1.3.19.4 Timers

A. Timers shall be plug-in or surface-mounting types; solid state microprocessor based employing CMOS IC technology.

B. Timers shall be suitable for operation on a nominal 230 V AC, 110V AC, 24 V AC/DC or other voltage as specified or deemed necessary for the safe operation.

C. Timers shall have linearly calibrated scales, in units of time, each scale division being a maximum of 5% of full scale. Repeat accuracy shall be within 0.5% of full scale.

D. Timers shall be provided with “energized” and “timed out” indicators.

E. Plug-in timers shall be fitted with transparent dust-proof covers. External connections shall be screw clamp terminals which are easily accessible with the timer in position

F. Timers shall be secured to their bases by retaining bar or clip to prevent malfunction due to the relay being loosened in its base.

G. The pin configuration shall be printed on the casing of the timer and on its associated bases in order to ensure correct pin alignment.

H. Timer shall be provided with 10 Amps. Rated output relay with DPDT contacts.

I. Unless specified otherwise, timers shall be provided for circuits that require delay on operate, delay on release, and star-delta starting of a 3-phase induction motor.

J. Multifunction timing relay programmable where specified shall be provided to the satisfaction of the engineer.

1.3.19.5 Hour Run Meter

A. There shall be two counters provided for each motor. The one counter shall be non-reset table hour run meter, rotating disc type for measuring total operating period (accumulative) of a motor. The minimum size shall be 48 x 48 mm. The counting capacity shall be 99,999.99 hours. The colour of the decimal digits shall be red while the colour of other digits shall be white.

B. The second counter shall be provided for counting TOTAL (accumulative) number of start of a motor. This shall be non-resettable, electronic type with permanent memory retention arrangement and LCD display to indicate Number of start of a motor.

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