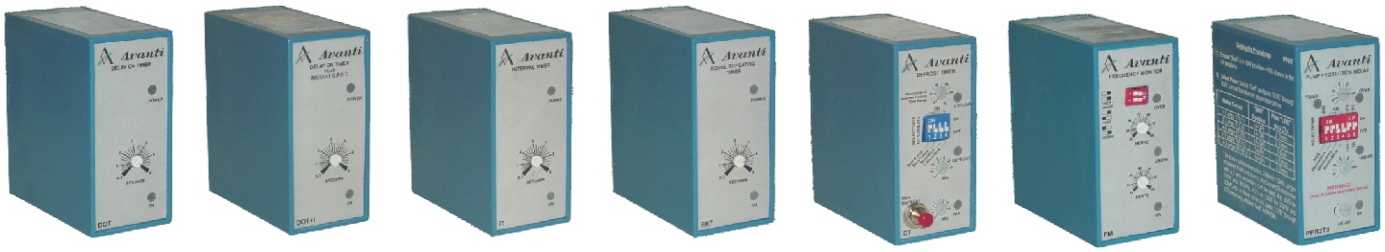
Electronic Devices



Timing Modules

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Power Monitors

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MODEL	**V0DDTS** Eliro Digital Timer - Multi-range with Multi-Function.

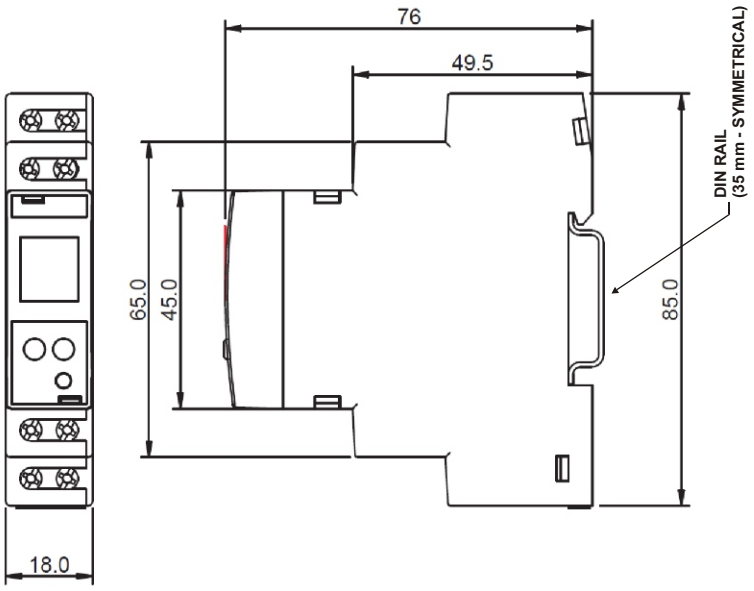
FEATURES

- 8 mode multifunction facility for complete flexibility and wide range applications.
- Wide operating range for supply voltage: 24-240V AC/DC.
- Timing from 0.1 second to 999 hours
- Selectable up/down counting modes to show elapsed/remaining time.
- 3 digit LC display for preset time and run time.
- Easy front settings.
- Tamper-proof with key lock function.
- Compact and standard size of 1 module space.
- Base or DIN 35 Rail mounting.
- Repeat Accuracy: ± 50 ms.
- Maximum Reset Time: 100 msec
- Output Contact Rating: 5A @ 240V AC / 28V DC

FUNCTIONS

P: A1-A2	Power Supply Pulse
(A) S: B1, R: 15-18	1. **On Delay** : The timer starts when both Power (P) & Signal (S) are applied. The relay is energised at the end of Preset Time (T) & remains On until Power is removed.
(B) S: B1, R: 15-18	2. **Cyclic Off/On (Off Start [Sym, Asym])** : TON and TOFF can be the same or different. The relay keeps on changing its status until power is removed.
(C) S: B1, R: 15-18	3. **Cyclic On/Off (On Start [Sym, Asym])** : This function is quite similar to the function (b) but initially the relay is on for period TON after the power is applied.
(D) S: B1, R: 15-18	4. **Signal On/Off** : The output relay is turned on for the Preset Time (T) whenever the Signal (S) is applied or removed.
(E) S: B1, R: 15-18	5. **Signal Off Delay** : Output relay becomes on when Signal (S) is applied. Timer duration (T) starts when Signal (S) is removed. At the end of Timer duration (T) the output relay goes off. Signal (S), if applied during the Timer duration (T) will re-trigger the Timer and the total duration will be extended.
(F) S: B1, R: 15-18	6. **Interval** : When Signal (S) is applied, the Timer starts and the output relay is energised. The output relay becomes off at the end of the Timer duration (T).
(G) S: B1, R: 15-18	7. **Signal Off/On** : When Signal (S) is applied or removed, the relay changes its state after Timer duration (T).
(H) S: B1, R: 15-18	8. **One shot Output** : When Signal (S) is applied, the Timer duration (T) starts. At the end of the Timer duration (T), the relay gets energised for approximately 1 sec.

DIMENSIONS



Click here for the PRICELIST

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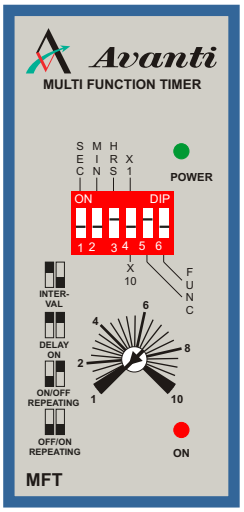
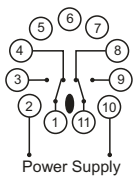
MODEL	**MFT** - Multi-range with Multi-Function.			
				
TIME RANGE DIP Sw Selectable	0.1 - 1 second 0.1 - 1 minute 0.1 - 1 hour	1 - 10 seconds 1 - 10 minutes 1 - 10 hours		
FUNCTION(S) DIP Sw Selectable	**Delay-On**	**Interval**	**Equal-Repeating ON/OFF**	**Equal-Repeating OFF/ON**
DESCRIPTION OF OPERATION	When power is ap-plied the relay remains de-ener-gised. After the pre-set time, the relay energises. Remove power to reset.	When power is ap-plied the relay en-ergises. After the pre-set time, the relay de-energises. Remove power to reset.	When power is ap-plied the relay will switch ON and OFF continuously. The preset time is the same for both cycles. Remove power to reset.	When power is applied the relay will remain OFF, then switch ON and OFF continuously. The preset time is the same for both cycles. Remove power to reset.
CONTROLS AND LABEL DATA				
WIRING DIAGRAM				
VOLTAGE	12V,24V AC/DC 110V,230V,400V AC			
	Click here for the PRICELIST			

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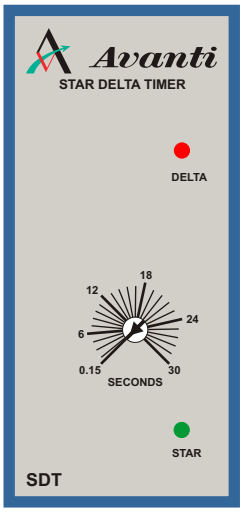
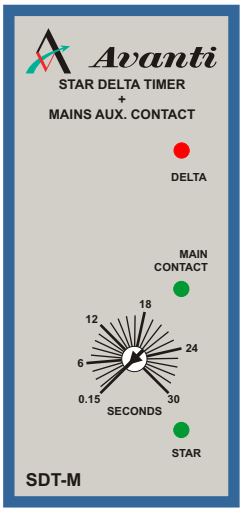
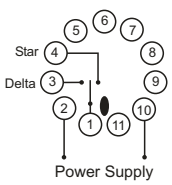
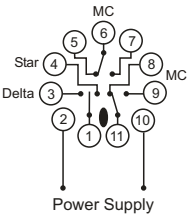
MODEL	SDT	SDT-M
		
