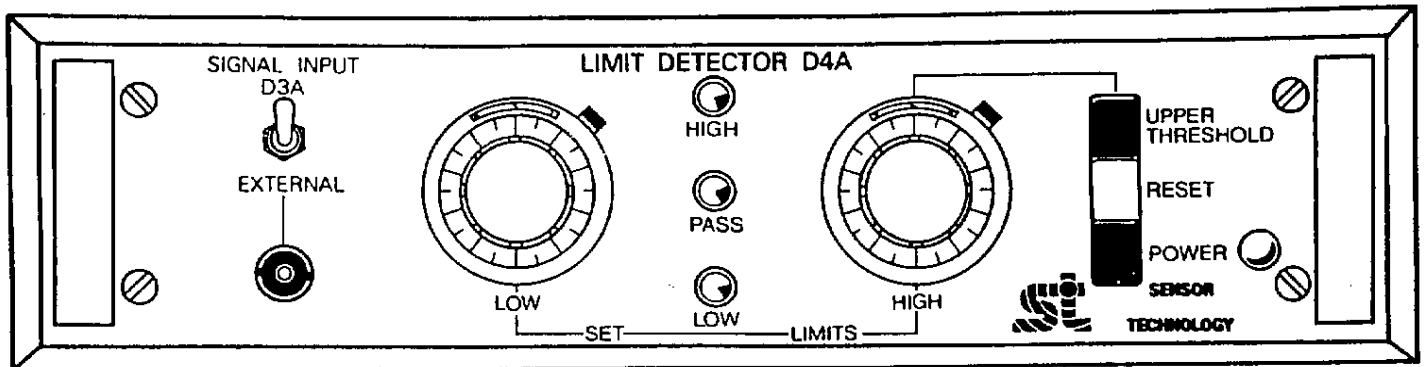


D4A Programmeable limit detector



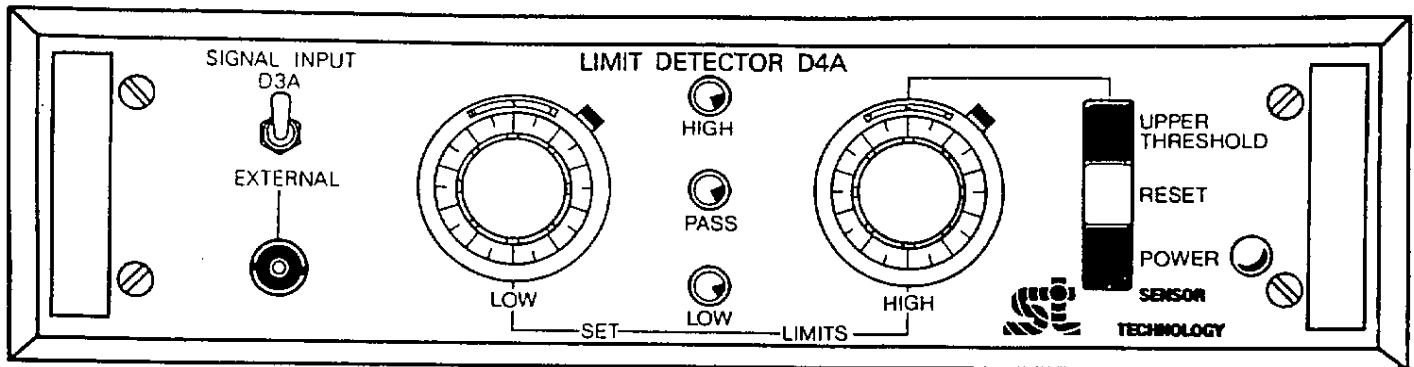
HANDBOOK

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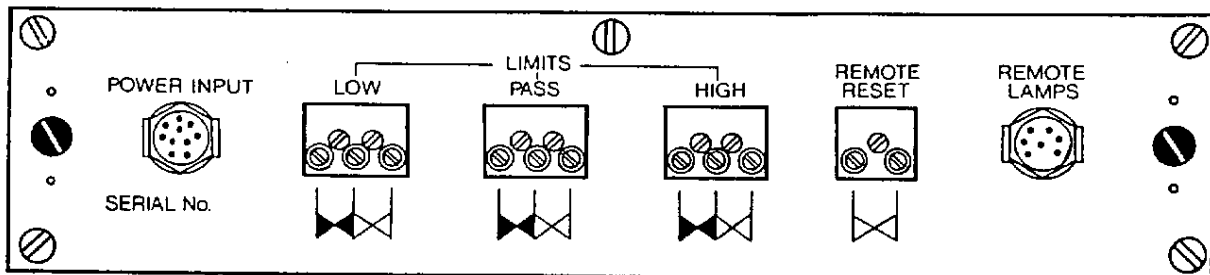
STL 4	DATA SHEET.
1.	INTRODUCTION.
2.	GENERAL SPECIFICATIONS.
3.	DESCRIPTION OF CONTROLS.
4.	OPERATING INSTRUCTIONS.

D4A Programmeable limit detector

STL 4
Issue 2



Front panel



Rear panel

The D4A is a dual limit detector which operates in conjunction with the D3A/B Torque Display (or D6A/B R.P.M. Indicator or D5A/B Power Computer) and permits the selection of either a pass limit, or upper and lower limits of torque (or speed or power), depending on the mode selected. Outputs are provided to:

- (a) control external equipment i.e. actuate visual and audible alarm, or shut down a process, if a limit is exceeded.
- (b) provide remote indication and reset facility.

