

WEST 3077.
TEMPERATURE LIMIT SWITCH

INSTALLATION AND OPERATING INSTRUCTIONS

Copyright Gulton Limited 1987

IM-0027-A0

CONTENTS

SECTION 1 - INTRODUCTION

- 1.1 Controls
- 1.2 Indicators

SECTION 2 - INSTALLATION

- 2.1 Unpacking the 3077
- 2.2 Mounting
- 2.3 Attaching Housing to Mounting Panel
- 2.4 Removal of Instrument from Housing
- 2.5 Inserting Instrument into Housing
- 2.6 Removal of Housing from Mounting Panel
- 2.7 Connections and Wiring
- 2.8 Inductive loads, External Contactors and Mains Operated Relays as Loads

SECTION 3 - OPERATING INSTRUCTIONS

- 3.1 Introduction
- 3.2 Controls
- 3.3 Indicators
- 3.4 Operating the Instrument

SECTION 4 - SETTING-UP PROCEDURES

- 4.1 Introduction
- 4.2 Controls
- 4.3 Indicators
- 4.4 Limit Adjustment
- 4.5 Alarms

NOTE

Our policy is one of continued improvement, and consequently the information contained in this publication may differ in some respects from the instrument in question. Therefore this document does not constitute an offer or part of an offer for sale.

CAUTION: REFER TO MANUAL

THE INTERNATIONAL HAZARD SYMBOL IS INSCRIBED ADJACENT TO THE REAR CONNECTION TERMINALS. IT IS IMPORTANT TO READ THE MANUAL BEFORE INSTALLING OR COMMISSIONING THE UNIT.

CONTENTS

SECTION 5 - RECONFIGURING THE ALARM

- 5.1 General
- 5.2 Dismantling the Controller
- 5.3 Alarm Output
- 5.4 Assembling the Controller

APPENDIX 1 - SPECIFICATION FOR CONTROLLER TYPE 3077

APPENDIX 2 - PRODUCT CODES

SECTION 1 - INTRODUCTION

The WEST 3077 is a compact temperature limit switch which operates at a preset high or low limit. The instrument can be used with thermocouple or RTD process inputs. Its output relay latches in the "shut-off" condition if the process variable goes outside the preset limit or if the power supply fails.

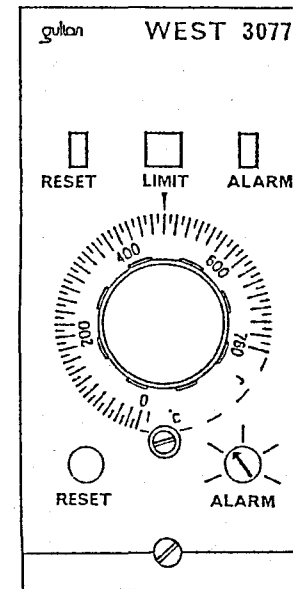


FIGURE 1-1 FRONT PANEL CONTROLS AND INDICATORS

The limit setting is shown on a rotatable scale which can be locked. A range of scales is available, and each instrument is supplied with a scale appropriate to its input. (See Appendix 2 for details of ranges).

An LED located above the limit control indicates when the limit value has been exceeded. Two further LEDs indicate the status of the limit relay and the alarm (optional).

The limit relay can be arranged to operate when either a high or low limit has been exceeded. When it operates it remains in the limit exceeded condition, and this condition is indicated by the 'Reset' LED. Once the process returns to within the limit, the relay may be reset by the front panel 'Reset' pushbutton.

When an instrument is supplied with an alarm, the operating point for this can be adjusted by the control in the lower right hand corner of the front panel.

The housing conforms to 1/8 DIN dimensions and controllers can be conveniently mounted side by side in multiple installations. Power consumption is only about 3VA, so that minimum ventilation is required.

SECTION 2 - INSTALLATION

2.1 UNPACKING THE 3077

The 3077 is supplied with a mounting clamp and two screws included in the transit package.

Remove the equipment from the transit package and check for damage. Notify the carrier immediately in case of any damage or deficiencies. Check that the Product Code matches your order code and requirements (supply voltage, input type etc)

2.2 MOUNTING

The instrument can be mounted on a rigid panel of up to 6mm (.25 inches) thickness with a cut-out 92mm, +0.8 -0mm (3.62in, +0.03 -0in) high and 45mm, +0.6 -0mm (1.77in, +0.025 -0in) wide. Units can be mounted side by side in a continuous cut-out, and in this case the width of the cut-out should be $(n \times 48\text{mm}) - 4\text{mm}$ [$(n \times 1.89\text{in}) - 0.16\text{in}$], where n is the number of instruments.