TIME RANGE	0 - 30 seconds Other times on request.	0 - 30 seconds Other times on request.
FUNCTION(S)	**Star-Delta Timer**	**Star-Delta Timer** with **Main Contactor Control**
DESCRIPTION OF OPERATION	When power is applied a neutral contact closes between 1+4 for a "STAR" contactor connection. After a pre-set time, this contact opens and pauses in the neutral (open) position. After 25MS the contact closes between 1+3 for a "DELTA" contactor connection. This contact remains in this closed position until power is removed.	Operation as per the normal SDT, but with the extra feature of 2 separate instantaneous change-over contacts. These contacts operate 40ms after the star contact closes. A green LED confirms the operation of these contacts. This feature offers the option of the “star contactor” closing first, followed by the “main contactor”. The second spare set of contacts can be used as a starter holding or an interlocking contact. This may dispense with extra auxiliary contacts on the star and main contactor, etc
CONTROLS AND LABEL DATA		
WIRING DIAGRAM		
VOLTAGE	12V,24V AC/DC 110V,230V,400V AC	12V,24V AC/DC 110V,230V,400V AC
PRICELIST	***Click here for the PRICELIST***	

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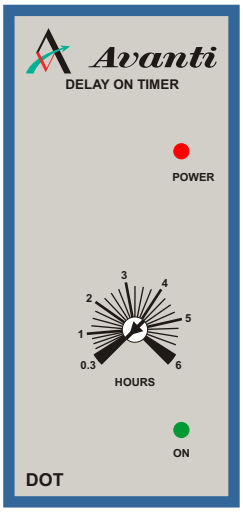
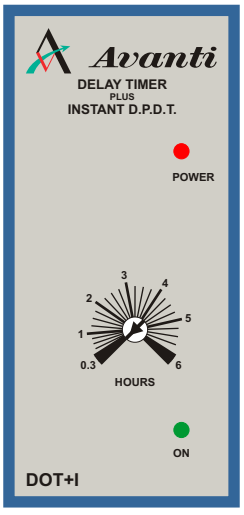
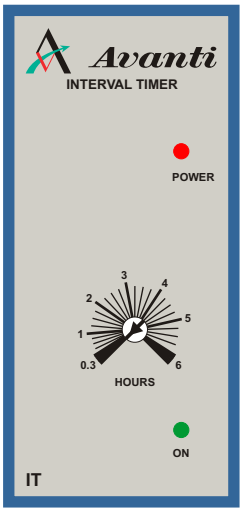
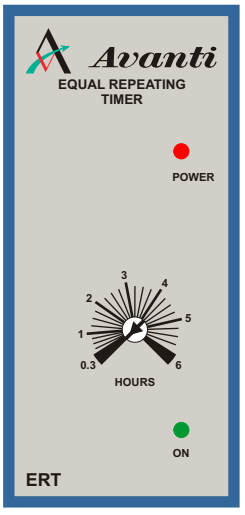
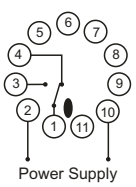
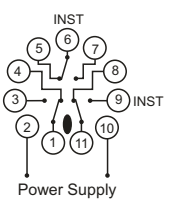
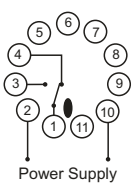
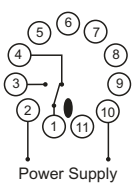
Timing Modules

MODEL	DOT	DOT+I	IT	ERT
				
TIME RANGE		0.3 - 6 seconds 0.3 - 6 minutes 0.3 - 6 hours	3 - 60 seconds 3 - 60 minutes 3 - 60 hours	
FUNCTION(S) **DIP Sw Selectable**	**Delay-On**	**Delay-On plus 2 Instant**. DPDT contacts.	**Interval Timer** Delay-Off with Power On	**Equal-RepeatingTimer**
DESCRIPTION OF OPERATION	When power is applied the relay remains de-energised. After the pre-set time, the relay energises. Remove power to reset.	Operation as per "DOT" timer, but on power up, two DPDT contacts switch immediately. Remove power to reset.	When power is applied the relay energises. After the pre-set time, the relay de-energises. Remove power to reset.	When power is applied the relay will switch ON and OFF continuously. The preset time is the same for both cycles. This cycling continues until power is removed.
CONTROLS AND LABEL DATA				
WIRING DIAGRAM				
VOLTAGE	12V,24V AC/DC 110V,230V,400V AC	12V,24V AC/DC 110V,230V,400V AC	12V,24V AC/DC 110V,230V,400V AC	12V,24V AC/DC 110V,230V,400V AC
PRICELIST	***Click here for the PRICELIST***			

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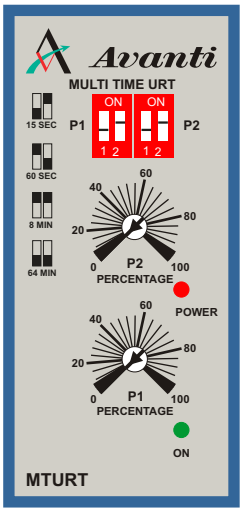
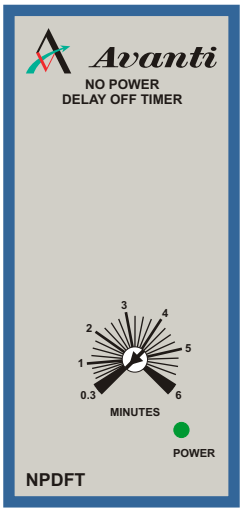
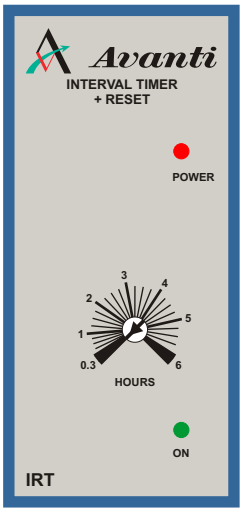
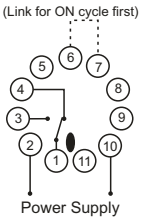
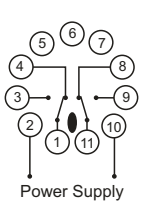
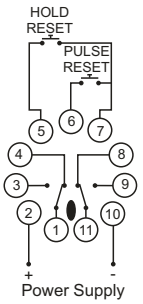
MODEL	MTURT	NPDFT	(Pulse Reset) IRT (Hold Reset)	
				
