

SANGAMO

S250/Q550 SERIES

**ELECTRO-MECHANICAL
ROUND PATTERN TIME SWITCH**

Installation and User Instructions

Sangamo S250/Q550 Series, 24 hour and Solar Dial Time Switch.

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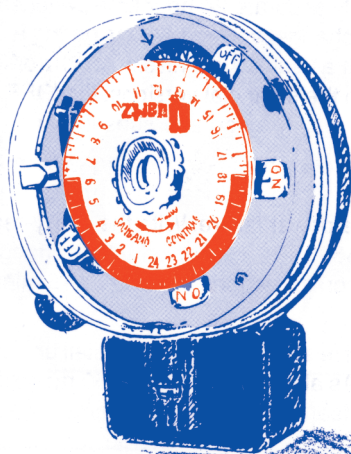


FIG. 1

Before attempting to install the Sangamo Time Switch,
please read these instructions carefully.

The Installation of the switch should be carried out by a qualified electrician in accordance with the current edition of the IEE wiring regulations.

To comply with safety requirements you must fit your new unit to the base supplied with it.

The Q550 product contains a battery – do not incinerate

Introduction

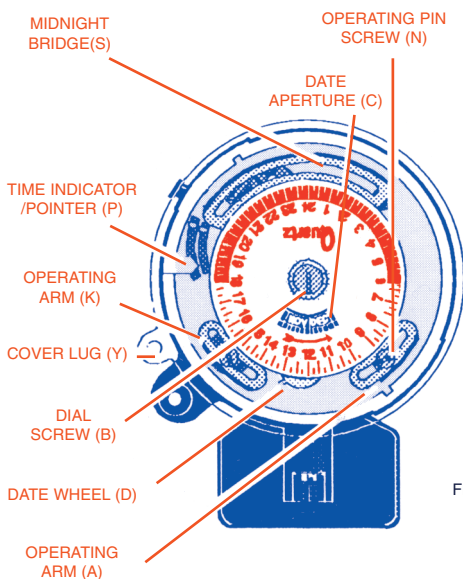
These installation and user instructions cover all variants in the Sangamo S250 & Q550 series – a range of reliable and highly accurate 24-hour time switches which offer, according to model, up to 3 ON/OFF (6 changeover) operations during a 24-hour cycle, in versions which provide features such as selective omission of ON or OFF switching operations, early operation, and with the solar dial versions, ON/OFF switching which tracks sunrise and sunset.

The S250 & Q550 switches are controlled by an electronic quartz module with both ensuring accurate time-keeping. The Q550 module has a back-up battery providing a 100-hour reserve in the event of a power failure. With the easily-read dial face marked in 15-minute divisions, these switches also offer high timing resolution, permitting power to be switched on for periods as short as 15 minutes, to an accuracy of ± 3 minutes.

Sangamo switches are straightforward to install and set, but please read these instructions carefully first. As all variants in the ranges are covered by this leaflet, there will be references to features not found on certain models, any such information can be ignored.

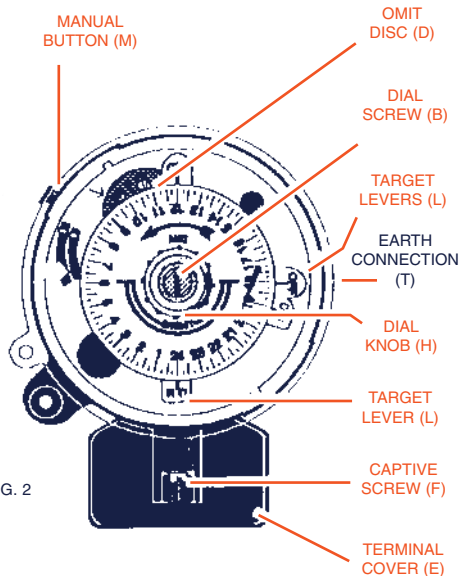
Warning

This control must be earthed. Terminals are for fixed wiring only. Provision must be made in the fixed wiring for a means of disconnection from the supply having a contact separation of at least 3mm on all poles.



Sangamo solar dial time switch.
(Q550 shown)

FIG. 2



Sangamo 24 hour dial time switch.
(S250 shown)

Installation Instructions

1. Rotate front cover anti-clockwise and lift clear.
2. Remove extended terminal cover E by unscrewing captive screw F.
3. Withdraw plug-in mechanism from switch base by pulling firmly on knob H. Do not pull on dial.
4. Clear plastic from three fixing holes provided, ENSURE THAT NO PARTICLES REMAIN IN BASE.

Notes:

(a) Use No.8 wood screws or No.2BA countersunk screws for fixing.

