



TIMER INSTRUCTION MANUAL

INSTRUCTIONS FOR INSTALLING INDUSTRIAL ELECTRONIC TIMERS— TM(L) - SR(L) - YD(L) - RT(L) - DD

The information provided should be carefully read before installing units. Their observance will ensure reliable and satisfactory service.

INTRODUCTION

This unit is part of a range of fully stabilised precision electronic timers. Suitable for nearly all industrial and other sequence timing applications where small size, high reliability and long life is required. It is designed to ensure extremely stable timing under all general conditions including fluctuations in supply voltage and ambient temperature.

SPECIFICATION

Supply Voltage

Types TM, SR, YD, RT -110 - 440v A.C. only

Type DD -110 - 240v A.C. only

Types TML, SRL, YDL, RTL -24 - 60v A.C. or D.C.

For connection details check the timer rating label and refer to the appropriate section below.

As switchgear applications will impose the most severe voltage requirements the units have been designed to accommodate the British Standard Switchgear voltage tolerances. Namely, satisfactory operation at 15% below the minimum voltage and 10% above the maximum voltage, of the stated range.

Frequency

48.75-63Hz.

Ambient Temperature

Full stabilisation over the range -20°C to +50°C, at standard altitudes and humidity conditions.

Extreme Conditions: When used at altitudes above 2,000 metres (6,600 ft.) consult Crompton Controls regarding derating of the unit.

Relay Contact Rating

The relay complies with section 4.8.2 of BS4999 Part 111, 1987 on switch rating requirements as listed below.

TEST DUTY	CARRY AND BREAK	MAKE
1	0.6A, 110V, 0.4 p.f. ±.05	6A, 110V, 0.7 p.f. ±.05
2	0.14A, 485V, 0.4p.f. ±.05	1.4A, 485V, 0.7 p.f. ±.05
3	6A, 110V, 0.7 p.f. ±.05	6A, 485V, 0.7 p.f. ±.05
4	1.4A, 485V, 0.7 p.f. ±.05	1.4A, 485V, 0.7 p.f. ±.05

The test voltages of 110v and 485v represent an over voltage of 10% on the switching rated voltages of 100v and 440v. Care should be taken in low voltage control circuits to ensure that the continuous current through the contacts does not exceed 2 amps. Where the above limits would be exceeded a buffer relay of sufficient capacity to handle the load is required. Electrical life of relay: 10⁵ operations at rated load. Mechanical life of relay: 30×10⁶ operations.

Flash Testing

The timer unit may have the usual high-voltage insulation test (up to 2,200 volts~) applied between any of the connection terminals and earth. However, the normal practice should be followed of taking care not to apply high test voltages between the terminals themselves.

Input-Output Interaction

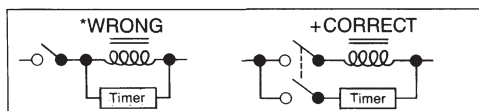
NIL on normal circuits. There is complete electrical isolation of the input driving circuit and the relay output contacts. The input-output capacity is less than 100pF.

Current Consumption

Up to 20mA approx. dependant on supply voltage.

Reset Time

The relay contacts normally change state within 0.18 secs. maximum of removing the input signal. However, it should be noted that the low holding consumption of the timer may result in the above reset time being significantly increased should the unit be directly connected in parallel with apparatus storing electrical energy, i.e. solenoids, capacitors etc. If the reset time is important the control switch for the input signal should only feed the timer unit:-



*Only 'wrong' in relatively few applications: i.e. where the reset time is important and the energy store of significant magnitude.

Fusing

Where fusing of the circuit being controlled is considered necessary, the fuse should be inserted in the feed wire to terminal A2, A3 or A4 as appropriate. In order to adequately protect the printed circuit connections it is advisable to restrict the fuse to a maximum of 4 amps. HRC fuses are preferred.