TIME RANGE	DIP Sw selectable 15 & 60 seconds 8 & 64 minutes	0.3 - 6 seconds 3 - 60 seconds 0.3 - 6 minutes	0.3 - 6 seconds 0.3 - 6 minutes 0.3 - 6 hours	3 - 60 seconds 3 - 60 minutes 3 - 60 hours
FUNCTION(S)	**Multi-time Unequal-Repeating Timer** with ON or OFF first. Link pins 6+7 for ON first.	**No Power Delay-Off Timer**	**Interval Timer with Pulse Reset.** A contact closes momentarily between pins 6 + 7. (eg: N/O Button)	**Interval Timer with Hold Reset.** A contact closes and holds between pins 5 + 7.
DESCRIPTION OF OPERATION	When power is applied the relay will remain de-energised for the 1st preset time after which the relay will energise for the 2nd pre-set time period, then switch OFF. This cycling continues until power is removed. (No Link on 6+7). Each adjusting pot has 2 DIP switches, which can be configured to offer 4 time ranges each. Eg: Pot 1 = 15 sec Pot 2 = 64 min Extended time ranges available on order.	When power is applied the relay will switch ON. When power is removed the relay remains ON until the pre-set time has lapsed. Note: The timer must be energised for 50% of the pre-set time.	Pulse Reset: The relay remains de-energised on power up until a reset occurs. When the pulse contact is closed the relay energises for the set time period then switches OFF irrespective of the length of the pulse. A string of pulses that are shorter than the set time period will reset the timer and the relay will remain energised until the last pulse occurs when the timing cycle will time out and the relay will de-energise until the next reset pulse occurs.	Hold Reset: The relay remains de-energised on power up until a reset occurs. When the reset contact closes the relay energises. When the reset contact opens the relay de-energises after the pre-set time. The relay stays de-energised until another reset occurs. If the hold contact is closed before the time period has elapsed the time cycle is cancelled and the relay will remain energised.
CONTROLS AND LABEL DATA				
WIRING DIAGRAM				
VOLTAGE	12V,24V AC/DC 110V,230V,400V AC	12V,24V AC/DC 110V,230V,400V AC	12V,24V AC/DC 110V,230V,400V AC	
PRICELIST	***Click here for the PRICELIST***			

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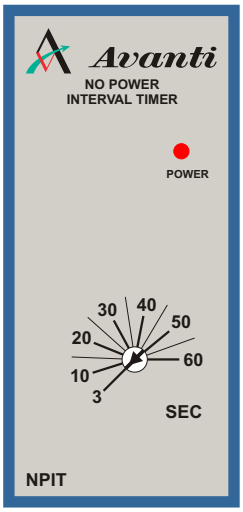
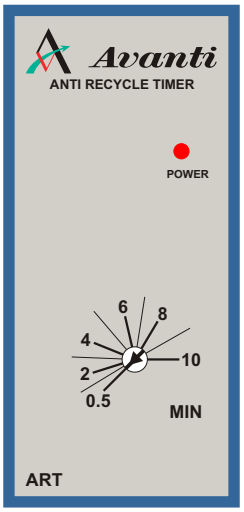
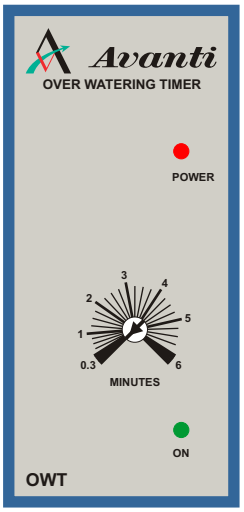
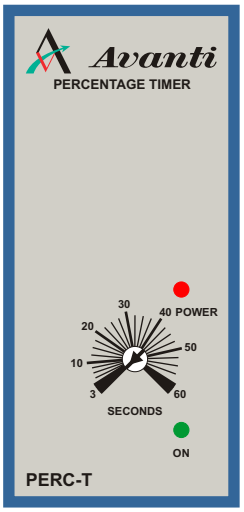
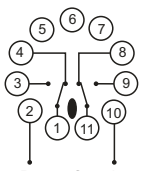
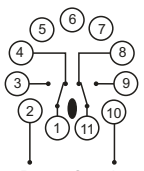
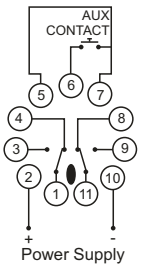
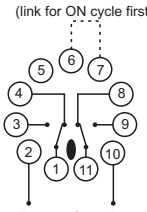
Timing Modules

MODEL	NPIT	ART	OWT	PERCT
				
TIME RANGE	3 - 60 seconds	0.5 - 10 minutes	0.3 - 6 minutes	3 - 60 seconds 3 - 60 minutes 3 - 60 hours
FUNCTION(S)	**No Power Interval Timer** to prevent mechanical damage during supply interruptions	**Anti Re-Cycle Timer** to prevent mechanical damage from re-cycling	**Over Watering Timer** to prevent over watering when pivot remains stationery for too long.	**Percentage Timer** to control the movements of a pivot for Run (ON) time and Pause (OFF) time.
DESCRIPTION OF OPERATION	Ideal timer for use on any plant when supply interruptions can cause damage to equipment. On loss of power the unit locks out the plant for a set time and re-instatement of power will not influence the lock-out until the set time elapses. On power-up the relays remain de-energised. On loss of power the relays energise for the preset time. If power is re-instated during the timing period it has no affect on the set time and the relays will remain energised (locked out) for the total preset time. This anti re-cycling operation is important where re-cycling can cause extreme mechanical damage. Large refrigeration and air conditioning compressors are especially vulnerable in this situation.		Terminals 5+7 must be permanently bridged for the unit to operate. A normally open (NO) auxiliary contact on the pivot tower run contactor must be connected to terminals 6+7. On power-up both relays are energised. If the run contactor does not close, 6+7 will be open and the timer will time out, de-energising the relays which will shut down the pivot. If the run contactor is closed (normal run condition) the auxiliary contact will be closed across terminals 6+7. The relays will energise, but the timer will not time out and the pivot will run until a switch off occurs. Should a run contactor fault arise the timer will stop the pivot after the preset time.	If terminals 6+7 are bridged, the "ON" time starts first on power-up. If terminals 6+7 are not bridged, the "OFF" time starts first on power-up. The "ON" time will stay in operation for the preset time. The "OFF" time will be the balance of the total time. Eg: If the "ON" is set for 40%, the "OFF" time will be 60%. Or when using a timer with a total of 60 seconds, the "ON" time will be 24 seconds and the "OFF" time will be 36 seconds. The timer will continue to re-cycle until power is removed from the unit.
CONTROLS AND LABEL DATA				
WIRING DIAGRAM				
VOLTAGE	12V,24V AC/DC 110V,230V,400V AC	12V,24V AC/DC 110V,230V,400V AC	12V,24V AC/DC 110V,230V,400V AC	12V,24V AC/DC 110V,230V,400V AC
PRICELIST	***Click here for the PRICELIST***			