(b) When fitting this time control into insulating material using wood screws ensure all metalised coverings have been removed from the area of application and fix with suitable wall plugs.

(c) As received the battery utilized on the Q550 range will be discharged. When the switch is connected to the supply, there will be a delay before the motor starts while the battery absorbs the initial charge. The full 100 hour reserve will be achieved after approx. 300 hours of power.

(d) This product is only suitable for 'Ordinary' conditions i.e. this product is not protected against dripping or splashing moisture.

(e) When mounting this time control on a metal surface ensure the metal is adequately earthed to cover 20A resistive rating in accordance with IEE regulations.

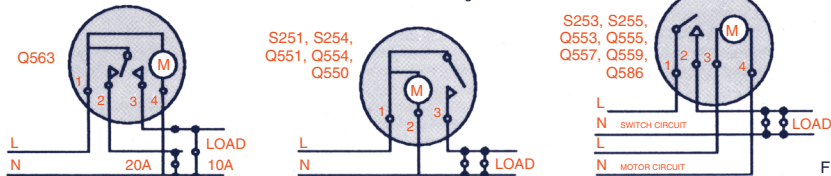


FIG. 3

5. Strip back insulation by 6mm from the end of wire to ensure satisfactory connection with the terminals. Connect switch to supply as in wiring diagram shown above. On all 4 pin models (excluding Model Q563), where separate supplies are not available for the motor and switch circuit, fit a link between terminals 1 and 3.

Connect earth lead to earth connection (T).

6. Plug mechanism into base.
7. Replace and secure extended terminal cover E. This will lock in the mechanism. Cut out the minimum of material and remove sharp edges from the inlet if wiring is routed along the surface and through the bottom of the terminal cover.
8. On completion of installation and/or setting of switch, replace cover and rotate clockwise to fully closed position with cover lug Y in attitude shown in Fig. 2.

Setting the 24 Hour Dial

1. Hold dial firmly and turn knob H clockwise until levers L (Fig. 2) are easily movable. Set levers to operating times required. Re-tighten knob H.
2. Turn dial in direction of arrow until pointer P marked 'time' indicates the time of day at the moment of setting. e.g. Fig. 2 (24 hour dial model) shows dial set for 6 a.m.
3. Each small division represents $\frac{1}{4}$ of an hour.
4. Screw B should only be unscrewed if it is necessary to remove dial.
5. If dial is removed, when replacing ensure that hub below dial engages with cross-pin on spindle.
6. The accuracy to which the dial can be set is ± 3 minutes.

Setting Day Omitting Device (when fitted)



FIG. 4

Note:

Ensure dial is showing the correct time, then note position of lever L (Fig. 2) which turns black disc D (Fig. 4) once every revolution on dial. If this lever has passed the disc, then turn the disc so that the current day is set to the arrow marked 'day'. If, however, lever has not reached disc, then set day preceding current day on disc to arrow.

1. Day Omitting Device (Fig. 4) prevents 'on' operations (or in some models 'off' operations) occurring on any chosen day or days of week.
2. To omit operations on any particular day, turn inset 1 clockwise for that day, with screwdriver, until arrowhead points outwards. For change-over switches with levers marked 'A' and 'B', this device omits 'B' lever operations.

Early Operation Device (when fitted)



FIG. 5

Note:

Day lever E (Fig. 5) in conjunction with special hinged lever fitted to the dial, enable a particular switching operation to be made at an earlier pre-set time on any one day of the week.

1. To set lever E slacken screw S and adjust lever until 'U' shaped portion is at appropriate day. (Fig. 5)
2. Set special hinged lever to time required as for levers L (Fig. 2)

Minimum Period Between Operations

Minimum setting period between levers L, marked 'on' and 'off' is fifteen minutes. When more than one pair of levers are fitted, minimum period between consecutive "on", 'off', levers is 1 $\frac{3}{4}$ hours.

For early operation switches, the hinged lever must be set at least three hours after normal lever L preceding it and at least 1 $\frac{3}{4}$ hours before normal lever L following it.

On models Q559 and Q586 where two ordinary 'on' and 'off' levers are fitted, the early operation is effective for one pair of ordinary levers only.