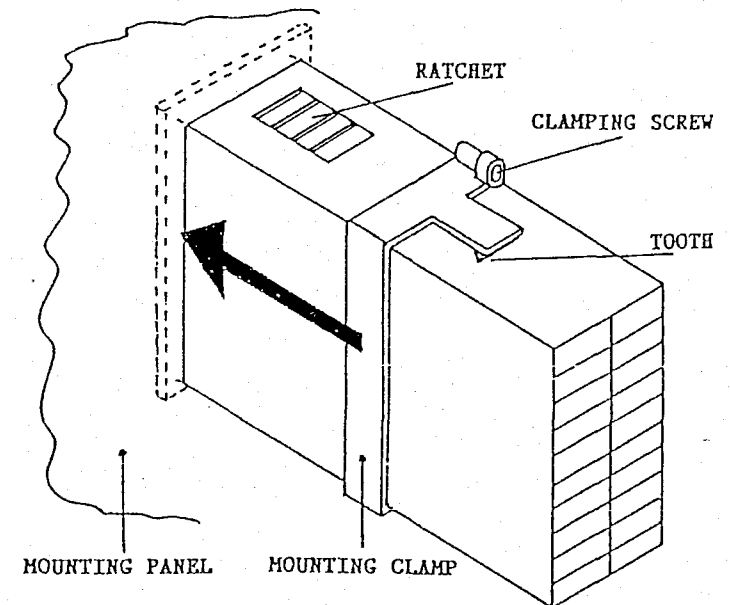


FIGURE 2-1 ATTACHMENT OF HOUSING TO MOUNTING PANEL

The instrument is 150mm (5.9in) deep, measured from the rear face of the front panel. The front panel is 96mm (3.8in) high and 48mm (1.89in) wide; when mounted on a panel it projects 6mm (0.25in).

2.3 ATTACHING HOUSING TO MOUNTING PANEL (Figure 2-1)

Insert the rear of the housing (or housing with instrument in it) through the cut-out and hold the instrument lightly against the front panel.

The instrument is held in place by a plastic mounting clamp. Slide this onto the instrument and push it forwards until it touches the mounting panel. Teeth on the arms projecting to the rear of the clamp engage with ratchets moulded into the top and bottom of the case. Next gently tighten the screws in the clamp so that the front panel of the instrument is a snug fit on the front of the mounting panel. Do not over-tighten the screws and distort the clamp.

2.4 REMOVAL OF INSTRUMENT FROM HOUSING (Figure 2-2)

For replacement or servicing, the instrument can be easily removed from the housing, leaving the housing and back-wiring attached to the mounting panel.

WARNING

BEFORE WITHDRAWING THE INSTRUMENT FROM ITS HOUSING MAKE SURE THAT THE MAIN POWER SUPPLY AND ALL LIVE CONNECTIONS (INCLUDING FEEDS TO RELAY CONTACTS) ARE SWITCHED OFF OR DISCONNECTED.

With a suitable size screwdriver, turn the screw near the base of the front panel anti-clockwise. Initially, this jacks out the instrument and disengages the connector at the rear; then the screw disengages itself from the bush in the housing. Carefully pull the instrument out from the housing.

2.5 INSERTING INSTRUMENT INTO HOUSING

Carefully slide the the instrument into the housing previously mounted on the mounting panel; make sure that the circuit board(s) locate against the outside of the card guides moulded in the top and bottom of the housing. Push the instrument firmly home so that the rear connections of the circuit boards make a good connection with the rear terminals. Turn the retaining screw on the front panel clockwise until the panel is held firmly in position.

2.6 REMOVAL OF HOUSING FROM MOUNTING PANEL

Loosen the clamping screws (shown in Figure 2-1). Support the housing with one hand and remove the plastic mounting clamp by disengaging the teeth from the ratchets and sliding the mounting clamp rearwards. (Inserting stiff card or plastic between the teeth and the ratchets helps.)

Remove the housing from the mounting panel by pulling the housing forwards through the mounting hole.