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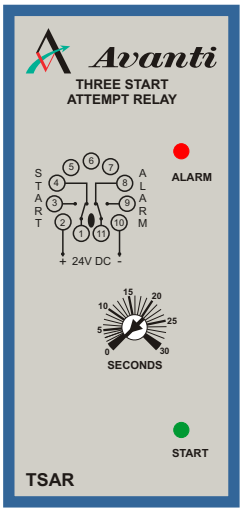
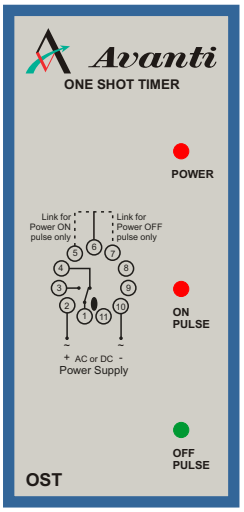
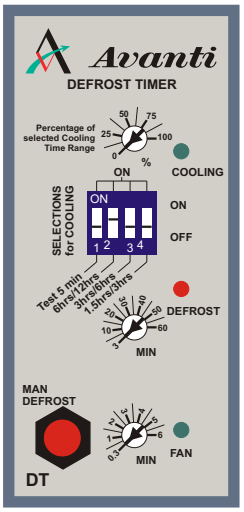
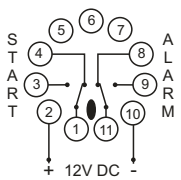
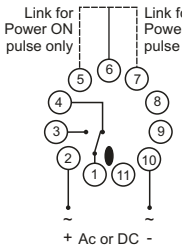
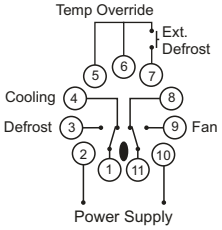
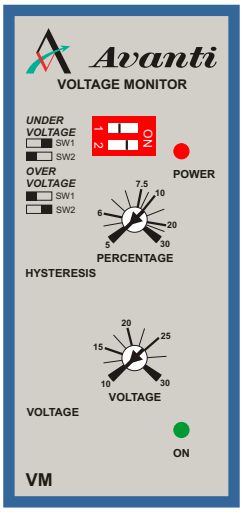
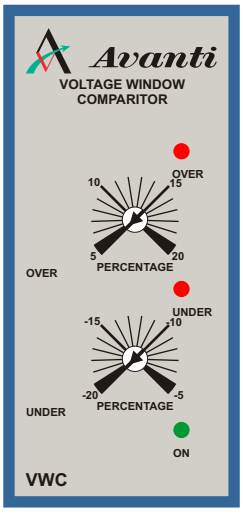
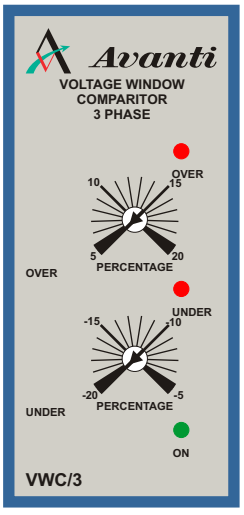
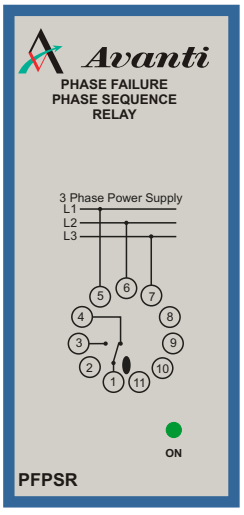
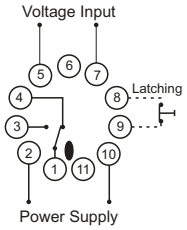
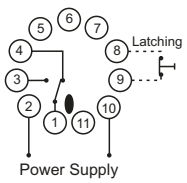
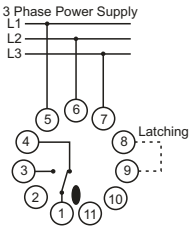
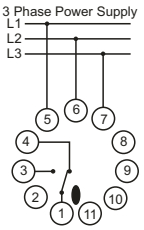
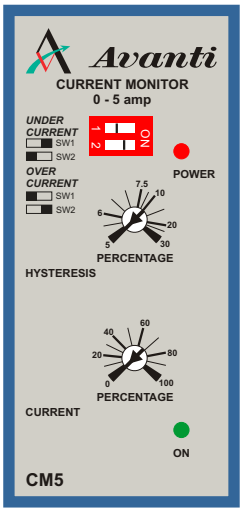
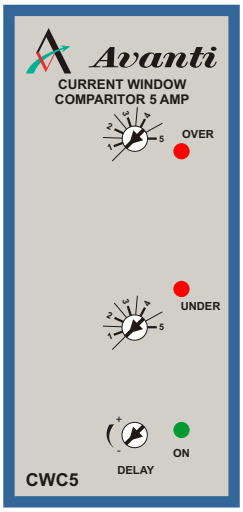
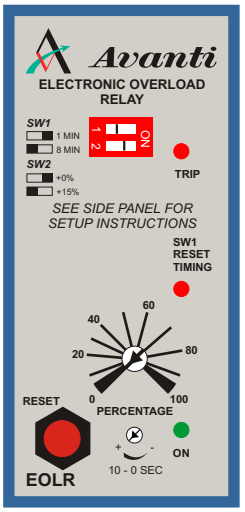
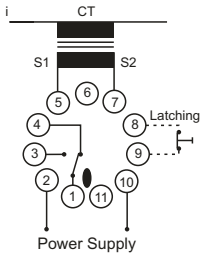
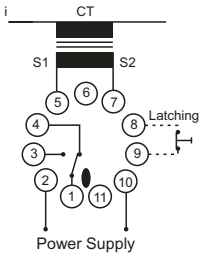
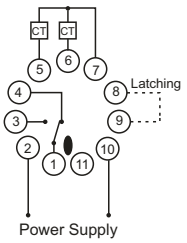
Timing Modules

MODEL	TSAR	OST	DT
			
TIME RANGE	0 - 30 seconds Other times on request.		Cooling: 1.5 - 3 hours; 3 - 6 hours; 6 -12 hours Defrost: 3 - 60 minutes Fan: 0.3 - 6 minutes
FUNCTION(S)	**Three Start Attempt Relay** to start generating sets up to a maximum of 3 attempts.	**One Shot Timer.**	**Defrost Timer**
DESCRIPTION OF OPERATION	On power up the relay energises for the preset time. After a successful start the power must be removed. On failure to start the relay de-energises for the same preset time. The second and third attempt will be made in the same manner. If failure persists after 3 attempts an alarm relay is energised.	On power-up with terminals 5+6 linked, the relay will energise for a set period of 0,5 seconds (ON pulse). On power-up with terminals 6+7 linked, the relay will not energise. Only after power is removed will the relay energise for 0,5 seconds (OFF pulse). A pulse for Power-ON and Power-OFF is possible by leaving terminals 5,6+7 all disconnected (no links fitted).	The unit has three cooling cycle ranges which are DIP switch selectable: 1.5 to 3 hours, 3 to 6 hours and 6 to 12 hours. The range selected is also adjustable via a percentage POT 0 to 100%. Eg: If the 6 to 12 hour range is selected and the POT set to 50%, the cooling time will be 9 hours. On power up the cooling cycle starts. After 0.3 to 6 minutes (adjustable) the fan operation starts. After the set cooling time the defrost cycle starts (terminals 5+6 linked) which can be set between 3 to 60 minutes, during which the fan relay is also de-energised. After the defrost cycle has elapsed the cooling cycle restarts, but the fan relay is only energised after the preset time (0.3 to 6 minutes). If the link between 5+6 is removed, the unit stays in the cooling/fan mode only. The unit is fitted with a manual defrost button and a remote defrost button (normally open) can be connected to terminals 6+7. The operation of either button will immediately put the unit into defrost mode. Defrosting will run for the pre-set time and thereafter the cooling with fan delay will start again. A test switch is also available which can be used on initial installation or servicing to check the operation during a short 5 minute cooling time range.
CONTROLS AND LABEL DATA			
WIRING DIAGRAM			
VOLTAGE	12V,24V DC	12V,24V AC/DC 110V,230V,400V AC	12V,24V AC/DC 110V,230V,400V AC
PRICELIST	***Click here for the PRICELIST***		

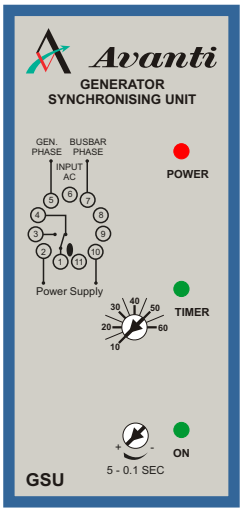
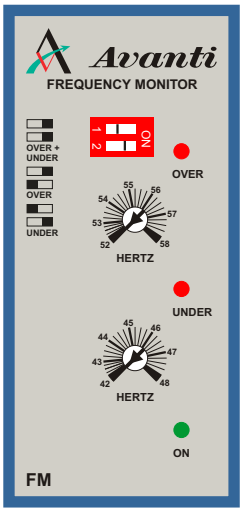
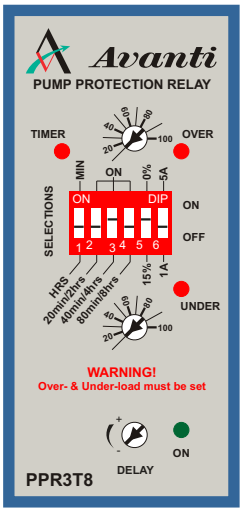
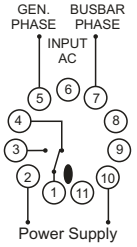
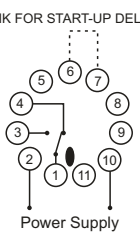
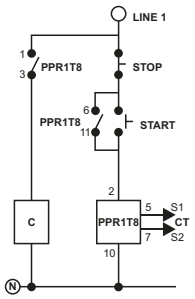
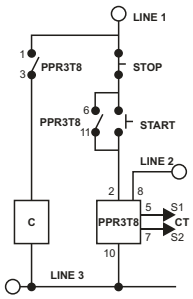
All Prices Exclude VAT and are subject to change without prior notice.

