Operating Instructions

Model 6553
Digital Display (SP13 x 2) Series of Intrinsically Safe Gas Analyser Systems for Hydrogen & Purge Gas Purity Measurement

System Reference:

Order Number:

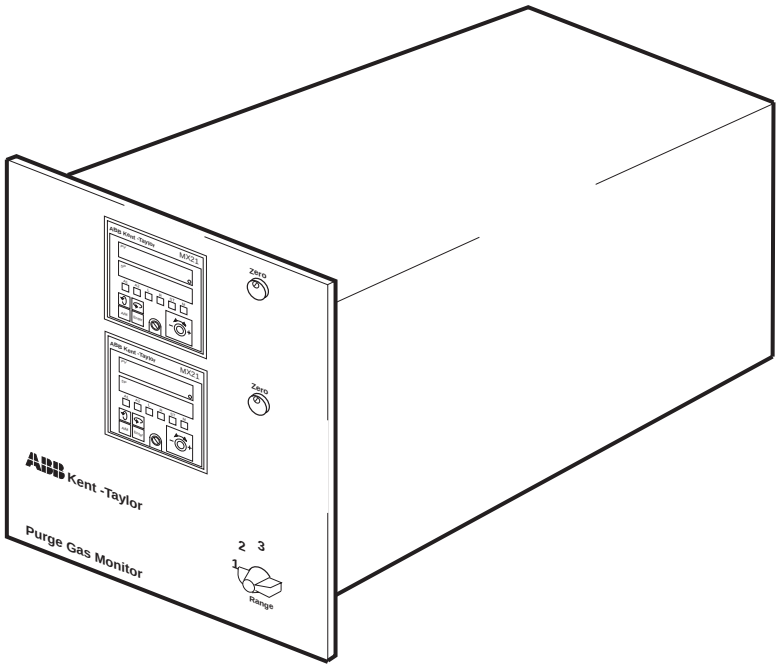


ABB Kent-Taylor

5.4 Indicator Panel

The programming controls, upper and lower displays and indication l.e.ds are located on the front panel of the display unit – see Fig. 14.

5.4.1 Controls – Fig. 14

The program controls comprise three tactile membrane switches, requiring only moderate finger pressure for operation, and a rotary bit-generator. Control functions are as follows:

'Page Advance' switch – used to advance to the next program page (see Fig. 14).

'Parameter Advance' switch – used to advance to the next parameter within a program page (see Fig. 14).

'Enter' switch – used for storing the programmed parameters and values into indicator's the non-volatile memory. If any value/parameter is changed but not 'Enter'ed, the old parameter value is retained – see Note in Section 5.4.2.

'Rotary Bit-generator' – rotary control used for:

a) Increasing or decreasing a parameter value

b) Stepping through a selection of parameters.

'Auto/Manual' switch not used in this application.

5.4.2 Displays – Fig. 14

There are two 6-digit fourteen-segment 'starburst' displays which provide alpha-numeric information during normal operation and when programming.

At the beginning of each programming page, i.e. the page header, both displays are used to describe the particular page being viewed.

When parameters within a page are being viewed the upper display shows the parameter and the lower display shows the value or setting for that parameter.

Note. A flashing decimal point on the upper display is used to indicate any change to the value/parameter on the lower display, i.e. using the 'Rotary Bit-generator'. The l.e.d. is extinguished only when the value/parameter is stored using the 'Enter' switch.

5.4.3 L.E.D. Indication – Fig. 14

There are six l.e.d. indicators on the front panel but only two are used in this application:

A1 flashes if Alarm 1 is in the alarm state – see Section 5.5.4.

A2 flashes if Alarm 2 is in the alarm state – see Section 5.5.4.

5.5 Programming

CAUTION. *When the apparatus is connected to its supply, terminals may be live and the opening of covers or removal of parts (except those to which access may be gained by hand) is likely to expose live parts.*

In normal operation the instrument displays the **Operating Page** (see Section 5.5.2) which is not affected by the Security System (see Section 5.5.5).

N.B. To return to the **Operating Page** at any time, operate the 'Page Advance' switch and then operate the 'Enter' switch.

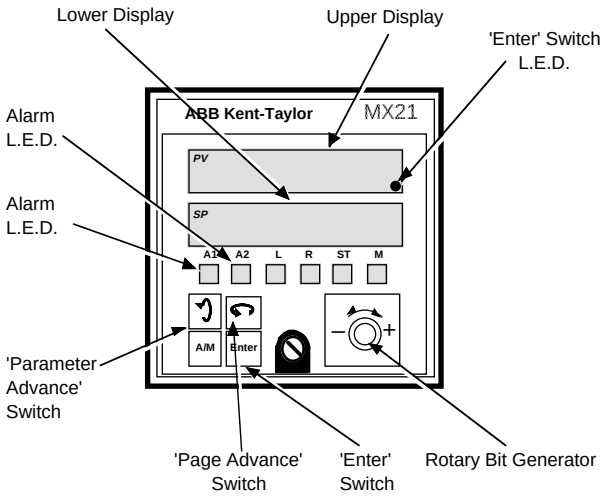


Fig. 14 Familiarisation with Controls, Displays and L.E.D Indication

5.5.1 General

The programming procedures are used to make changes to the operating parameter values and for calibration – see Fig. 15 for the overall programming chart.