Enclosure

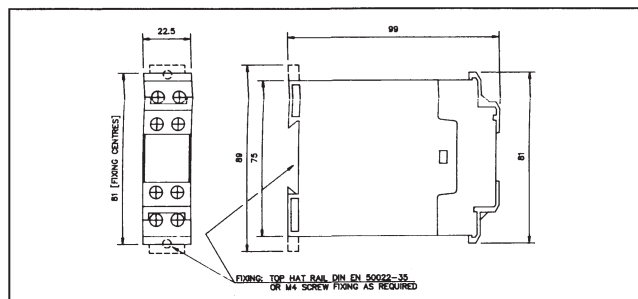
Terminal Housing: Polycarbonate/GVIV-O Grey

Case: ABS/V-O Grey

Finger Protection: Transparent Polycarbonate

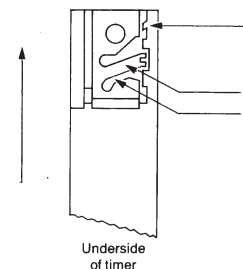
Dimensions

Please Note:- All dimensions in millimetres.



Mounting

Either A: Snap mounting on top hat rail, DIN EN 50 022 35
or B: Screw mounting by slide out lugs.



Conversion from DIN Rail Mounting To Foot Mounting

Insert a 6mm wide screwdriver blade into slot 'A'. Turn lug 'B' anti-clockwise until end of lug is clear of the main moulding. Slide the moulding outwards until the slot in the end of lug 'B' is aligned with the location lug 'C' on the main moulding.

Repeat the above on other end of timer case.

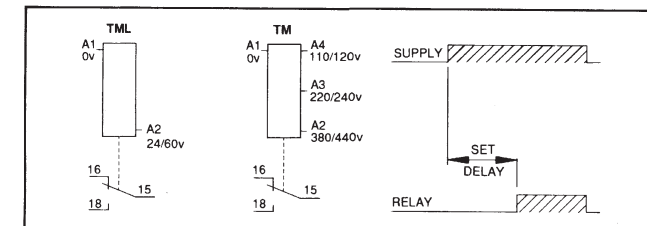
STANDARD TIMER TYPE TM AND TML

Function

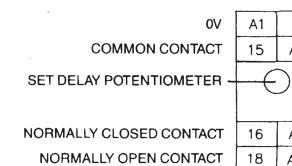
Delay on energisation.

Operation

Timing commences from the moment the desired supply voltage is applied. At the end of the set delay period the changeover output contacts operate. The timer is reset by removing the supply, which can be removed at any time without affecting the subsequent delay period. Indefinite application of the supply voltage is not detrimental to the unit.



External Connections and Controls



THE DESIRED SUPPLY VOLTAGE MUST BE CONNECTED TO THE APPROPRIATE TERMINAL. A2 OR A3 OR A4 FOR TM. A2 ONLY FOR TML.

Time Delay Setting

The delay period is set by rotating the potentiometer to the desired time setting indicated on the calibrated scale. A nominal setting and tolerance band is given for each time delay within a particular range. The effective potentiometer rotation is 270°C from the minimum to the maximum time setting. The maximum delay period is as given by the unit reference for example:-

Ref. TM7S.

allows a delay period of up to seven seconds.

SWITCHABLE RANGE TIMER TYPE SR AND SRL

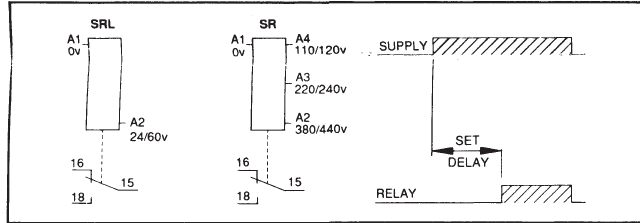
Function

Delay on energisation.