Each limit has a changeover relay which is normally in the state shown in the mimic diagram above, but switches over when that limit matches the input signal.

Window Mode. Sets a passband between an upper and lower limit and gives an indication of 'low', 'pass', or 'high'.

Threshold Mode. Gives a 'high' indication by lamp when the set threshold is exceeded by the input signal. As the input

may be a sharp "spike", which would not normally be visible to the operator, a latch circuit is incorporated so that whenever the threshold is exceeded the 'high' light stays on regardless of subsequent falls in input signal. To reset, a push button is provided; there is also a remote reset input connector on the rear panel.

Accuracy. Limits are set on 10-turn potentiometers and accuracy is to 1% of the full scale input level. To prevent oscillation between states when the input is at the exact level of a setting, hysteresis of 0.8% is applied to both threshold detectors.

Input. The input signal is 0 to +1 volt d.c., either from D3A/B (via lead supplied), or from D5A/B, D6B/B via BNC lead to external socket.

Power. Power is supplied from the D3A/B Torque Display Module via a multi pin connector. Special leads are supplied if the unit is coupled to the D5A/B or D6A/B Modules.

Outputs.

Relays. Resistive ratings:-
a.c. upto 250V. . . . 5A
250-480V 1A
d.c. upto 100V. . . . 5A
100-250V 0.2A

Remote Reset. Terminals should be shorted by a resistance of not greater than 20 ohms.

Remote Lamps. Can be operated via a 7-pole connector on rear panel. Max. bulb current is 80mA (6V bulbs).

Case Dimensions.

Width 305mm
Depth 203mm
Height 76mm

Allow 50mm at rear for plug access.

Panel Dimensions.

Width 279mm
Height 76mm

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

1. Introduction

The D4A is a dual limit detector which operates in conjunction with the D3A Torque Display (or D6A R.P.M. Indicator or D5 Power Computer) and permits the selection of a pass band and/or upper and lower limits of torque (or speed or power), depending on the mode selected. Outputs are provided to:

- a) control external equipment - i.e. actuate visual and audible alarm or shut down a process, if a limit is exceeded, and
- b) provide remote indication and reset facility. Each threshold has a changeover relay which switches over when that limit matches the input signal and controls the appropriate external output.

WINDOW MODE. Sets a passband between an upper and lower limit and gives an indication of 'low', 'pass' or 'high.'

THRESHOLD MODE. Gives a 'high' indication by lamp when the set threshold is exceeded by the input signal. As the input may be a sharp "spike" which would not normally be visible to the operator, a latch circuit is incorporated so that whenever the threshold is exceeded the 'high' light stays on regardless of subsequent falls in input signal. To reset, a push button is provided; there is also a remote reset input connector on the rear panel.

2. General Specifications.

Input. The input signal is 0 to +1V D.C.

Accuracy. Limits are set on 10-turn potentiometers and accuracy is to 1% of the full scale input level. To prevent oscillation between states when the input is at the exact level of a setting, hysteresis of 0.8% is applied to both threshold detectors.

Power. Power is supplied from the D3A Torque Display Module via a multi pin connector. Special leads are supplied if the unit is coupled to the D5 or D6A Modules.

General Specifications (Cont.)

Outputs.

Relays. Resistive ratings:-

A.C. up to 250V.....5A

250-480V.....1A

D.C. up to 100V.....5A

100-250V.....0.2A

Remote Reset Terminals should be shorted by a resistance of not greater than 20 ohms.

Remote Lamps Can be operated via a 7-pole connector on rear panel. Maximum bulb current is 80mA (6V bulbs).

Panel Dimensions

Width	:	279 mm	11.5 ins.
Height	:	76 mm	3.0 ins.

3. Description of Controls.

3.1. Power Button and Indicator Lamp

When the instrument is connected to a working D3A by means of the ten-pin rear mounted socket, this button switches on and off the power to the D4A.

3.2. Signal Switch.

This control routes the signal into the D4A from either the front panel BNC socket or from the rear panel Power Input socket which is connected to the D3A. With the switch up the unit accepts signals from the D3A from which it is powered. With the switch down the unit will accept signals from another module, provided it is connected to that module by means of a BNC lead.

3.3. Setting Potentiometers and Indicator Lamps.

Multi-turn dials are provided to set low and high limits. These are scaled 0 - 100 and can most conveniently be set if the units are thought of in terms of a percentage of FSD of the transducer in use. Locking levers are provided to prevent set values being inadvertently altered.

The three lamps centrally mounted on the front panel indicate the status of the signal in terms of the preset limits. They are:

Below bottom limit	:	amber
Within limits (passband)	:	green
Above top limit	:	red

3.4. Upper Threshold and Reset Buttons.

With the Upper Threshold Button pressed in, the unit functions as a latching single limit or threshold detector. Under these conditions the left hand potentiometer and green "pass" lamp are inoperative, the required limit being set on the right hand potentiometer. Below the set limit the amber "low" lamp is illuminated. Should the set limit be matched or exceeded the unit will switch direct to high indication and remain latched in that state until the Reset button is pressed. This is of value where for example, over torque or over speed is required. A remote reset facility is provided on the rear panel whereby shorting the two terminals affords resetting from a remote location.

3.5. Remote Lamps Socket.

This socket is used when signal status is required at a location away from the instrument.

4. Operating Instructions.

Connect the auxilliary services socket (see 3.1. above) on the rear panel of the instrument to the similar socket on the D3A rear panel. Switch on the D3A and D4A. Set the required limit or limits on the potentiometer (s) and engage the dial locks. Select the mode of operation, i.e. pass band or upper threshold.