Any changes to the operating parameters are implemented using the 'Rotary Bit-generator' and the 'Enter' switch – see Fig. 14.

Note. The indicator responds instantly to any parameter changes, i.e. before the 'Enter' switch is used. However, if any change is not 'Enter'ed the old parameter is retained once that particular parameter is no longer displayed, i.e. by advancing using the 'Page Advance' or 'Parameter Advance' switches.

A Security System is used to prevent tampering with the programmed parameters by restricting access to any, or all, of the programming pages (except the **Operating Page**). All users have access to the **Operating Page**.

'Secured' pages can only be accessed using a Security Number which can be set at any value between 0 and 1999 – see Section 5.5.5.

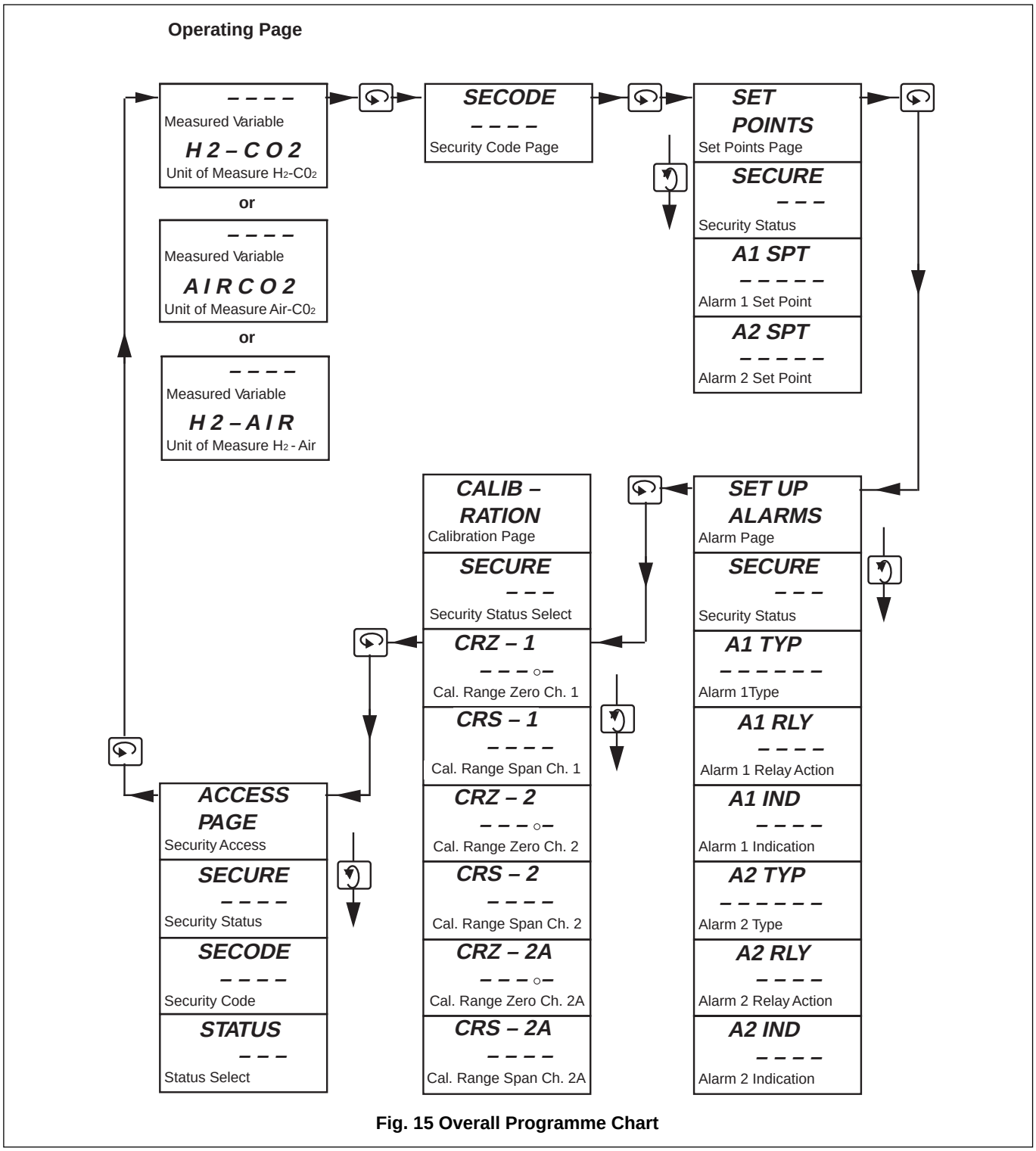
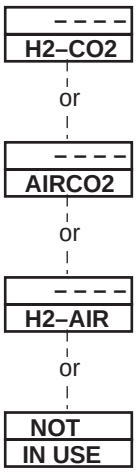


Fig. 15 Overall Programme Chart

5.5.2 Operating Page

The operating page is a 'display only' page.