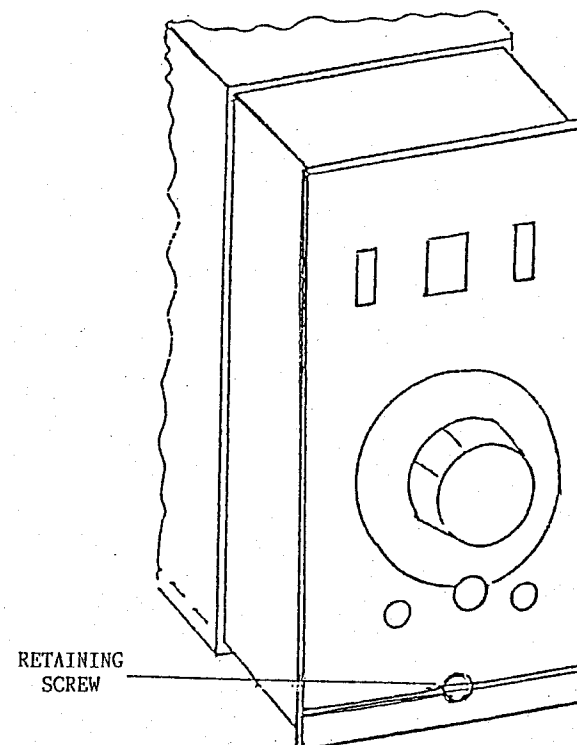


FIGURE 2-2 REMOVAL AND REPLACEMENT OF 3077 WITHIN HOUSING

2.7 CONNECTIONS AND WIRING (Figure 2-3)

WARNING

This equipment is designed for installation in an enclosure which provides adequate protection against electric shock. Local requirements regarding electrical installation should be rigidly observed. Ground terminals must be separately connected and not made common to the neutral. Consideration should be given to the prevention of unauthorised personnel gaining access to the power terminations.

The following inputs and outputs are provided on the rear of the instrument housing. (Depending on configuration, some of the connections may not be present).

- a) Power Line Input
- b) Thermocouple or RTD Input
- c) Limit Relay Output
- d) Alarm Output

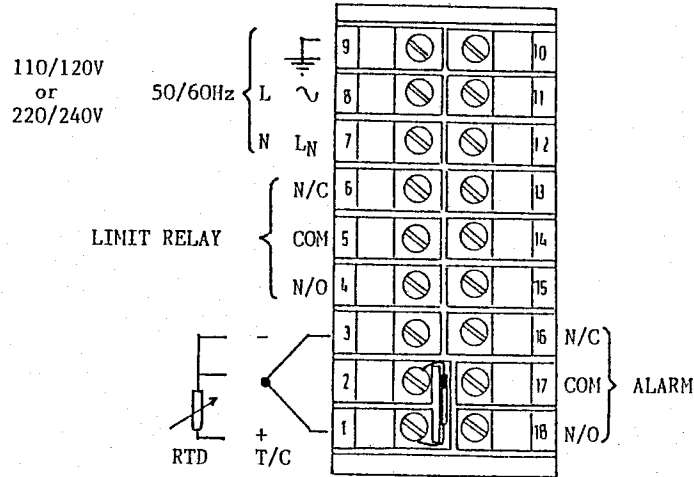


FIGURE 2-3 3077 REAR CONNECTIONS

2.7.1 Power Line Connections

The instrument is supplied for operation on 193V - 264V or 100V - 132V 50/60Hz as stated on the label attached to the side of the instrument. Check voltage before applying power.

The ground terminal 9 should be connected to a protective ground conductor before any other connections are made, and should remain connected at all times.

Connections to the live and neutral terminals should be taken via a double pole switch, and a 1A fuse should be installed in the live line.

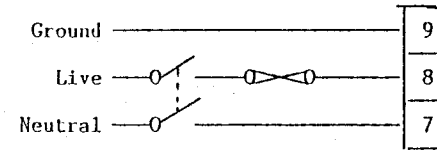


FIGURE 2.4 - POWER SUPPLY CONNECTIONS

2.7.2 Input

Thermocouples (Figure 2-5)

Thermocouple leads should be connected to terminal 1 (positive) and terminal 3 (negative). The correct type of thermocouple extension leadwire or compensating cable must be used for the entire distance between the instrument and the thermocouple, ensuring that the correct polarity is observed throughout. Joints in the cable should be avoided if possible. All instruments supplied with a thermocouple input have a cold junction compensation unit connected across terminals 1 and 2. This unit should never be removed.

DO NOT RUN THERMOCOUPLE LEADS ADJACENT TO POWER CARRYING CONDUCTORS. IF THE WIRING IS RUN IN A CONDUIT, USE A SEPARATE CONDUIT FOR THE THERMOCOUPLE WIRING. IF THE THERMOCOUPLE IS GROUNDED, THIS MUST BE DONE AT ONE POINT ONLY. IF THE THERMOCOUPLE EXTENSION LEAD IS SHIELDED, THE SHIELD MUST BE GROUNDED AT ONE POINT ONLY.

Thermocouple Extension Cable Colour Codes (last colour in each group refers to the overall sheath).

T/C TYPE	CABLE MATERIAL	BRITISH BS	AMERICAN ASTM	GERMAN DIN	FRENCH NFE
J	Iron/Constantan	+yellow -blue black	+white -red black	+red -blue blue	+yellow -black black
K	Nickel Chromium Nickel Aluminium	+brown -blue red	+yellow -red yellow	+red -green green	+yellow -purple yellow

TABLE 2-1

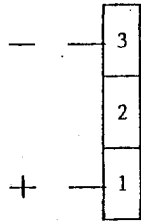


FIGURE 2-5 - THERMOCOUPLE INPUT CONNECTIONS

GULTON manufactures and supplies a range of suitable thermocouples and thermocouple extension cables.

