

- **Comprehensive alarm facilities**
 - provides early warning of plant failure
- **Economically priced on-line analyzer**
 - low capital costs
- **Choice of testing frequency**
 - extends the life of the reagents
- **Easy to maintain**
 - minimum maintenance costs
- **Wide choice of alarm set points**
 - satisfies an extensive range of applications



Testomat
– a robust design with minimum
maintenance for reliable results

General Information

The Testomat is a wall-mount instrument which tests softened water for residual hardness. An indicator which changes colour at a predetermined level of hardness is added to the sample of water. This colour reaction is monitored photoelectrically and is also visible through a window on the front of the instrument. In the event of a colour change signifying an unsatisfactory result, an alarm is initiated. The testing interval and a second alarm are switch selectable and facilities for plant control and remote control are standard features.

The robust design of the Testomat, combined with minimal maintenance requirements, and extensive alarm and control facilities, make it ideal for control and monitoring of water softening plants.

Operation

Testing Cycle

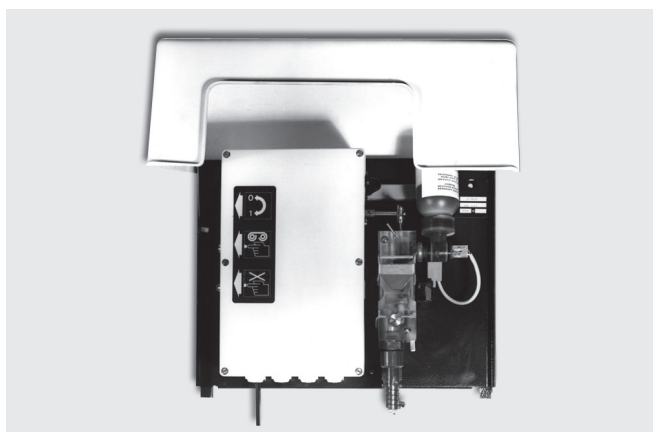
Water is passed continuously through the instrument and, between analyses, it serves to flush out the measuring cell. On initiation of a testing cycle the cam-driven dosing plunger drops, simultaneously closing the exit of the cell and delivering a measured dose of indicator reagent. The cell fills with water, excess water then bypasses the cell and is diverted to drain. A period of two minutes is allowed for a reaction to take place, then the colour of the reaction is measured for a further two minutes by photocell. If the result is satisfactory, i.e. no colour change signifying that the residual hardness is below the predetermined alarm level, a green LED on the front panel of the instrument is illuminated.

However, in the case of a colour change, a red LED on the front panel of the instrument is illuminated and an alarm contact is activated for one minute. The colour reaction in the cell remains visible through a window on the front panel of the instrument for approximately four-fifths of the sampling interval, then a white flickering light is seen as the cell is flushed out in preparation for the next test cycle.

Amplifier Function

The instrument controls are located on the amplifier. Two switches inside the amplifier housing control the frequency of the sampling interval and the state of the programmable alarm. Sampling intervals of 5, 10, 20 or 30 minutes can be programmed in the following ways:

- i) continuous alarm condition after one unsatisfactory result until the next satisfactory result is obtained;
- ii) continuous alarm condition after two consecutive unsatisfactory results until the next satisfactory result is obtained;
- iii) continuous alarm condition after one unsatisfactory result and further analyses stopped until alarm cancelled manually;
- iv) continuous alarm condition after two consecutive unsatisfactory results and further analyses stopped until alarm cancelled manually;
- v) one minute alarm condition after one unsatisfactory result.



Model 6775 with Cover Raised

The manual cancel button is located on the left of the amplifier housing and can be depressed at any time to reset the changeover contacts to their original position. A set of contacts is provided for remote operation of the resetting facility. Also located on the left of the amplifier housing are the 'on/off' switch and the 'programme start' button. A test cycle can be initiated by the programme start button if the programme indicator on the front panel is not illuminated.