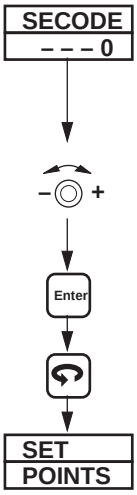
Upper display – measured process variable if indicator is selected (in use).

Lower display – the unit of measure depending on function selected:

'H2–CO2' – Hydrogen in Carbon Dioxide
'AIRCO2' – Carbon Dioxide in Air
'H2–AIR' – Hydrogen in Air

If the display unit is not selected (not in use) both displays are used to show 'NOT IN USE'.

A security system is used to prevent tampering with the programmed parameters by inhibiting access to any, or all of the programming pages. 'Secured' pages can only be accessed using a Security Number which can be set to any value between 0 and 1999 – see Section 5.5.5. The controller is despatched with the password set to '0'.



Upper display – page header, **Security Code**.

Lower display – last 'Enter'ed Security Number (normally an invalid number – see **Note** below.

Set the correct configuration password on the lower display – see Section 5.5.5.

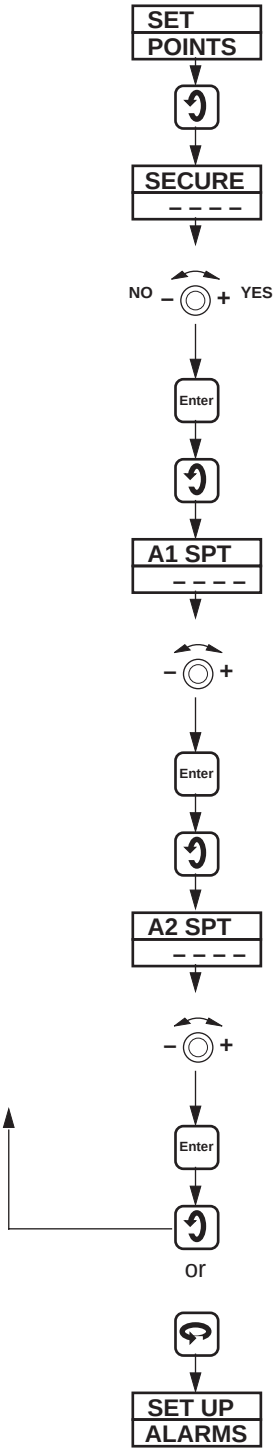
Store.

Advance to the first of the programming pages.

Set Points Page.

Note. To prevent access to 'Secure' pages once programming is complete the '**SECODE**' value must be reset to any value other than that of the Security Number and stored using the 'Enter' switch.

5.5.3 Set Points Page



Page header – **Set Points**.

Advance to next parameter.

Security Status

Select 'YES' or 'NO' to enable or disable access to this page:
'YES'– enable
'NO'– disable

Store.

Advance to next parameter.

Alarm 1 Set Point Value

Set the value required. The decimal point position is set automatically.

Store.

Advance to next parameter.

Alarm 2 Set Point Value

Set the value required. The decimal point position is set automatically.

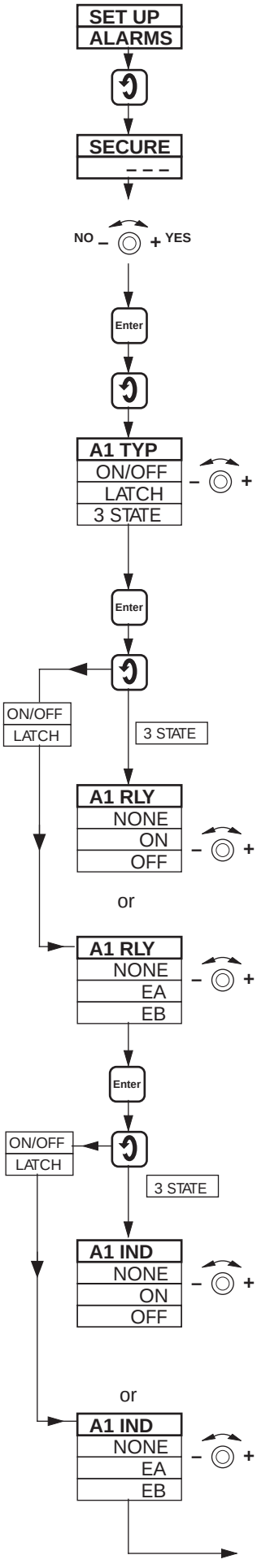
Store.

Return to top of **Set Points Page.**

or

Advance to **Set Up Alarms Page**.

5.5.4 Set Up Alarms Page



Page Header – **Set Up Alarms**.

Advance to next parameter.

Security Status

Select 'YES' or 'NO' to enable or disable access to this page:
'YES'– enable access
'NO'– disable access

Store.

Advance to next parameter.

Alarm 1 Type
Select the alarm 1 type:
'ON/OFF' – on/off
'LATCH' – latch
'3 'STATE' – three state (on/off)

Store.