Setting the Solar Dial

WARNING: Do not loosen the centre nut surrounding dial screw B

1. Turn small five-point wheel D (Fig. 2) until correct calendar date is indicated through small aperture C.

Notes:

- (a) Each calendar month is divided into six equal divisions, each representing five days. The small pointer of date dial should be made to indicate as nearly as possible correct day of month.
 - (b) Switches are factory-set to operate automatically at sunset and sunrise in localities based on the Greenwich Meridian. The operating pins are approximately in the centres of operating arms A and K (Fig. 2).
 - (c) To compensate for longitudinal errors, variations of switch operating times (for a period of approximately $\frac{3}{4}$ hour either side of sunset or sunrise) can be achieved by suitable adjustment of operating pins within slots of operating arms. For convenience, slots are calibrated in quarter-hour intervals.
 - (d) Longitudinal correction, if applied, should be four minutes approximately for each degree longitude east or west of the Greenwich Meridian. It is subtracted for longitudes east of the Meridian and added for longitudes west of the Meridian.
 - (e) It should be unnecessary to adjust operating pins for latitudinal variations as dials are supplied for different latitudes.
2. Turn main dial until the pointer P (Fig. 2) indicates time of day (Greenwich Mean Time) at the moment of setting. The dial is calibrated in fifteen-minute divisions.

Fixed 'off'/change-over Operation Between 20.30 and 01.00

Models: S251 Form 13, S253 Form 13, Q551 Form 13, Q553 Form 13, Q550 Form 13.

1. In the above models this operation can be obtained as an alternative to the one at sunrise. It is achieved by transferring the operating pin from the solar operating arm A (Fig. 2) to the midnight bridge S.
 2. To transfer operating pin, procedure is as follows:
 - a) Take out screw N (Fig. 2), and remove operating pin from arm.
 - b) Fit operating pin to midnight bridge S, securing it with screw.

3. For convenience, midnight bridge is calibrated in quarter-hour intervals enabling fixed operation to be set at any time between 20.30 and 01.00.

4. To set 'off'/change-over operation, procedure is as follows:

- (a) Slacken slotted screw securing operating pin.
- (b) Move operating pin along slot of midnight bridge S until it corresponds to required operating time.
- (c) Secure operating pin by tightening screw N.

For models having an operating pin on the midnight bridge as a standard fitment, only step (4) above applies.

Fixed Early Morning 'on'/change-over Operation Between 03.15 and 08.30

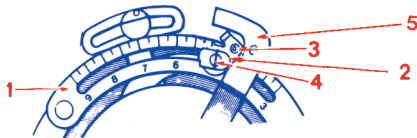


FIG. 6

Models: S251 Form 14, S253 Form 14,
Q551 Form 14, Q553 Form 14

1. A standard fitment to rear of the solar dial Form 14 switches, is a small sector-bridge (1) Fig. 6 into which is fitted a small spring-tensioned lever (2) integral with the operating pin (3) to give a fixed operation at any time between 03.15 and 08.30. Settings can be made at quarter-hour intervals within this range. To enable setting to be made, it is necessary to remove screw B (Fig. 2) and lift dial assembly off central spindle.

(WARNING: Do not loosen the centre nut surrounding dial screw B)

2. To set the fixed early morning 'on'/change-over operation, the procedure is as follows:

- (a) Slacken No. 8BA nut on underside of sector bridge and move spring-tensioned lever (2) Fig. 6 along sector bridge (1) until slot (4) coincides with selected time on sector bridge scale. Tighten No. 8BA nut.
- (b) Replace dial assembly, ensuring that hub location engages with crosspin on spindle and fit retaining screw B (Fig. 2).
- (c) Fixed operation will be obtained at time required, except where solar operating pin in arm A (Fig. 2) is earlier.

3. A spring-tensioned timing lever (5) Fig. 6, which needs no adjustment, prevents fixed pin (3) from operating when solar operating time coincides with, or is earlier than, fixed time operation.

This timing lever (5) automatically releases small lever (2) from operating position.

Manual Button

Pressing the manual button M (Fig. 2) immediately opens or closes the switch contacts, anticipating the next operation. This does not affect subsequent operations of levers L.

To Convert Form 2 Dial to Form 1

(i.e. from '2 ON/OFFs' to '1 ON/OFF')

1. Remove centre locking nut and lift away the dial face.
2. Remove the top ON/OFF lever and washers.
3. Replace the dial face.
4. Replace the locking nut.

Specification

Current, Voltage, Frequency:

As shown on identification plate of switch.

Ambient Temperature:

As shown on identification plate of switch.

Live Parts:

Enclosed i.e. this timer is totally protected by the enclosure.

Dirt Protection:

Normal domestic dust deposits only.

Moisture Protection:

Ordinary i.e. has no special protection against moisture.

Shock Protection:

Class 1. Functional insulation throughout.

Contacts:

The timer must be earthed.

Micro-disconnection

Important

Although every care is taken to ensure the accuracy of the electrical circuit diagrams shown, SANGAMO or associated companies cannot be held responsible or liable for circuit connections other than those directly associated with the S250 & Q550 ranges of time switches. As the control mechanism is similar to that used in an ordinary quartz clock, there will be a perceptual ticking.