Resistance Temperature Detector

RTD connections are made as shown in Figure 2-6, with the compensating lead connected to terminal 3. For 2-wire RTDs terminals 2 and 3 should be linked.

The extension leads should be of copper and the resistance of the wires connecting the resistance element should not exceed 5 Ohms per lead (the leads should be of equal length).

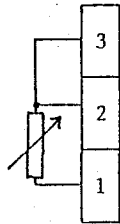


FIGURE 2-6 - 3-WIRE RESISTANCE THERMOMETER INPUT CONNECTIONS

2.7.3 Limit Relay Output

The limit relay has contacts connected to the rear terminals as shown in Figure 2-7. The contacts of the relay are rated at 5A 240V a.c. with a resistive load.

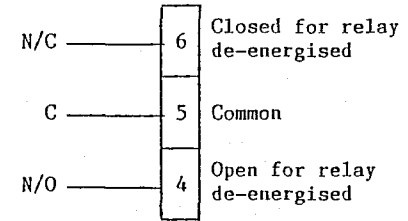


FIGURE 2-7 LIMIT RELAY CONNECTIONS

2.7.4 Alarm Output (optional) (Product Codes C0042 to C0051)

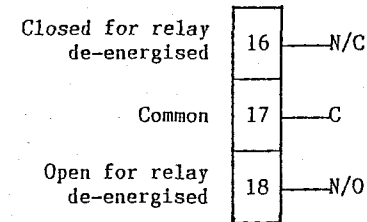


FIGURE 2-8 - ALARM CONNECTIONS

The above connections apply to all alarm configurations. The contacts of the alarm relay are rated at 2A 240V with a resistive load.

2.8 INDUCTIVE LOADS, EXTERNAL CONTACTORS AND MAINS OPERATED RELAYS AS LOADS

W A R N I N G

Removal of the instrument's internal snubber components could give rise to a serious hazard. Gulton Limited and Gulton Industries Inc. do not accept responsibility for any damage which may arise as a result of the unauthorised removal of these components.

A snubber circuit consisting of voltage dependent resistors (VDRs) is fitted internally across the output relay contacts to provide adequate protection for inductive loads up to the maximum rating without fitting external components.

2.8.1 External Switch in Series with an External Inductive Load

Damage to the instrument may result if the contacts of a switch, relay or contactor are connected externally in series with the instrument relay contacts as shown in Figure 2-9.

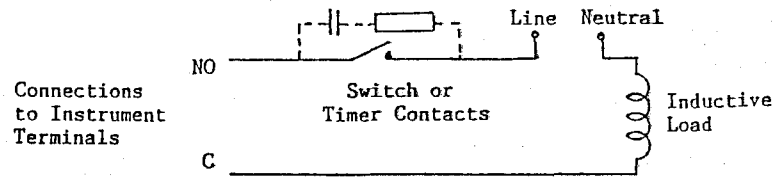


FIGURE 2-9
EXTERNAL SWITCH IN SERIES WITH AN EXTERNAL INDUCTIVE LOAD

Under these conditions the external contacts may operate while the instrument relay contacts are closed (i.e. the internal protection components short circuited and therefore ineffective).

In applications where it is necessary to instal external switch, relay or contactor contacts in series with the instrument relay a snubber network must be installed either across the inductive load or across the unprotected contacts. For applications up to 240V the values given in Table 2-2 may be used, or a suitable Voltage Dependent Resistor.

LOAD CURRENT	VALUE OF C μ F	WEST PART NO.	VALUE OF R Ohms	WEST PART NO.
70mA	0.047	22206	22	23220-304
150mA	0.1	22207	47	23470-304
0.5A	0.22	22208	47	23470-304
1A	0.47	22209	47	23470-304

NOTE: ALL CAPACITORS SHOULD CONFORM TO VDE (CLASS X) AND BE SUITABLE FOR OPERATION AT 260V A.C

ALL RESISTORS (WIREWOUND OR ALLEN BRADLEY TYPE HB) SHOULD HAVE A MINIMUM RATING OF 2 WATTS

TABLE 2-2 VALUES OF PROTECTION NETWORK COMPONENTS

2.8.2 Mains Operated Solid State Relays

The use of mains operated solid state relays driven from the relay output of the instrument is not recommended.