Advance to next parameter.

Alarm 1 Relay Action

Select the alarm 1 relay action required:
'NONE'– alarm relay not used
'ON' – switch on between set points
'OFF' – switch off between set points

or

'NONE' – alarm not used
'EA' – **E**nergised **A**bove set point
'EB' – **E**nergised **B**elow set point

Store.

Advance to next parameter.

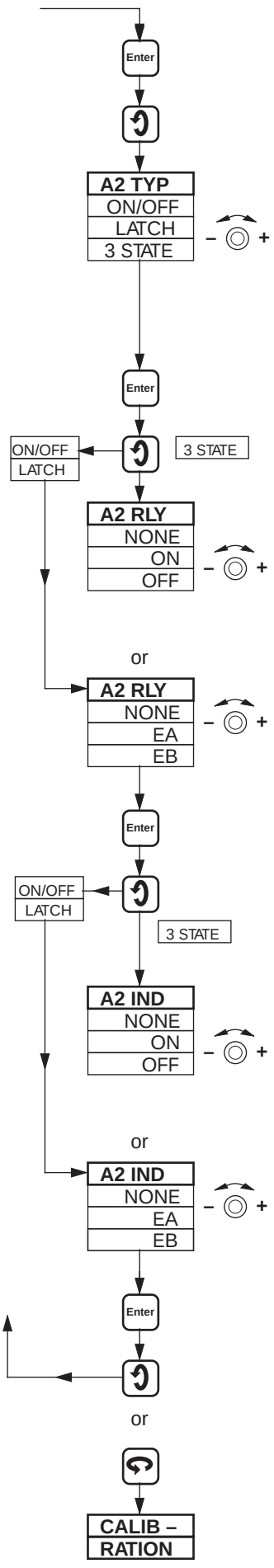
Alarm 1 L.E.D. INDICATION

Select the alarm 1 l.e.d. indication required:
'NONE'– alarm relay not used
'ON' – switch on between set points
'OFF' – switch off between set points

or

'NONE' – indication not used
'EA' – **E**nergised **A**bove set point
'EB' – **E**nergised **B**elow set point

Continued on next page.



Continued from previous page.

Store.

Advance to next parameter.

Alarm 2 Type

Select the alarm 2 type:
'ON/OFF' – on/off
'LATCH' – latch
'3 STATE' – three state (on/off)

Store.

Advance to next parameter.

Alarm 2 Relay Action

Select the alarm 2 relay action required:
'NONE' – alarm relay not used
'ON' – switch on between set points
'OFF' – switch off between set points

or

'NONE' – alarm not used
'EA' – **E**nergised **A**bove set point
'EB' – **E**nergised **B**elow set point

Store

Advance to next parameter.

Alarm 2 L.E.D. Indication

Select the alarm 2 l.e.d. indication required:
'NONE' – alarm relay not used
'ON' – switch on between set points
'OFF' – switch off between set points

or

'NONE' – indication not used
'EA' – **E**nergised **A**bove set point
'EB' – **E**nergised **B**elow set point

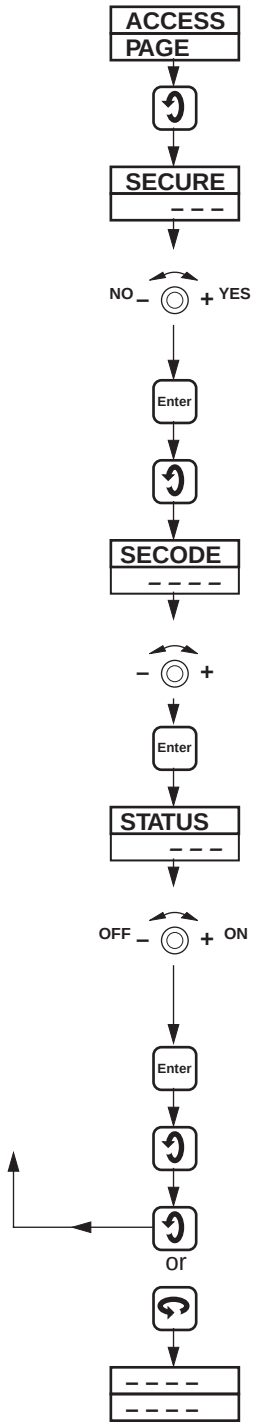
Store

Return to top of **Set Up Alarms Page**.

or

Advance to **Calibration Page**.

5.5.5 Access Page



Page Header – **Access Page**.

Advance to next parameter.

Security Status

Select::
'YES' – to enable access
'NO' – to disable access

Store.

Advance to next parameter.

Security Number
The Security Number is set in this parameter.

Set the security number required, between 0 and 1999.

Store.

Security System Status

Select:
'ON' – to enable the security system
'OFF' – to disable the security system

Store.

Advance to next parameter.

Return to top of **Access Page**.

or

Return to **Operating Page** – see Section 5.5.2.