Other facilities include remote switching to stand-by, event recorder output and a 'lack of reagent' alarm.

Reagents

The type of reagent determines the level of hardness at which a colour change occurs.

The reagent is supplied in 100ml and 0.5l bottles, which have a shelf life of 2 years. Each instrument is supplied with one 100ml bottle, sufficient for 1300 analyses, which screws into a swivel socket on the testing chamber of the instrument. Please specify reagent required when ordering (see adjacent table).

When the volume of reagent remaining is sufficient for only 25 analyses an indicator on the front panel of the instrument illuminates. A set of contacts is provided for remote indication of lack of reagent.

Colour Change ppm (mg/l) CaCO_3	Volume	ABB Part Number
0.5	100ml	6775 902
0.9	100ml	6775 901
1.8	100ml	6775 903
3.6	100ml	6775 908
5.4	100ml	6775 904
9.0	100ml	6775 905
18.0	100ml	6775 906
36.0	100ml	6775 907
0.5	0.5l	6775 912
0.9	0.5l	6775 911
1.8	0.5l	6775 913
3.6	0.5l	6775 918
5.4	0.5l	6775 914
9.0	0.5l	6775 915
18.0	0.5l	6775 916
36.0	0.5l	6775 917

Specification

Sample Conditions

pH range

7 to 10

Pressure1 to 10 bar (14.5 to 145 lb/in²)**Temperature**

45°C (113°F) max.

Max. permissible impurity concentrations

0.5 ppm iron

0.1 ppm each of copper and aluminium

20 ppm carbon dioxide

(above this level a Testomat aerator must be installed)

Ambient Conditions

Temperature

50°C (122°F) max.

Power Requirements

Supply

115/220/240V, 50/60Hz (please specify when ordering)

Consumption

25VA

Electrical connections

Via cable glands to a terminal strip (page 6)

cable gland size Pg11

Pipe Connections

InletFlexible pressure tubing of 6mm (0.24 in.) internal diameter
(a stopcock must be installed in the inlet prior to the instrument)**Outlet**

Flexible hose of 14mm (0.55 in.) internal diameter

Degree of protection

IP54

Weight

5kg (11 lb)

Overall dimensions310mm high x 360mm width x 130mm depth
(12.2 in. high x 14.17 in. width x 5.12 in. depth)

Installation Information

Ranges

Determined by reagent

Reagent consumption

0.07ml per test

Alarm contacts

All contacts are voltage-free and rated at 2A 250V

High concentration alarm normally open contacts
one minute durationProgrammable alarm changeover contacts
(see text for operation)