SECTION 3 - OPERATING INSTRUCTIONS

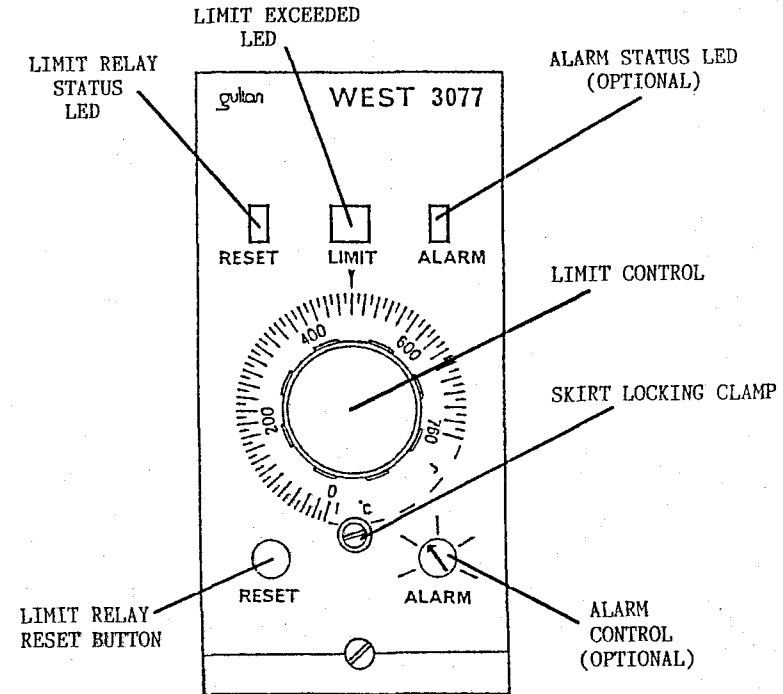


FIGURE 3-1 FRONT PANEL CONTROLS AND INDICATORS

3.1 INTRODUCTION

These instructions assume that the instrument has been set up as detailed in Section 4. Details are given for the controls and indicators on the front panel.

3.2 CONTROLS (Figure 3-1)

Limit Control The setpoint is adjusted by rotating the large control knob until the white pointer is aligned with the required temperature value on the scale. To prevent inadvertent movements of the setpoint, the control may be locked by means of the skirt locking clamp.

Limit RESET Pushbutton The limit reset pushbutton is located at the lower left corner of the front panel, and is labelled RESET. Provided the Limit Exceeded LED is not lit (i.e. process input within Limit), pushing this button sets the limit relay to the normal operating state.

ALARM Setting Control (Optional) This control, if fitted, is located at the lower right corner of the front panel, and is labelled ALARM. The alarm is preset during setting up (Optional) and should not be adjusted by the operator.

3.3 INDICATORS (Figure 3-1)

Limit Relay Status Indicator The limit relay status indicator is a red LED, which is located at the upper left corner of the front panel, and is labelled RESET. When it is lit, it indicates that the Limit relay is de-energised.

Limit Exceeded Indicator The limit exceeded indicator is a red LED, which is located at the centre of the upper half of the front upper panel, and is labelled LIMIT. When lit, this LED indicates that the limit is being exceeded by the process.

Alarm Status Indicator (Optional) The alarm status indicator, if fitted, is a red LED, which is located at the upper right corner of the front panel, and is labelled ALARM. When lit, the LED indicates an alarm condition.

3.4 OPERATING THE INSTRUMENT

On switch-on, the RESET LED will be lit, and the Limit Relay will be de-energised. Press the RESET button to energise the Limit Relay (RESET LED goes out) and set the instrument to the normal operating state.

If the process goes outside the Limit value, the LIMIT LED lights, the Limit Relay is de-energised and the RESET LED lights. Once the process has returned to within the limit, the LIMIT LED will be extinguished, and the Limit Relay can then be reset by pushing the RESET button.

SECTION 4 - SETTING-UP PROCEDURES

4.1 INTRODUCTION

This section details the procedures necessary to set up the instrument prior to normal operation and consists of Limit adjustment. Also included are details of procedures for setting the alarm level, if this facility is fitted.

