technical functions for timers & monitoring relays

	Multifunction timer E1ZM10 E1ZMQ10	Asymmetric flasher 2-time multifunction timer E1ZI10 E3ZI20	Star-Delta timer E3ZS20	Voltage monitoring 3~ G2YM400VS10 G2PF400VSY10	Voltage monitoring 1~ G2UM300	Current monitoring G2IM10AL20 G2IU500mAAC01	Level monitoring Temperature monitoring OLH3 T2X02W
							
Function(s)	**E1ZM10** E • R • Ws • Wa • Es • Wu • Bp **E1ZMQ10** E • R • Wu • Bp 7 time ranges Supply voltage through zoom voltage 12 or 24 to 240V AC/DC	**Basic function** When power is applied the timer switches continuously between on and off, both with separate adjustable duration. The **E3ZI20** offers additional functions like a combined on and off delay or delayed single shot where both times integrated are separately adjustable.	When voltage is applied, one of the contact is triggered for a certain period to start the motor in star configuration. When this adjustable time is elapsed the contact releases for a transit time of a few milliseconds to allow contactor operation. After this it pulls in the second contact for the delta contactor of the motor.	**Window function:** relay release at adjusted over or under voltage. **Under function:** both min and max must be set below nominal voltage. Pull in again after under voltage when level rises above max-setting (Hysteresis). **Sequence function:** Phase sequence monitoring is available on both units.	Monitoring of supply voltage levels 400V **Window function:** relay release at adjusted over or under voltage. **Under function:** both min and max must be set below nominal voltage. Pull in after under voltage when level rise above max-setting (Hysteresis).	**G2IM10AL20** 3 measuring ranges 100mA AC/DC, 1A AC/DC or 10A AC/DC. Start-up suppression and tripping delay. Galvanically separated measurement. **G2IU500mAAC01** Under function for AC, release voltage is adjustable. Fixed level for pull in at 10% above adjusted level (Hysteresis).	**OLH3** Conductive liquid level monitoring. Pump up or down selectable. Control of intermittent operation by separate min and max probe, and adjustable delays. **T2X02W** Monitoring of motor temperature with trip values can be used with one or up to six PTC probes.
Applications	Function **E** (ON delay) Start equipment after blackout step by step with different time delays to avoid repeated break down. Function **Wu** (Single shot) A singe pulse can initiate operational cycles in air conditioning and ventilation equipment. Function **R** (OFF delay) Set operation periods for coin-operated machines like public vacuum cleaners for cars.	Periodical lubrication for machines or periodical feeding for animals. Typically the operation period is shorter than the pause between. If pumps (for example in heating systems) are not operated for long periods of times the contact surfaces may corrode and stick, short term periodical operation controled by E1ZI10 may prevent this.	To directly start up in Delta configuration drains high current and generates an unwanted torque peak on the shaft of the motor. To start with Star configuration gives a smoother result. The maximum load is available in the delta configuration when activated. Typically it is used for aggregates with a high mass to speed up such as ventilation sets or circular saws.	**G2YM400VS10** Monitoring of under- and over-voltage protect equipment from miss-operation and damage In function setting UNDER the voltage levels for on and off are individually adjustable. **G2PF400VSY10** Typically used to protect motors, pumps and compressors from phase loss. Or mobile equipment from wrong direction of rotation e.g.: swapped phases in extension cable sockets.	Monitoring of single phase supply voltages in building automations or industrial switch gears. The load is only switched on if the monitored voltage is in a propper range. Monitoring of battery backed up control systems (over voltage caused by over charging, under voltage caused by emptied batteries).	**G2IM10AL20** Under function indicates if the load is in operation. Typical use for ventilation, heating or lights. Over function detect blockade of drives for example on screw or belt conveyors. For Window function current value must stay within a certain range for example for heating or light applications. **G2IU500mAAC01** Monitoring of lamps, e.g. prevent operation of a lift if illumination is defect.	**OLH3** Mechanically robust probes allow mounting in rough or hot environments. Typically used for waste water treatment (need robust probes) or food industry (sterilization of probes with hot steam) **T2X02W** Connection of temperature sensitive probes in the motor coil. Bimetallic trips as well as PTC resistors (with additional short circuit monitoring) are compatible.
Remarks	Loadable control input. The signal voltage required to trigger terminal B1 of the timer must be taken from the voltage applied to A1, and should not differ for more than 10%. For reliable operation it is highly insensitive against interfering voltages.	Using a flashing function or the asymmetrical recycle function needs an evaluation of the expected contact wear. Especially when the repetition is within less than one minute.	The recommended connection of the Tele star delta timer allows, due to the two CO contacts, a simple layout of the contactor circuit which is easy to commission. For contact protection against inductive surge from the contactor coils, please refer to the contactor documentation for compatible RC-Circuits or Varistors.	Connect the neutral wire only, if the protected devices use it as well otherwise leave it unconnected It is possible to use the G2YM400VS10 in a single phase network (L-N ≈ 230V~) when all terminals L1+L2+L3 are connected to L and terminal N with the N-wire.	The 230V circuit is designed for voltages supplied via the National Grid. It is not suitable if the power is supplied by converters delivering anything other than sinusoidal-shaped output.	Using a current transformer will expand the measuring range of the items. During construction please double-check if maximal expected current matches with the overload capacity of the unit.	Multiple OLH3 may work in parallel, in order to extend controlled liquid levels, as long as they are supplied from the same AC supply. In this case they must share the same common ground probe. The T2X02 may also be used as a contact protection relay for example for reed-contacts.

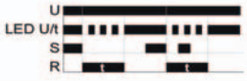
FUNCTION OVERVIEW

E
ON delay

R
OFF delay

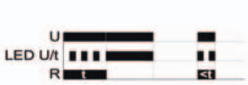
Ws
Single shot leading edge with control contact

Wa
Single shot trailing edge with control contact



Es
ON delay with control contact

Wu
Single shot leading edge voltage controlled



Bp
Flasher pause first