5.5.6 Kent Page

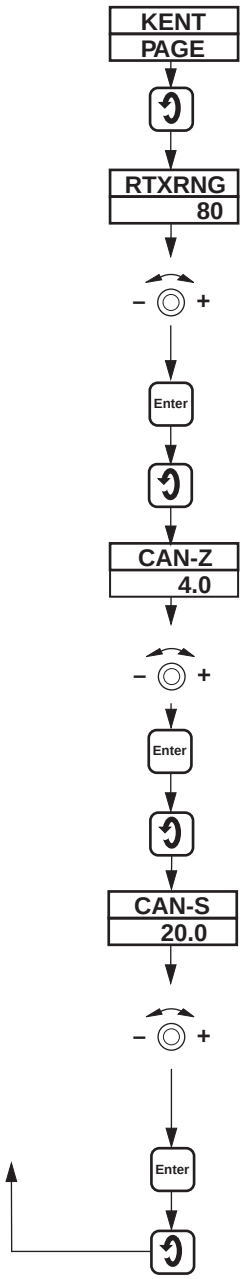
This is normally a hidden page, but it can be selected for parameters which only need to be set up during commissioning or at long intervals.

The page is made available by rotating Link 4 on the display unit processor board.

When the instrument is switched on, the Kent Page will appear after the Access Page, and operates in a similar manner to the other pages.

When the Kent Page parameters, as shown below, have been set up, Link 4 can be rotated back to its original position and the page will not appear when the instrument is next switched on.

The Kent Page contains frames to calibrate the analogue retransmission output, and, for the Hydrogen Purity Monitor only, a frame to select the display full scale (80% or 85%).



Page Header – **KENT PAGE**.

Advance to next parameter.

Set to 80 or 85 for start point of current output.

Store.

Advance to next parameter.

Calibrate Analogue Output Zero.

Adjust until Analogue Output = 4.0mA

Store.

Advance to next parameter.

Calibrate Analogue Output Span.

Adjust until Analogue Output = 20.0mA

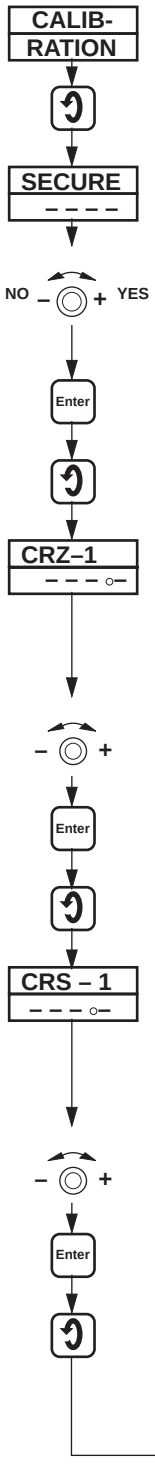
Store.

Return to top of page.

5.5.7 Calibration Page
The display unit should be calibrated at the intervals and occasions given in Section 8.3.

WARNING. A SEPARATE SIGNAL SOURCE MUST NOT BE APPLIED TO ANY DISPLAY UNIT WITHOUT DISCONNECTING EXISTING WIRING AND CONSIDERING ELECTRICAL SAFETY ASPECTS.

Carry out the calibration procedure in accordance with the information given in Section 6.5.



Page header – **Calibration**.

Advance to next parameter.

Security Status

Select:
'YES' to enable access to this page, or
'NO' to disable access to this page.

Store.

Advance to next parameter.

Calibration Range Zero, Channel 1
Apply 0.0mV to Channel 1 input

Note. The displayed units are engineering units.

Adjust the display to the required value of 0.0.

Store.

Advance to next parameter.

Calibration Range Span Channel 1
Proceed as for **Calibration Range Zero, Channel 1** above but apply a signal input equivalent to range span (10.0mV), to Channel 1 input.

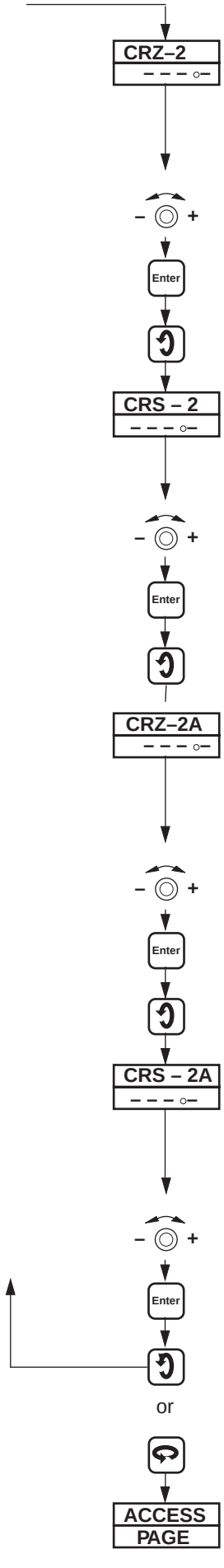
Note. The displayed units are engineering units.

Adjust the display to the required value of 100.0.

Store.

Advance to next parameter.

Continued on next page.



Continued from previous page.

Calibration Range Zero, Channel 2
Apply 0.0mV to Channel 2 input

Note. The displayed units are engineering units.