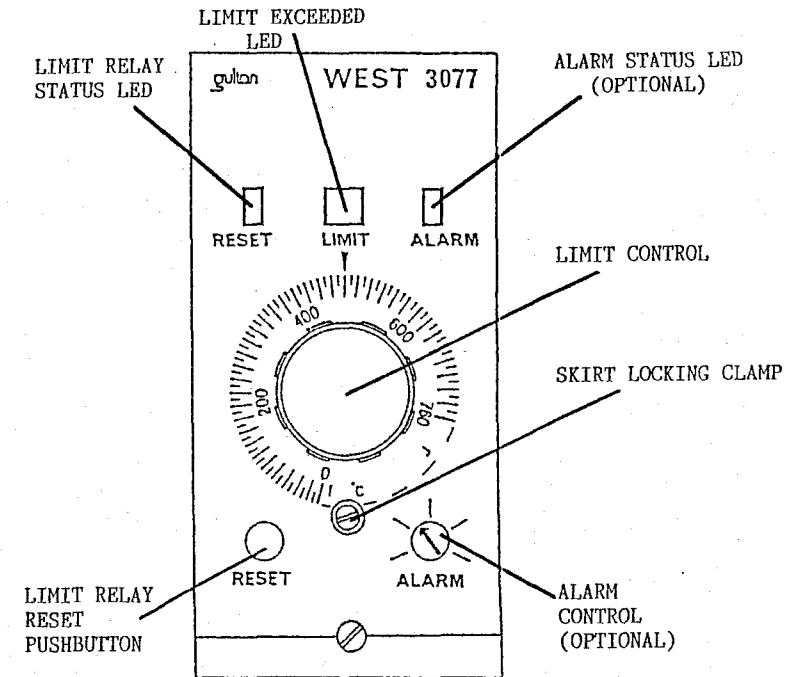


FIGURE 4-1 FRONT PANEL CONTROLS AND INDICATORS

4.2 CONTROLS (Figure 4-1)

Limit Control The Limit is adjusted by rotating the large control knob until the white pointer is aligned with the required temperature value on the scale. To prevent inadvertent movements of the Limit, the scale can be locked by means of a locking screw which clamps the skirt.

Limit Relay RESET Button The limit relay reset pushbutton is located at the lower left corner of the front panel, and is labelled RESET. Provided the process is within limit, pushing this button energises the Limit Relay.

SETTING-UP PROCEDURES

ALARM This control, if fitted, is located at the lower right corner of the front panel, and is labelled **ALARM**. Adjusting this control sets the alarm (Optional) level (See Section 4.5).

4.3 INDICATORS (Figure 4-1)

Limit Relay Status The limit relay status indicator is a red LED, which is located at the upper left corner of the front panel, and is labelled **RESET**.

Limit Exceeded Indicator The limit exceeded indicator is a red LED, which is located at the centre of the upper half of the front upper panel, and is labelled **LIMIT**. When lit, this LED indicates that the process is outside the preset limit.

Alarm Status Indicator (Optional) The alarm status indicator, if fitted, is a red LED, which is located at the upper right corner of the front panel, and is labelled **ALARM**. When lit, the LED indicates an alarm condition.

4.4 LIMIT ADJUSTMENT

To adjust the Limit, proceed as follows:

1. On the large control knob (see Figure 4-1), release the locking screw (turn anti-clockwise).
2. Rotate the control knob until the white pointer is aligned with the required temperature value on the scale (Limit value).
3. Lock the locking screw to prevent inadvertent movement of the Limit.

	PV below Limit	LIMIT	PV above Limit
High Limit (Code H1030)	Relay ON LIMIT LED OFF		Relay OFF LIMIT LED ON
Low Limit (Code H1031)	Relay OFF LIMIT LED ON		Relay ON LIMIT LED OFF

FIGURE 4-2 LIMIT RELAY OPERATION

4.5 ALARMS (Optional)

The following alarm configurations are available :

Product Codes	Alarm Type	Adjustment	Control Calibrations (% of Scale Range)
C0042	High Deviation Direct Acting	0 to +20% of span	
C0043	High Deviation Reverse Action	0 to +20% of span	
C0044	Low Deviation Direct Action	0 to -20% of span	
C0045	Low Deviation Reverse Action	0 to -20% of span	
C0046	Band Alarm (Rel. ON inside Band)	0 to +20% of span	
C0047	Band Alarm (Rel. ON outside Band)	0 to +20% of span	
C0050	High and Low Deviation - Direct Acting	-20 to +20% of span	
C0051	High and low Deviation - Reverse Action	-20 to +20% of span	

4.5.1 Alarm Operation

The alarm value may be set by using the scale surrounding the Alarm control. (Calibration in % of full scale)

(PV below Limit) LIMIT (PV above Limit)

C0042	Alarm LED OFF, Relay de-energised	Alm Val 0 to 20%	Alarm LED ON Relay energised		
C0043	Alarm LED OFF, Relay energised	Alm val 0 to 20%	Alarm LED ON Relay de-energised		
C0044	Alarm LED ON Relay energised	Alm val 20% to 0	Alarm LED OFF, Relay de-energised		
C0045	Alarm LED ON Relay de-energised	Alm val 20% to 0	Alarm LED OFF, Relay energised		
C0046	Alarm LED ON Relay de-energised	Alm val 20% to 0	Alm val 0 to 20%	Alarm LED OFF Relay energised	Alarm LED ON Relay de-energised
C0047	Alarm LED ON Relay energised	Alm val 20% to 0	Alm val 0 to 20%	Alarm LED OFF Relay de-energised	Alarm LED ON Relay energised
C0050 +ve Dev	Alarm LED OFF, Relay de-energised	Alm val 0 to 20%	Alarm LED ON Relay energised		
C0050 -ve Dev	Alarm LED ON Relay energised	Alm val 20% to 0	Alarm LED OFF, Relay de-energised		
C0051 +ve Dev	Alarm LED OFF, Relay energised	Alm val 0 to 20%	Alarm LED ON Relay de-energised		
C0051 -ve Dev	Alarm LED ON Relay de-energised	Alm val 20% to 0	Alarm LED OFF, Relay energised		

TABLE 4-2 OPERATION OF ALARM

SECTION 5 - RECONFIGURING THE ALARM

5.1 GENERAL

Changes described in these instructions are confined to those which can be effected by changing links on the Option board to select Alarm functions.