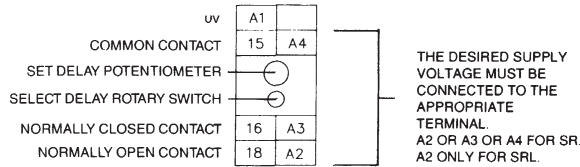
Operation

The operation is exactly the same as for the Standard Timer Type TM.

Timing commences from the moment the desired supply voltage is applied. At the end of the set delay period the changeover output contacts operate. The timer is reset by removing the supply, which can be removed at any time without affecting the subsequent delay period. Indefinite application of the supply voltage is not detrimental to the unit.



External Connections and Controls



Time Delay setting

This unit provides the option of nine delay ranges which are individually selected by the rotary switch. The delay period within a selected range is set by rotating the potentiometer to the desired time setting on the calibrated scale as given by the table below:

POTENTIOMETER POSITION				ROTARY SWITCH POSITION
A	B	C	D	
2s	4s	6s	8s	9
8s	16s	24s	32s	8
32s	64s	96s	128s	7
1m	2m	3m	4m	2
4.5m	9m	13m	17m	1
9m	17m	26m	34m	5
34m	68m	102m	136m	4
4.5h	9h	13.5h	18h	6
36h	73h	109h	146h	3

s=seconds m=minutes h=hours

Example: To achieve a delay period of 26 minutes:-

- SET RANGE position 5 by turning the rotary switch with a small screwdriver so that the groove in the shaft is in line with the position "5" setting.
- SET DELAY by rotating the potentiometer to position "C" on the calibrated scale. A nominal setting and tolerance band is given for positions A, B, C and D.

The effective rotation of the potentiometer is 270° from the minimum to the maximum setting. The rotary switch rotates a full 360°.

STAR DELTA TIMER TYPE YD AND YDL

Function

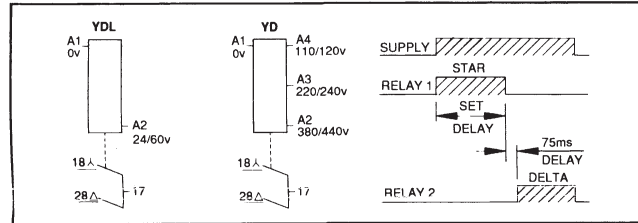
Dual relay timer for star delta starting.

Operation

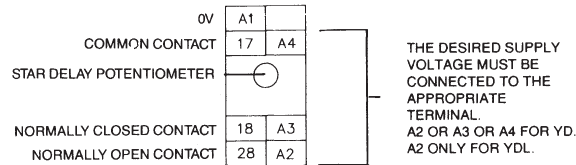
The star output contact closes and timing of the star delay commences from the moment the desired supply voltage is applied. At the end of the set star delay period the star output contact opens. After an additional fixed delay period of 75mS the delta output contact closes and remains closed until the timer is reset by removing the supply.

The fixed delay ensures short circuit protection allowing for the inertia of the contactors with the briefest possible current-free dwell during star to delta change-over.

Indefinite application of the supply voltage is not detrimental to the unit.



External Connection and Controls



Time Delay Setting

The star delay period is set by rotating the potentiometer. A nominal setting and tolerance band is given for each time delay within a particular range. The maximum delay period is as given by the unit reference, for example:

Ref. YD7S

allows a delay period of up to seven seconds. The effective potentiometer rotation is 270° from the minimum to the maximum time setting.