Adjust the display to the required value of 0.0.

Store.

Advance to next parameter.

Calibration Range Span Channel 2
Proceed as for **Calibration Range Zero, Channel 2** above but apply a signal input equivalent to range span (10.0mV), to Channel 2 input.

Note. The displayed units are engineering units.

Adjust the display to the required value of 100.0.

Store.

Advance to next parameter.

Calibration Range Span Channel 2A
Proceed as for **Calibration Range Zero, Channel 2** above but apply a signal input equivalent to range zero (28.50mV), to Channel 2 input.

Note. The displayed units are engineering units.

Adjust the display to the required value of 50.0.

Store.

Advance to next parameter.

Calibration Range Span Channel 2A
Proceed as for **Calibration Range Zero, Channel 2** above but apply a signal input equivalent to range span (34.50mV), to Channel 2 input.

Note. The displayed units are engineering units.

Adjust the display to the required value of 100.0.

Store.

Return to top of **Calibration Page**

or

or

Advance to **Access Page**.

Annexe 1

(1) Alarm action

There are two alarm set points (A1 and A2) which can be set up individually for independent on/off operation, or in pairs to obtain latching or threee-state configurations.

The alarm action with respect to the set points and the process variable is shown in Figs. 1 to 3 below.

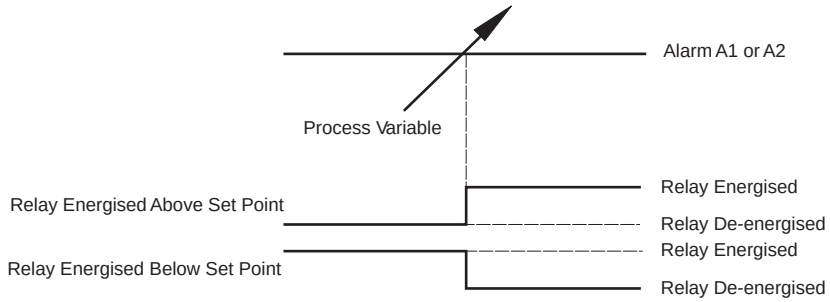


Fig. 1 On/Off

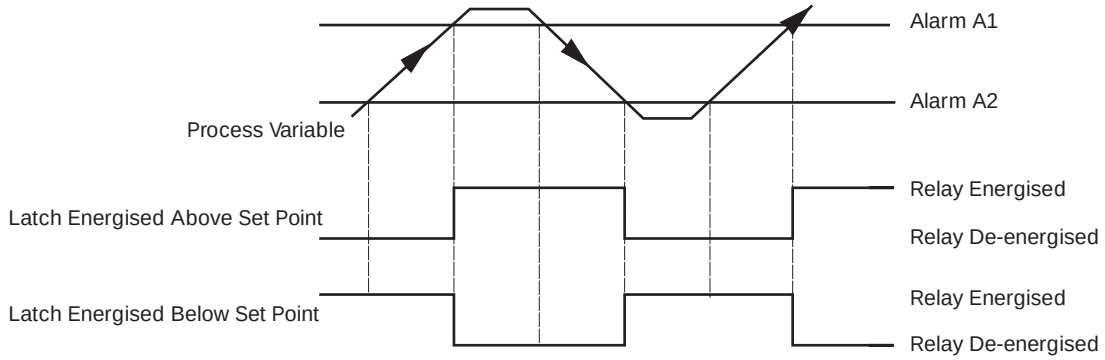


Fig. 2 Latch

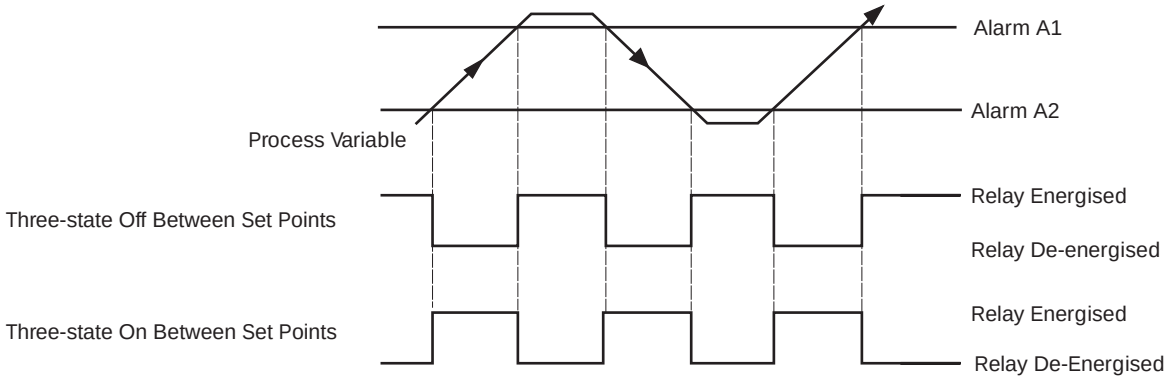
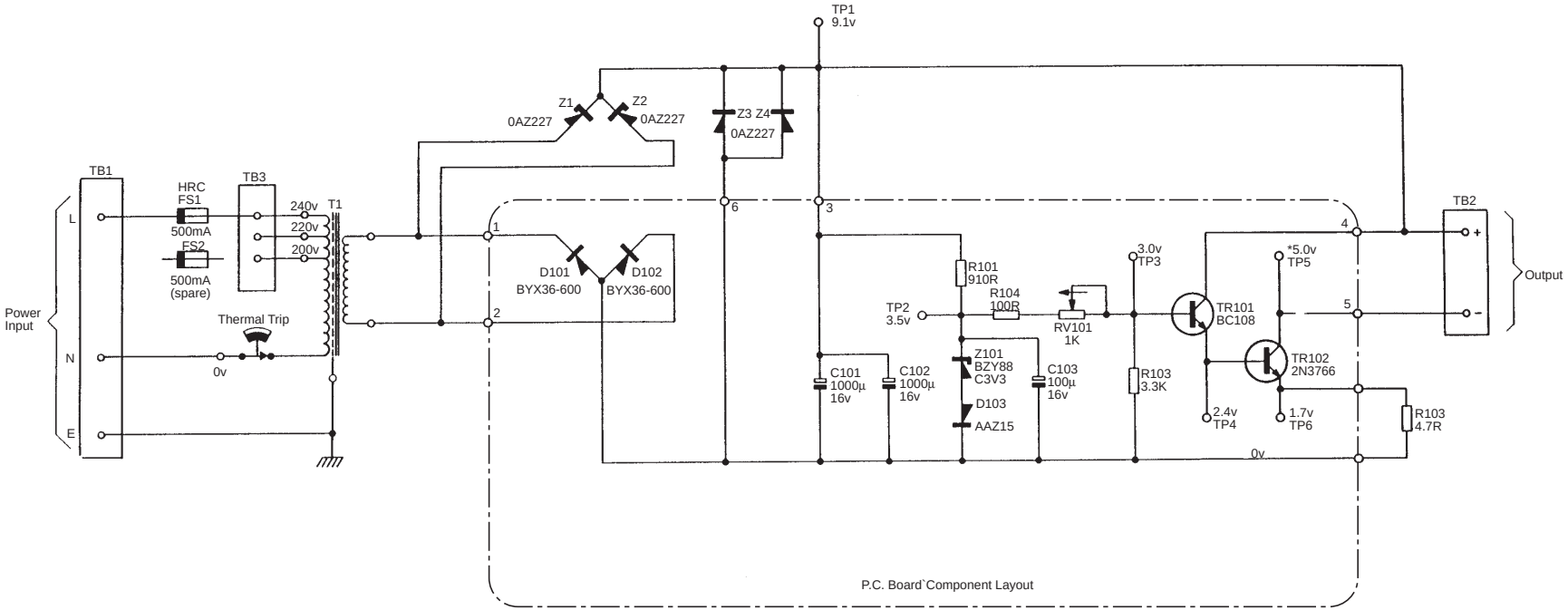
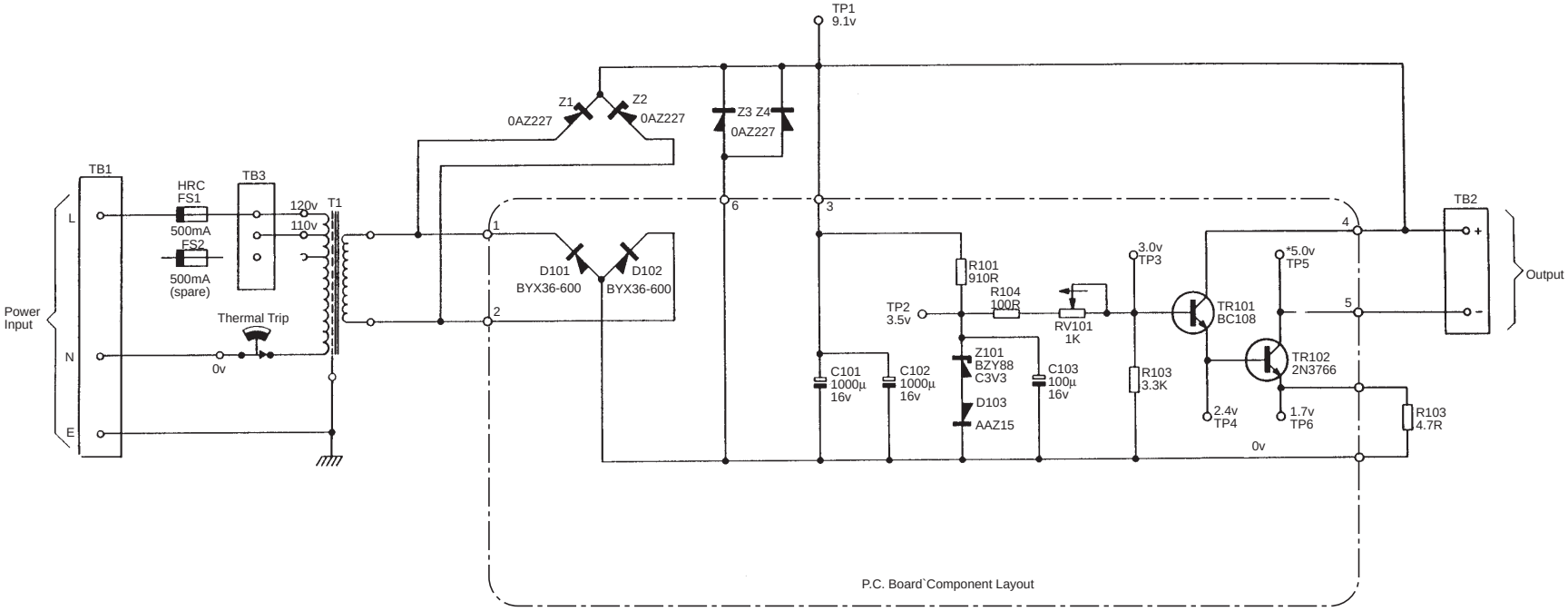