MODEL	VM	VWC	VWC/3	PFPSR
				
FUNCTION(S)	**Voltage Monitor** Over and Under DIP Sw Selectable	**Voltage Window Comparitor** "Single Phase"	**Voltage Window Comparitor** "Three Phase"	**Phase Failure Phase Sequence Relay**
DESCRIPTION OF OPERATION	The unit monitors a separate supply connected to terminals 5+7. On power-up the relay energises, providing the monitored voltage on pins 5+7 is within the set limit. If outside the set limit, the relay will remain de-energised. Under voltage monitoring is selectable by SW1 and over voltage monitoring is selectable by SW2. The difference between trip and recovery level "Hysteresis" is adjustable between 5 and 30%. A latch facility is between terminals 8+9. Latching is disabled for approx. 10 seconds at start-up. Monitors 10 - 30v AC/DC 100-300v AC 200-600v AC	The "VWC" monitors its own supply and responds to both over and under voltage. The relay is energised when the voltage remains between the over and under voltage pre-set thresholds. If the voltage rises above the over voltage set point or falls below the under voltage set point, the relay de-energises. LED indication is provided for both conditions. The relay energises when the voltage recovers to within the 2% hysteresis band. A latch facility is between terminals 8+9. Latching is disabled for approx. 10 seconds at start-up.	The unit derives its power from the monitored three phase supply. The relay is energised when the voltage is maintained between the over and under voltage set points. If the voltage rises above the over voltage set point or falls below the under voltage set point, the relay de-energises. LED indication is provided for both conditions. The relay energises when the voltage recovers to within the 2% hysteresis band. A latch facility is between terminals 8+9. Latching is disabled for approx. 10 seconds at start-up. Note: For motor control this unit is **not** a Phase Failure Relay.	When power is applied the relay energises after approx. 1 second. The unit will only operate if all 3 phases are present and in the correct sequence. The unit is also sensitive to excessive phase imbalance. The Relay LED will illuminate when phases are in the correct sequence. If not, swop any 2 phases connected to terminals 5, 6 + 7 to obtain the correct phase sequence, which will then be confirmed by the illumination of the LED. A Phase Failure Phase Sequence Relay is also available with Neutral monitoring (PFPSR+N).
CONTROLS AND LABEL DATA				
WIRING DIAGRAM				
VOLTAGE	10-30V AC/DC 110V,230V,400V AC	12V,24V AC 110V,230V,400V AC	230V,400V AC	230V,400V AC
PRICELIST	***Click here for the PRICELIST***			

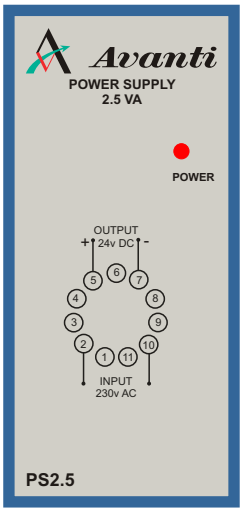
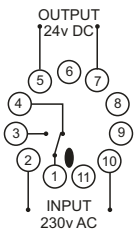
All Prices Exclude VAT and are subject to change without prior notice.

MODEL	CM	CWC	EOLR
			
FUNCTION(S)	**Current Monitor** Over and Under DIP Sw Selectable	**Current Window Comparitor**	**Electronic Overload Relay** with Phase Failure Protection
DESCRIPTION OF OPERATION	The unit interfaces with 5 amp secondary CT's. When power is applied the relay energises immediately, ignoring load conditions for 10 seconds. The relay will de-energise when the load is over or under the pre-set value, depending on the switch selection. The difference between the trip and recovery level "Hysteresis" is adjustable between 5 and 30%. A latch facility is available between terminals 8+9.	The unit interfaces with 5 amp secondary CT's. When power is applied the relay energises immediately, ignoring load conditions for 10 seconds. After the start-up delay, the relay will remain energised whilst the current is maintained between the pre-set over- and under-load limits. If the load rises or falls beyond the set limits, the relay de-energises. A LED indicates if an over- or underload condition has occurred. "Hysteresis" is set at 2%. A latch facility is available between terminals 8+9. Adjustable response delay 1-10 sec on request.	Interfacing with 2 standard 5 amp current transformers the "EOLR" is designed for overload protection for motors of all sizes. The unit is fitted with a 0-15 second start up delay timer, as well as a 0-15 second trip response timer. A 15% above set point switch and a trip point LED, together with the 2 timers, make the unit very versatile and easy to setup. On a trip condition a timer prevents a reset function allowing the motor to cool down. There is a DIP switch for selecting either 1 or 8 minute cool down time. A reset button is fitted on the unit and a remote reset can be installed across terminals 8+9. If this reset is not installed terminals 8+9 must be bridged. On phase loss the EOLR is current dependent. The 2 current transformers offer excellent phase failure protection provided the unit is correctly set. 3 LEDs indicate “Relay ON”, “Trip” and “Reset Timing”. Check controls on technical leaflet.
CONTROLS AND LABEL DATA			
WIRING DIAGRAM			
VOLTAGE	110V,230V,400V AC	110V,230V,400V AC	110V,230V,400V AC
PRICELIST	***Click here for the PRICELIST***		

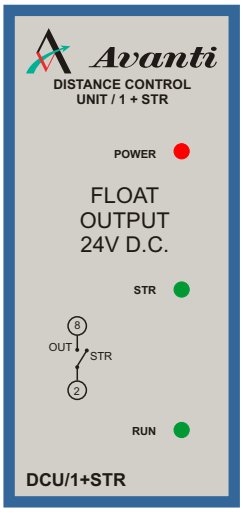
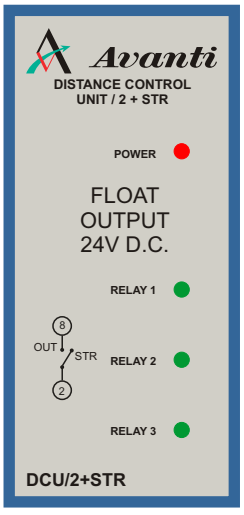
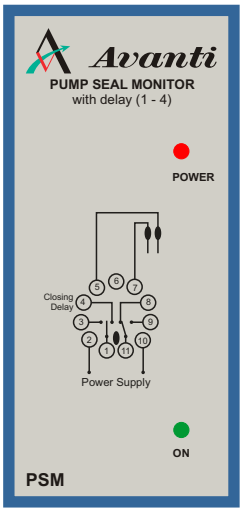
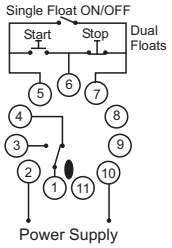
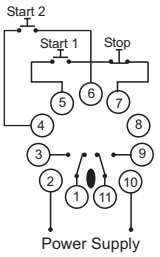
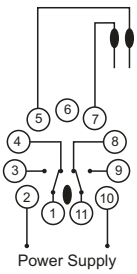
All Prices Exclude VAT and are subject to change without prior notice.