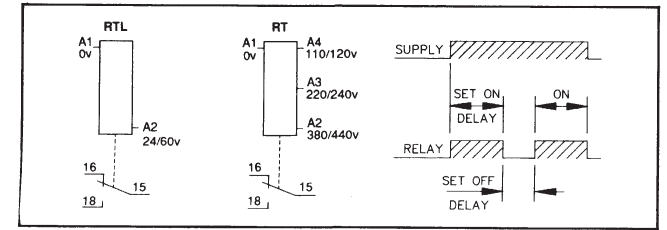
RECYCLING TIMER TYPE RT AND RTL

Function

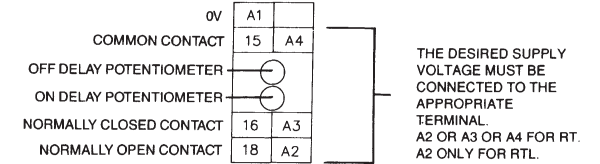
Dual timer with independently adjustable ON/OFF delay periods.

Operation

The change-over output contacts operate and timing of the ON delay commences from the moment the desired supply voltage is applied. At the end of the set ON delay period the change-over output contacts release and timing of the OFF delay commences. At the end of the separately set OFF delay period the change-over contacts operate again. The timer will continue to cycle ON and OFF until it is reset, at any time, by removing the supply. This will not affect the subsequent delay periods. Indefinite application of the supply voltage is not detrimental to the unit.



External Connections and Controls



Time Delay Setting

The OFF delay period is set by rotating the upper potentiometer to the desired time setting indicated on the calibrated scale. The ON delay period is set by rotating the lower potentiometer. The effective rotation of both potentiometers is 270° from the minimum to the maximum time settings and the maximum ON/OFF delay periods are as given by the unit reference, for example:-

Ref. RT16M/15S

allows a maximum ON delay of sixteen minutes and a maximum OFF delay of fifteen seconds.

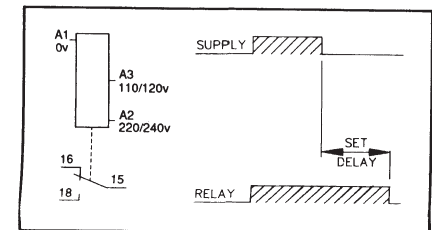
DELAY ON DE-ENERGISATION TIMER TYPE DD

Function

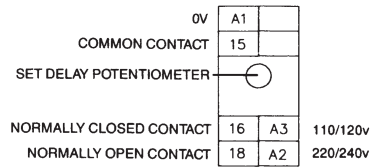
Delay on De-energisation.

Operation

The change-over output contacts operate from the moment the desired supply voltage is applied. Timing commences immediately the supply is removed, but the relay remains energised. At the end of the set delay period the relay is released and the change-over output contacts return to their original state. To achieve the maximum delay period the supply voltage must initially be maintained for a minimum of approximately 10 and 20 seconds for the DD1M and DD8M respectively. Indefinite application of the supply voltage is not detrimental to the unit.



External Connections and Controls



THE DESIRED SUPPLY VOLTAGE MUST BE CONNECTED TO THE APPROPRIATE TERMINAL. EITHER A2 OR A3 DEPENDANT ON THE CONTROL CIRCUIT.

Time Delay Setting

The delay period is set by rotating the potentiometer to the desired time setting indicated on the calibrated scale. A nominal setting and tolerance band is given for each time delay within a particular range. The effective potentiometer rotation is 270° from the minimum to the maximum time setting. The maximum delay period is as given by the unit reference, for example:-
Ref. DD1M
allows a delay period of up to one minute.

Health and Safety at Work Act 1974

It is important that equipment is used in its correct application according to the purpose for which it was designed and that the relevant instructions, regulations, procedures and codes of practice are strictly complied with.

Installation, operation and maintenance of the equipment should be carried out by appropriately qualified personnel and customers and users are referred to the information contained in this leaflet and to the specific technical literature. Additional information on individual products and a free technical advisory service can be provided on request.

Particular attention should be made to the Electricity at Work Regulations 1989.

Guarantee

All goods are guaranteed for one year from date of purchase. This does not effect the statutory rights of the user.

All information contained in this publication is, as far as possible, correct at the time of going to print. However, due to our policy of continued improvement, we reserve the right to alter specifications without prior notice.



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