Fig. 3 Three-State



*Measured with a 10R load

Fig. 17 Power Supply Unit Model 4234 – Overall Circuit (200/220/240V Version)



*Measured with a 10R load

Fig. 18 Power Supply Unit Model 4234 – Overall Circuit (110/120V Version)

ABB Kent-Taylor Worldwide

AUSTRALIA
ABB Kent-Taylor Pty Ltd
Caringbah
Tel: (02) 525 2811
Fax: (02) 526 2269

AUSTRIA & EASTERN EUROPE
ABB Kent Europe Ltd.
Vienna, Austria
Tel: (0222) 798 3153
Fax: (0222) 799 1753

BELGIUM
SA ASEA Brown Boveri
Zaventem
Tel: (02) 718 6311
Fax: (02) 718 6662

CANADA
ABB Kent-Taylor
Mississauga, Ontario
Tel: (416) 629 1428
Fax: (416) 629 3171

DENMARK
ABB Industri AS
Ballerup
Tel: (04) 686 210
Fax: (04) 682 510

EIRE
ABB (Ireland) Ltd.
Dublin
Tel: (01) 598 690
Fax: (01) 599 942

FINLAND
ABB Signal Oy
Helsinki,
Tel: (0) 50 691
Fax: (0) 506 96269

FRANCE
ABB Instrumentation
Paris
Tel: (1) 6918 1700
Fax: (1) 6907 5402

GERMANY
ABB Kent-Taylor GmbH.
Meerbusch
Tel: (021 59) 52060
Fax: (021 59) 1503

HONG KONG AND CHINA
Asea Brown Boveri Ltd
Hong Kong
Tel: (5) 846 8888
Fax: (5) 846 8900

ITALY
ABB Kent-Taylor SpA
Lenno (Como)
Tel: (0344) 58111
Fax: (0344) 56278

JAPAN
ABB Gadelius Industry KK
Kobe
Tel: (78) 991 4505
Fax: (78) 991 4910

MEXICO
ABB Kent-Taylor SA de CV
Edo de Mexico
Tel: (5) 565 4011
Fax: (5) 565 5812

NETHERLANDS
ABB Componenten BV
Capelle a/d Ijssel
Tel: (10) 258 2290
Fax: (10) 458 6559

NEW ZEALAND
ABB Kent-Taylor Ltd
Auckland
Tel: (09) 276 1315
Fax: (09) 276 1337

NORWAY
EB Industry + Offshore AS
Porsgrunn
Tel: (03) 55 55 40
Fax: (03) 55 15 59

SINGAPORE
ABB Instrumentation (EA) Pte Ltd.
Singapore
Tel: 481 9801
Fax: 482 5110

SOUTH AFRICA
Kent Measurement Pty Ltd
Johannesburg
Tel: (011) 474 8697
Fax: (011) 474 3232

SPAIN
ABB Kent-Taylor SA
Madrid
Tel: (01) 439 9000
Fax: (01) 437 9877

UNITED STATES OF AMERICA
ABB Kent-Taylor Inc
Rochester
Tel: (716) 292 6050
Fax: (716) 273 6207

ZIMBABWE
ABB Kent International Ltd.
Harare
Tel: (4) 728804
Fax: (4) 728807

22.7.93

OTHER COUNTRIES
Distributors are available in most other areas of the world.

6553-D13 Issue 1 5.94

ABB Kent-Taylor Ltd.
Howard Road,
St. Neots, Cambs.
England, PE19 3EU
Tel: (0480) 475321
Telex: 32676 FOSCAM G
Fax: (0480) 217948

ABB Kent-Taylor Ltd.
Analytical & Flow Group
Oldends Lane, Stonehouse
Gloucestershire
England, GL10 3TA
Tel: (0453) 826661
Fax: (0453) 826358

ABB Kent-Taylor Inc.
1175 John Street,
PO Box 20550, Rochester
New York 14602-0550
USA
Tel: (716) 292 6050
Fax: (716) 273 6207