5.2 DISMANTLING THE CONTROLLER

5.2.1 To withdraw the instrument from its housing

ENSURE THAT THE MAINS SUPPLY IS DISCONNECTED, INCLUDING ANY FEEDS TO RELAY CONTACTS

With a suitable size screwdriver, turn the screw on the front panel near the base anti-clockwise to disengage the back connectors from their sockets, then continue turning until the screw is free from the bush in the housing.

Withdraw the controller gently from its housing.

5.2.2 To Remove the Option Board

1) Extract the screw securing the Options Board to the pillar on the Main Board (See Figure 5-1).

2) Grasp the plastic guide which projects rearwards from the bottom of the front panel and holds the Options Board; pull it downwards until the bottom of the PCB can be disengaged from the guide and withdrawn backwards. Next, grasp the plastic guide at the top of the front panel and disengage the top of the PCB. The Options PCB can now be detached, by pulling it to the rear and unplugging it from the sockets on the front panel.

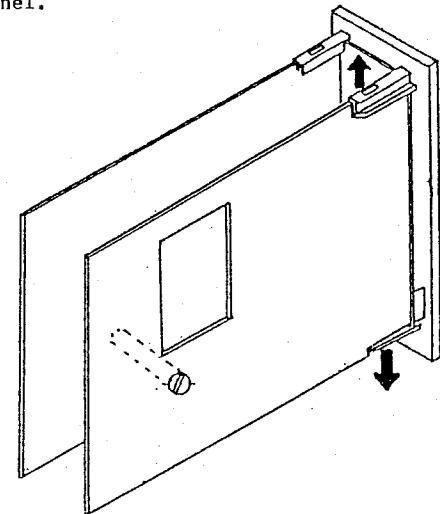


FIGURE 5-1 - SEPARATING THE OPTIONS PCB

5.3 ALARM OUTPUT

An Options Board is required to provide an Alarm Output. To change the operation of the alarm, links on the Options Board should be fitted in accordance with Table 5-1.

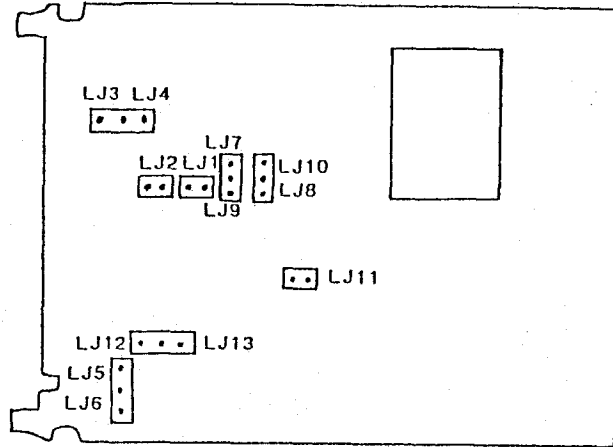


FIGURE 5-3 - POSITION OF LINKS ON OPTIONS BOARD

LINK JUMPER NUMBERS		1	2	3/4	5/6	7/9	8/10	11	12/13
ALARM TYPE	PRODUCT CODE								
High Dev Direct	C0042	X	X	4	6	7	8	X	13
High Dev Reverse	C0043	X	X	4	6	7	8	P	12
Low Dev Direct	C0044	X	X	3	6	9	10	P	13
Low Dev Reverse	C0045	X	X	3	6	9	10	X	12
Relay ON Inside Band	C0046	P	P	4	6	7	8	P	12
Relay ON Outside Band	C0047	P	P	4	6	7	8	X	13
High or Low Dev Direct	C0050	X	X	4	5	7	8	X	13
High or Low Dev Reverse	C0051	X	X	4	5	9	10	P	12

X = IN P = PARKED

TABLE 5-1 - ALARM OUTPUT LINKS ON OPTIONS BOARD

5.5 ASSEMBLING THE CONTROLLER

5.5.1 Fitting the Options Board to Front Panel Assembly

Align the board with the guides attached to the front panel, making sure that the plugs on the Options Board are aligned with the sockets on the front panel assembly.

Push the board into the guides until **both** the teeth on the board click into the holes in the guides.