Due to the variety of loads, environment and applications, the battery is built into the circuit of the printed circuit board and, therefore, the timeswitch will cease to operate or run slow after its expectancy life of 10 years (dependant on the environment).

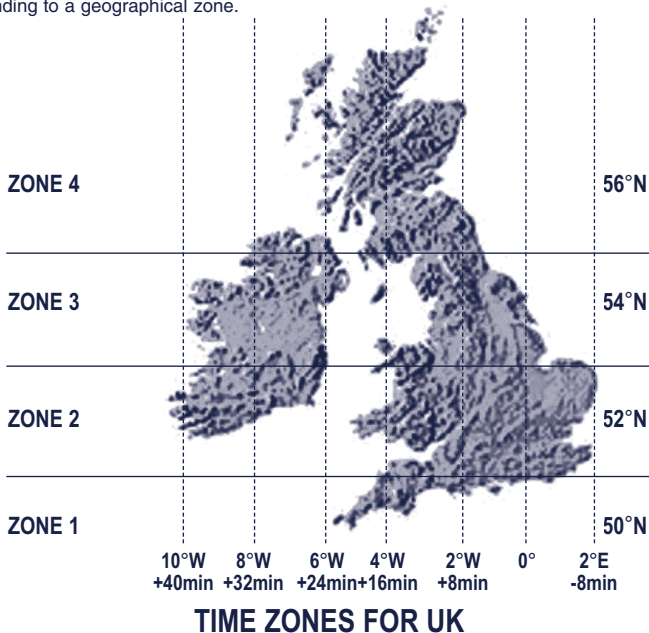
A battery replacement kit for fitting by a suitably qualified person is available by contacting our customer services department.

QUICK REFERENCE CHART

FUNCTION/ SWITCH	QUARTZ ELECTRONIC	SOLAR DIAL	NO. OF CHANNELS	TIMER PROG.	BATTERY RESERVE	OMIT DEVICE	EARLY OPERATIONS (SOLAR MODELS)	EARLY 'DEVICE' (STANDARD MODELS)	SWITCH TYPE	BASE PINS PER 24 HOURS	MAX OPERATIONS (DEPENDENT ON FORM TYPE)
S251	Q	Y	1	24 HR	N		ON and OFF		SPST	3	2 or 4
S253	Q	Y	1	24 HR	N		ON and OFF		SPST	4	2 or 4
S254	Q	N	1	24 HR	N	ON			SPST	3	6
S255	Q	N	1	24 HR	N	ON			SPST	4	6
Q550	Q	Y	1	24 HR	Y	ON	ON and OFF		SPST	3	2 or 4
Q551	Q	Y	1	24 HR	Y		ON and OFF		SPST	3	2 or 4
Q553	Q	Y	1	24 HR	Y		ON and OFF		SPST	4	2 or 4
Q554	Q	N	1	24 HR	Y	ON			SPST	3	6
Q555	Q	N	1	24 HR	Y	ON			SPST	4	6
Q557	Q	N	1	24 HR	Y	OFF			SPST	4	6
Q559	Q	N	1	24 HR	Y	ON		OFF	SPST	4	4
Q563	Q	N	1	24 HR	Y	ON			SPDT	4	6
Q586	Q	N	1	24 HR	Y	ON		ON	SPST	4	4

SOLAR MODELS – GEOGRAPHICAL ZONES

Because the times of sunrise and sunset vary with latitude, four standard dials are available for use in the UK each corresponding to a geographical zone.



The switch is guaranteed for five years from date of manufacture (applies to U.K. and S. Ireland only). If it should become defective please contact your installer or supplier for a replacement unit. This guarantee becomes invalid if the mechanism has been tampered with or used in an environment which is unsuitable.

The Q550 range contains a rechargeable battery for memory and data retention, it should not be disposed of with normal domestic waste. This battery should be removed by a competent engineer and disposed of in accordance with local regulations, alternatively the batteries should be returned to our Port Glasgow address for safe disposal.

Please mark the return packaging for the attention of the E.O.L. Department.

WEEE regulations require that, at the end of this product's life it should be returned to the address below for suitable environmental recycling, recovery and / or disposal. Please mark your return packaging for the attention of the E.O.L. Department.

The product that you have just purchased may contain some components recovered from products within the guarantee period. This has been done in the spirit of the WEEE directive which requires us to recycle, reuse or recover component parts of our products. All recovered components have been identified as 'non-critical' and have been inspected to our normal high standards.

CUSTOMER CARE POLICY

As part of Sangamo's continuous improvement programme, the Company operates a Customer Care Policy. This means that we welcome your comments and complaints, as it can only help us to improve our services to you, our customer.

Due to our policy of continuous product improvement and development, the specifications in this guide may be subject to change without prior notice.



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