input torque signal. Also distributes power etc to any other instrument.

3.7 Zero Adjust

Zeroes the output to remove any output offset present with no torque or RPM applied.

4. Operating Instructions

Connect the auxiliary services socket (3.1 above) to the similar socket on the D3A/B Transducer display. Connect BNC from output connector or D6A/B RPM indicator to input connector (3.5 above). Switch on the D3A/B and the D5A. Set the sensitivity switch to desired position. The module is now ready for use.

5. Calibration

100% Torque x 100% RPM = 100% Power

The D5A is set as a 1 x 1 multiplier. This means that 100% of torque as displayed on the D3A/B, and 100% of RPM as displayed on the D6A/B, will equal 100% of power on the D5A with the sensitivity switch set to x1 (See 3.3 above).

The calibration of the D5A will depend upon the FSD of the transducer being used, the position of the x1/x2 switch on the D7 and the range setting of the D6A/B.

$$\text{Power in watts} = \frac{6.284 \times \text{Torque} \times \text{RPM}}{60}$$

For example:

With a 50 Nm Transducer, D7 set to x1

D6A/B Range switch set to 100,000

With the Transducer turning at 33,000 RPM at full scale torque of 50 Nm, the D5A/B will read 172.81 kilowatts.

or

With a 100 Nm Transducer, D7 set to x1

D6A/B Range switch set to 10,000

With the Transducer rotating at 9,000 RPM at full scale torque of 100 Nm the D5A/B will read 94.26 kilowatts.

5. Calibration

100% Torque x 100% RPM = 100% Power

D5B calibration is set so that 100% of torque as displayed on the D3A/B, and 100% of RPM as displayed on the D6A/B, will equal 100% of power on the D5B with the sensitivity switch set to x1 (See 3.3 above)

The calibration of the D5B will depend upon the FSD of the transducer being used, the position of the x1/x2 switch on the D7, and the range setting of the D6A/B.

$$\text{Power in watts} = \frac{6.284 \times \text{Torque} \times \text{RPM}}{60}$$

For example:

With a 50 Nm Transducer, D7 set to x1

D6A/B Range switch set to 100,000

With the Transducer turning at 33,000 RPM at full scale torque of 50 Nm, the D5A/B will read 172.81 kilowatts.

or

With a 100 Nm Transducer, D7 set to x1

D6A/B range switch set to 10,000

With the Transducer rotating at 9,000 RPM at full scale torque of 100 Nm the D5A/B will read 94.26 kilowatts.