MODEL	GSU	FM	PPR-1T8	PPR-3T8
				
FUNCTION(S)	**Generator Synchronising Unit**	**Frequency Monitor** 42-58Hz Over, Under and Window DIP Sw Selectable	**Pump Protection Relay** with Underload Restart Timer function	
DESCRIPTION OF OPERATION	The GSU monitors the voltage between L1 of a generator to L1 of the mains bus bar, or a 2nd generator for parallel operation. The voltage difference between these 2 phases is measured. When the acceptable limit is reached (adjustable 5- 30 volts), a pre-set timer (0,5-5seconds) prevents immediate activation. After the set time, the voltage must still be within the set limits ensuring that the frequency of both supplies are within an acceptable synchronising limit. Then only will synchronisation take place and the relay will be energised. (20-60V units on request)	When power is applied with terminals 6+7 linked the relay energises immediately, ignoring frequency conditions for ±10 seconds. Without link 6+7, the relay only energises when the frequency is within the pre-set limits. The unit can be used for over or under conditions, as well as over and under window sensing limits. LED indication is offered for both over or under frequency faults. The relay de-energises if there is a deviation from these set limits. The hysteresis is set to 0.5Hz to prevent relay chatter during small deviations in frequency.	The PPR is designed for use on motors which require sensitive overload and underload protection and is particularly suitable for offering good protection on borehole and pump set motors. The PPR offers phase failure protection which is voltage or current dependent. On power up all 3 phases must be present and connected in the following manner. L1 is used for the PPR ON/OFF control energising the unit on terminal 2. L2 connects to terminal 8. L3 connects to terminal 10. On single phase units, terminal 10 is connected to Neutral. During running the phase failure protection is dependent on the current transformer and if the PPR is set correctly, it will respond extremely fast. Both overload and underload have Set/Trip point LEDs with a common adjustable 0-10 second trip delay timer. There is fixed start-up delay of 5 seconds. A 50/5 CT, with a option of 3 connections (turns through CT), and 1 & 5 amp DIP switch selection provides various settings for motors 0.37kW to 7.5kW. For larger motors any size ring CT with a 5 amp secondary can b be used. The PPR is fitted with a underload re-start timer controlled by 4 DIP switches offering 6 time settings from 20 minutes to 8 hours (for borehole recovery). If the installation is fitted with a discharge valve and ammeter, the over and under setting combinations are numerous with loads very easy to simulate. Check controls on technical leaflet. See page 12.18 for detailed wiring diagrams	
CONTROLS AND LABEL DATA				
WIRING DIAGRAM				
VOLTAGE	230V,400V AC	230V,400V AC	110V,230V AC	400V AC
PRICELIST	***Click here for the PRICELIST***			

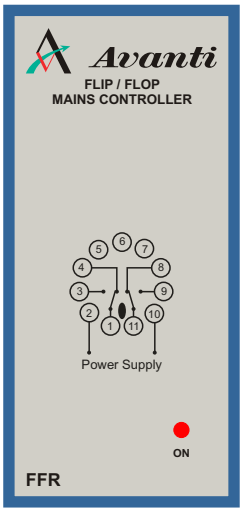
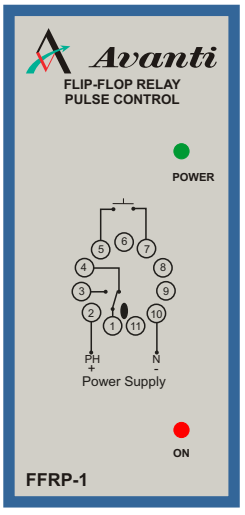
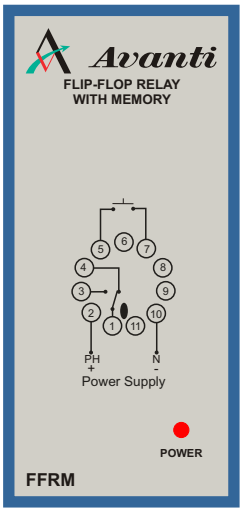
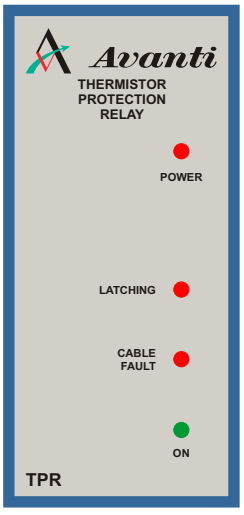
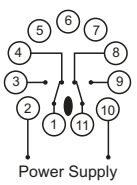
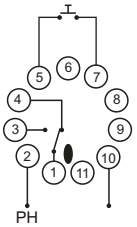
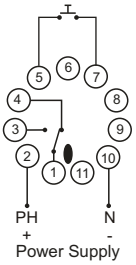
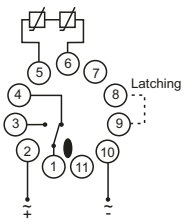
All Prices Exclude VAT and are subject to change without prior notice.

MODEL	PS2.5
	
FUNCTION(S)	**Regulated Power Supply** 2.5 VA
DESCRIPTION OF OPERATION	Provides a 2.5 VA regulated 24 volt D.C. supply from a 230 volt A.C. power source. Used as a 24 volt D.C. power source for sensitive electronic equipment.
CONTROLS AND LABEL DATA	
WIRING DIAGRAM	
VOLTAGE	230V,400V AC
PRICELIST	*Click here for the PRICELIST*

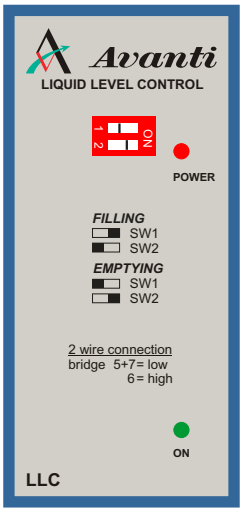
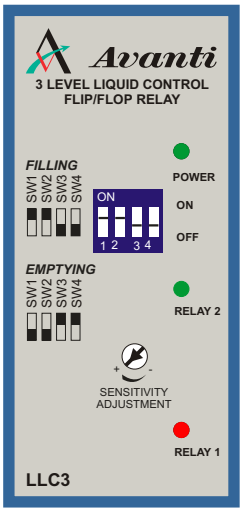
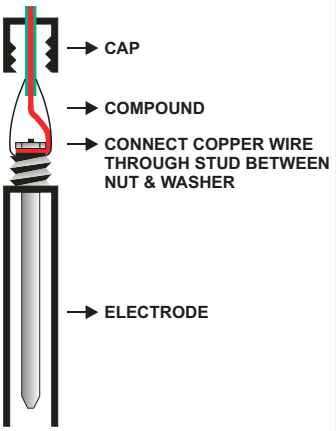
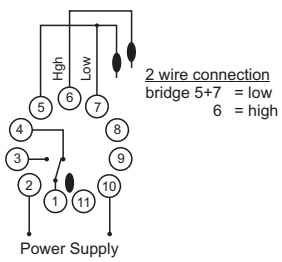
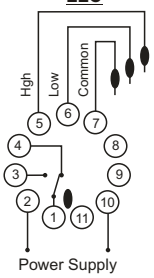
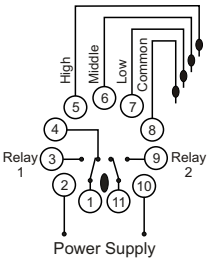
All Prices Exclude VAT and are subject to change without prior notice.