Insert the screw through the Options Board into the pillar on the Main Board and tighten.

5.5.2 Fitting the Controller into the Housing

Carefully slide the controller into the housing, making sure that the circuit board(s) locate against the outside of the guides moulded in to the top and bottom of the housing. Push the controller firmly home so that the rear connections of the circuit boards make a good connection with the rear terminals.

Engage the screw near the base of the front panel and tighten it until the controller is firmly in place.

APPENDIX I - SPECIFICATION FOR LIMIT CONTROLLER TYPE 3077

INPUT

Input types: Thermocouple and RTD
 Common Mode Rejection: Negligible effect up to 264V 50/60 Hz
 Series Mode Rejection: 1000% of span (at 50/60Hz) causes negligible effect.
 Thermocouple Calibration: Complies with BS4937, NBS125 and IEC584 standards.
 RTD (Pt100) Calibration: Complies with BS 1904 and DIN 43760 standards.

OUTPUTS

Limit Relay
 Relay: SPDT contact rating 5A resistive at 120/240V a.c.
 Relay life: $>10^6$ operations

Alarm (Optional)

Relay: SPDT contact rating 2A resistive at 120/240V a.c.
 Relay life: $>10^6$ operations

ENVIRONMENT

REFERENCE CONDITIONS

Ambient temperature: $20 \pm 2^\circ\text{C}$
 Supply voltage: 120 or 240V $\pm 1\%$ 50/60 Hz $\pm 1\%$
 Thermocouple source resistance: <10 Ohms
 RTD (Pt 100): <0.1 Ohm per lead, both leads equal
 Relative humidity: 60 to 70%

OPERATING CONDITIONS

Ambient Temperature

0 to $+50^\circ\text{C}$ operating
 -20 to $+60^\circ\text{C}$ storage

Supply Voltage:

193 to 264V 50/60 Hz
 100 to 132V 50/60 Hz

Maximum Source Resistance:

Thermocouple <100 Ohms
 RTD (Pt100) <5 Ohms per lead (equal resistance in each lead)

SPECIFICATION

PERFORMANCE

Reference Accuracy: Typically $\pm 1\%$ of span
 Temperature Stability: $< 0.015\%$ of span for 1°C change in ambient temperature.
 Cold junction compensation: $< 0.1^\circ\text{C}$ change for 1°C change in ambient temperature
 Effect of thermocouple resistance: $< 0.1\%$ of span error for resistance 0 to 100 Ohms
 Effect of RTD lead resistance: $< 0.1\%$ of span error for 3 Ohm lead resistance.
 Supply voltage influence on accuracy: less than $\pm 0.1\%$ of span error for supply voltage within specified limits.

GENERAL

Front panel indicators as follows:

- Limit Relay Status LED
- Limit Exceeded LED
- Alarm Status LED (optional)

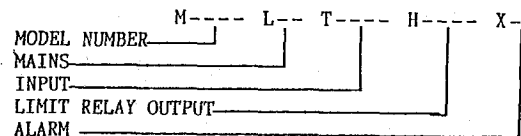
Front panel controls as follows:

- Limit control
- Limit Relay Reset pushbutton
- Alarm control (optional)

Dimensions: 48mm x 96mm x 153mm
 Weight: 0.65 kg
 Power consumption: Approx 3VA

PRODUCT CODES

APPENDIX 2 - PRODUCT CODES



MODEL NUMBER

M 3077

MAINS VOLTAGE

L 01 220/240V Nominal 50/60 Hz
 L 02 110/120V Nominal 50/60 Hz

INPUT - TYPE AND RANGE

Thermocouple

T 1415	'J' 0 - 205°C
T 1416	'J' 0 - 401°F
T 1417	'J' 0 - 450°C
T 1418	'J' 0 - 842°F
T 1419	'J' 0 - 760°C
T 1420	'J' 0 - 1400°F
T 1719	'K' 0 - 760°C
T 1720	'K' 0 - 1400°F
T 1723	'K' 0 - 1371°C
T 1776	'K' 0 - 2500°F

3-wire Resistance Temperature Detector (RTD)

T 2221	0 - 600°C
T 2222	0 - 1112°F
T 2251	0 - 300°C
T 2229	0 - 572°F
T 2295	0 - 100°C
T 2296	0 - 212°F

OUTPUTS

Limit Relay

H 1030	High limit
H 1031	Low limit

PRODUCT CODES

ALARM OPTIONS (only one alarm option may be selected)

C0042	High deviation - direct acting
C0043	High deviation - reverse acting
C0044	Low deviation - direct acting
C0045	Low deviation - reverse acting
C0046	Band Alarm - energised inside band
C0047	Band alarm - energised outside band
C0050	High and low deviation - direct acting
C0051	High and low deviation - reverse acting