Lack of reagent alarm normally open contacts

Front panel indicators

Program in operation

Analysis stopped

Lack of reagent

Satisfactory result

Unsatisfactory result

Viewing window

Event recorder output

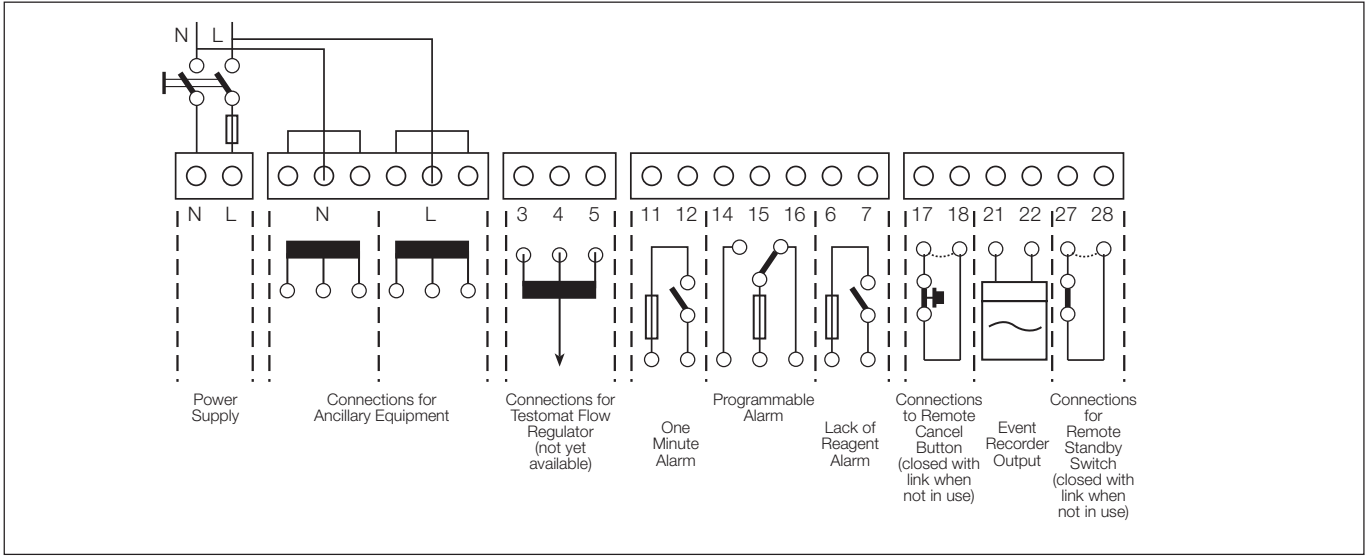
0 to 20mA isolated load 50Ω

Event	Signal
Supply connected	3.5mA
Satisfactory result	7.5mA
Unsatisfactory result	12.5mA
Lack of reagent	16.5mA

Remote control facilitiesVoltage-free normally closed contacts max. load 20mA 10V
(closed with link when not in use) :

- 1) remote operation of cancel button
- 2) remote switch to stand-by

Electrical Connections



Overall Dimensions

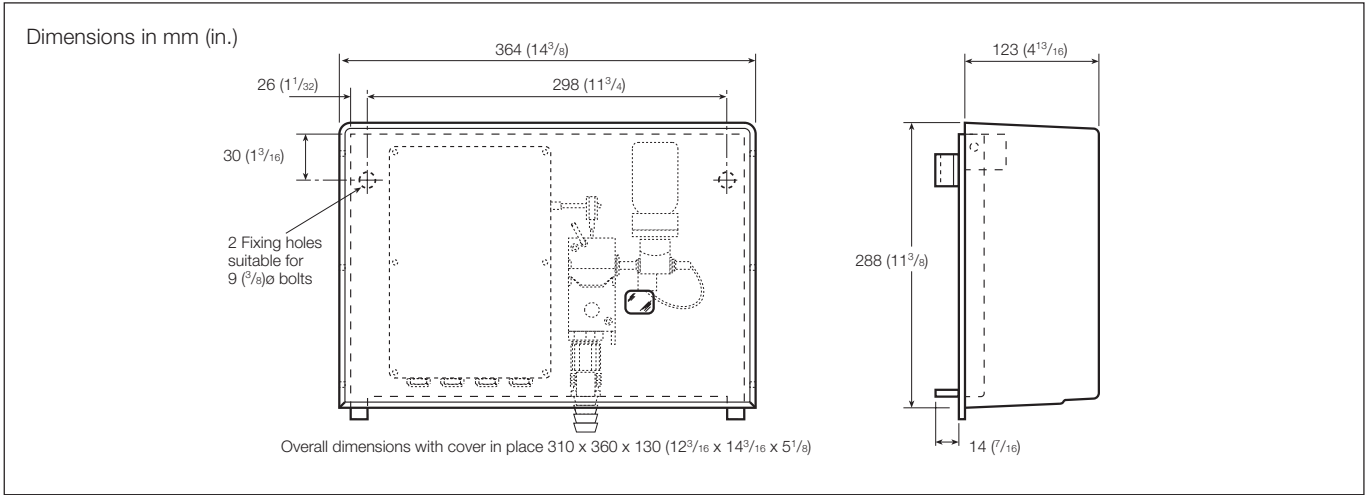


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