MODEL	DCU/1STR	DCU/2STR	PSM
			
FUNCTION(S)	**Distance Control Unit**	**Distance Control Unit** 2 Pump	**Pump Seal Monitor**
DESCRIPTION OF OPERATION	To control water levels in dams and reservoirs over long distances. One Float Switch - 2 wire control When the float contact is closed between terminals 5+7, the relay is energised. On opening the float contacts the relay will de-energise. Two Float Switch - 3 wire control: For correct operation the Stop float must first close between terminals 6+7. On this closure the Stop relay (STR) energises and makes contact between terminals 2+8. The Start float is connected between 5+6 and on closure energises the ON relay. This relay remains energised until the Stop float opens between 6+7. The ON and STR relays are then both de-energised. The STR relay is used for switching the electrical supply ON or OFF to the pump relay circuitry in the control panel. Float terminal volts = 24V DC. Distance: up to 4 km using 1.5mm copper wire/cable. If more than one DCU is installed, interconnection of the outputs must be avoided.	To control water levels in sumps, dams and tanks, etc. Operation is the same as the normal DCU, but this unit controls 2 pumps operating at different levels, used for "Duty" and "Standby" operation. Three Float Switch - 4 wire control: For correct operation the Stop float must first close between terminals 6+7. On this closure the Stop relay (STR) energises and makes contact between terminals 2+8. The first Start float is connected between 5+6 and on closure energises the relay 1 The second Start float is connected between 4+6 and on closure energises the relay 2 Relays 1 & 2 remain energised until the Stop float opens between 6+7. Both relays 1 &2, as well as the STR relay, are then de-energised. The STR operation is the same as the normal DCU/STR. Float terminal volts = 24V DC. Distance: up to 4 km using 1.5mm copper wire/cable. If more than one DCU is installed, interconnection of the outputs must be avoided.	Designed for use on submersible pump motors incorporating a built in oil bath. The relay energises on application of power. If water enters the bath through a faulty pump seal, the relay de-energises.
CONTROLS AND LABEL DATA			
WIRING DIAGRAM			
VOLTAGE	230V,400V AC	230V,400V AC	230V,400V AC
PRICELIST	***Click here for the PRICELIST***		

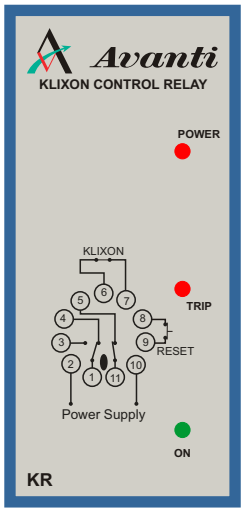
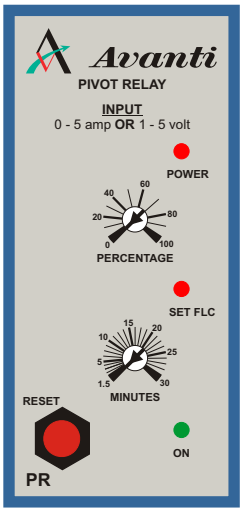
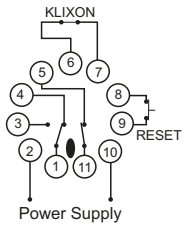
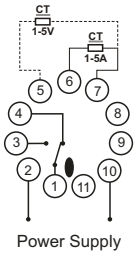
All Prices Exclude VAT and are subject to change without prior notice.

MODEL	FFR	FFRP-1 & FFRP-2	FFRM	TPR
				
FUNCTION(S)	**Flip-Flop Relay** Mains Controlled	**Flip-Flop Relay** Pulse Controlled Single Pole & Double Pole	**Flip-Flop Relay** with Memory	**Thermistor Protection Relay**
DESCRIPTION OF OPERATION	Used for alternating two pumps for duty and standby operation. When power is applied for 30 seconds or longer and then removing the power will cause the relay to alter its state. The relay will remain in this new state until power is re-applied and once again removed when it will then return to its initial position.	With power on terminals 2+10 and a closure or pulse across terminals 5+7 will cause the relay to energise. A second pulse on terminals 5+7 will de-energise the relay and it returns to its normal state. On loss of power on terminals 2+10; the relay, if energised, will de-energise and return to its original OFF state (NO MEMORY).	With power on terminals 2+10 and a closure or pulse across terminals 5+7 will cause the relay to energise. A second pulse on terminals 5+7 will de-energise the relay and it returns to its normal state. On loss of power on terminals 2+10, the relay will remain in its current state and not alter (MEMORY). Only after another closure or pulse on terminals 5+7 will the relay once again alter its state.	Interfacing with PTC sensors as per DIN 44081 (thermistors) embedded in the motor windings, the TPR offers excellent motor protection. The LED's indicate trip conditions for motor overheat, cable fault (short or open circuit) as well as the relay's latch condition. Latching is enabled by bridging terminals 8+9. Open circuit voltage <=2.5V. Short circuit current = 1ma (max). Maximum cold resistance of 1 to 6 sensors connected = 1500 . Triggering threshold = 3100 ±10%. Recovery threshold = 1650 ±10%.
CONTROLS AND LABEL DATA				
WIRING DIAGRAM				
VOLTAGE	10-30V AC/DC 110V,230V,400V AC	12V,24V AC 110V,230V,400V AC	230V,400V AC	230V,400V AC
PRICELIST	***Click here for the PRICELIST***			

All Prices Exclude VAT and are subject to change without prior notice.

MODEL	LLC	LLC3	AEL
			
FUNCTION(S)	**Liquid Level Control** "Filling & Emptying" DIP Sw Selectable	**3 Level Liquid Level Control** "Filling & Emptying" with duty cycling DIP Sw Selectable	**Avanti Electrode**
DESCRIPTION OF OPERATION	Used in conjunction with 3 conductive probes connected to terminals 5 (high), 6 (middle/low) and 7 (bottom/common). Filling: When the liquid drops below the middle probe, the relay energises. The relay remains energised until the level reaches the high level probe and then de-energises. Emptying: When the liquid rises above the high probe, the relay energises. The relay de-energises when the liquid falls below the middle probe. Sensitivity - 50k Use Avanti AEL hanging probes.	Used for control of water levels in tanks and sumps over short distances. The LLC3 controls 2 pump relays operated at different levels for "Duty" and "Standby" operation. The unit automatically alternates the pump relays between duty and standby using a built in flip-flop action. There are 4 DIP switches available to select emptying or filling. **Filling:** Sw 1+2 - ON (up position) Sw 3+4 - OFF (down position) **Emptying:** Sw 1+2 - OFF (down position) Sw 3+4 - ON (up position) **Avanti AEL probes:** connected to the terminals: 5 - "High" 6 - "Middle" 7 - "Low" 8 - "Common" Filling: If the level is below probe 7-"low" both relays will energise and when the level reaches probe 5-"high" both relays will de-energise. When the level drops below probe 6-"middle", relay 1 will energise and de-energise when the level reaches probe 5-"high". The next on cycle with probe 6-"middle"out of water, relay 2 will energise (alternating relays). If the level continues to fall and goes below probe-7-"low", both pumps will energise and only de-energise when probe 5-"high" is reached (all probes in the water). Emptying: When a rising level reaches probe 6-"middle", relay 2 energises and de-energises when probe 7-"low" is reached. On the next rising level to probe 6-"middle" relay 1 will energise (alternating). If the level continues to rise and probe 5-"high" is reached, both relays will be energised (duty & standby) and when the level reaches probe 7-"low", both relays will de-energise.	**Installation Instructions** 1) Strip PVC wire 25mm long. 2) Feed cover/cap onto wire. Large threaded opening facing stripped end. 3) Connect copper wire through stud hole, between nut and washer. **Do not** wind around stud and ensure copper wire tip does not extend past edge of washer. 4) Cover connection and exposed copper with compound. Ensure compound extends in conical shape 25mm up the wire. 5) Screw on cap. Use extruded excess compound to seal wire inlet. (Sealing compound supplied with probe).
CONTROLS AND LABEL DATA			
WIRING DIAGRAM	**LLC** 	**LLC** 	**LLC3** 
VOLTAGE	230V,400V AC		
PRICELIST	***Click here for the PRICELIST***		

All Prices Exclude VAT and are subject to change without prior notice.

MODEL	KR	PR	
			
FUNCTION(S)	Klixon Relay	Pivot Relay	
DESCRIPTION OF OPERATION	Used to lock-out a trip condition on a motor fitted with an overheat "Klixon Switch". The Klixon is connected between terminals 6+7 and a manual reset button (normally closed) must be connected between terminals 8+9. On power-up the contact between 11+5 opens. The contact 1+3 is for operating the run contactor and the contact 11+5 is for activating an alarm when it re-closes on a trip condition. To reset the unit after a trip the push button between 8+9 can be operated, or power can be removed from terminals 2+10 momentary. The unit will not operate without the Klixon Switch connected to terminals 6+7, and a bridge or normally closed push button installed between terminals 8+9.	On application of power the relay energises. If the pivot draws less than the preset current setting, the relay will open after the time set on the over-ride timer. On shutdown the unit can be reset with the button provided. This unit is used to switch off the pump preventing over-watering should the pivot stand in one position. The "PR" can operate on a 1-5 volt or 1-5 amp sensor. The pins 5, 6+7 are used to select either the voltage or current sensing.	
CONTROLS AND LABEL DATA			
WIRING DIAGRAM			
VOLTAGE	230V,400V AC	10-30V AC/DC 110V,230V,400V AC	
PRICELIST	*Click here for the PRICELIST*		

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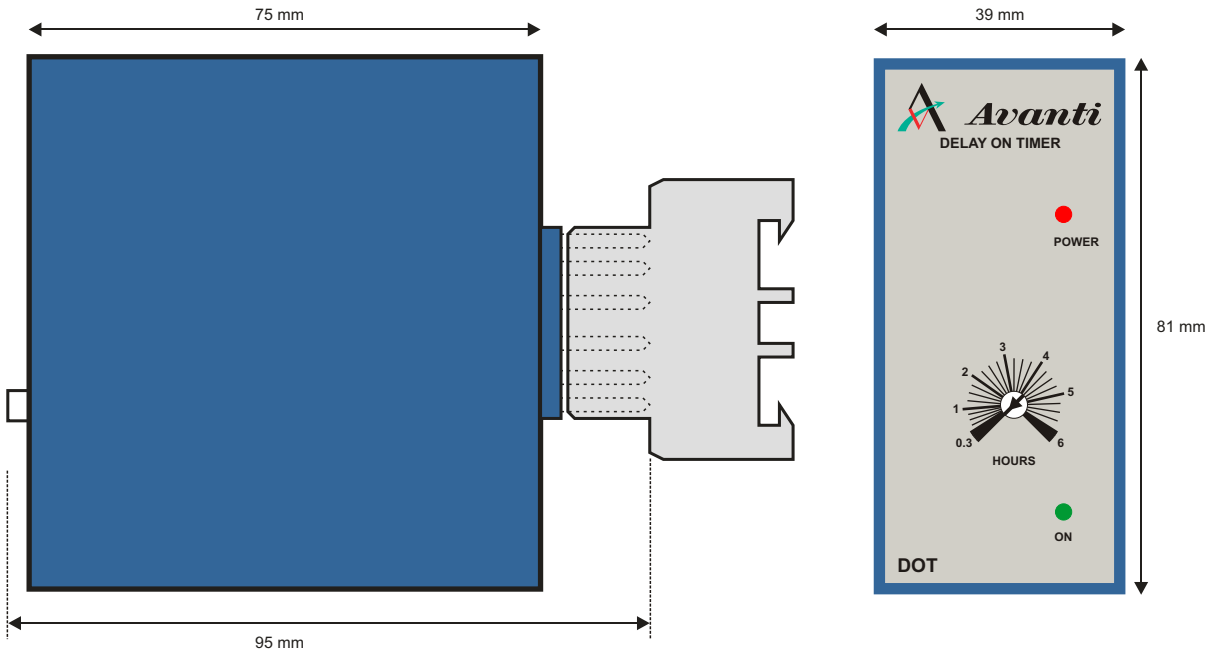
Relays

	S.P.D.T.	D.P.D.T.
Max Amps	10	5
Max Volts	400	400
Elect. Life (full amps)	225,000 ops	175,000 ops
Max Operations	600/Hr	600/Hr

Housing Dimensions



Timing Modules

Output:	S.P.D.T. or D.P.D.T.	Repeat Accuracy:	0.2% max.
AC Consumption:	3.0 VA approx.	Supply Type:	All timers are designed for reactive circuitry except the Interval Reset Units "IRT", which has "Galvanic Protection" via input transformers for 110 - 400V AC.
DC Consumption:	100 mA		
Ambient Temp:	-20°C to 60°C		
Reset Time:	0.5 seconds		
Accuracy:	approx. 0.5%		

Power Modules

Output:	S.P.D.T. or D.P.D.T.	Supply Type:	Input transformer for 110 - 400V AC units.
AC Consumption:	3 - 6 VA approx.	Hysteresis (recovery):	Generally 5% to 30% adjustable Window Comparitor 2% fixed Frequency Monitor 0.5 Hz
DC Consumption:	100 mA (12+24V)		
Ambient Temp:	-20°C to 60°C	Start-Up Delay:	Generally 10 seconds except PPR/3 - 5 seconds.
Response Time:	1 second		

Sensing Modules

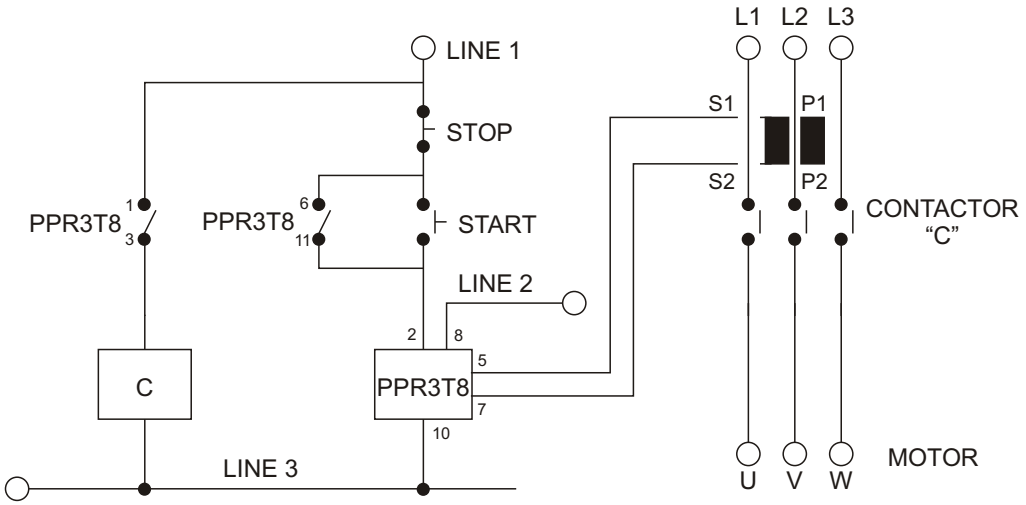
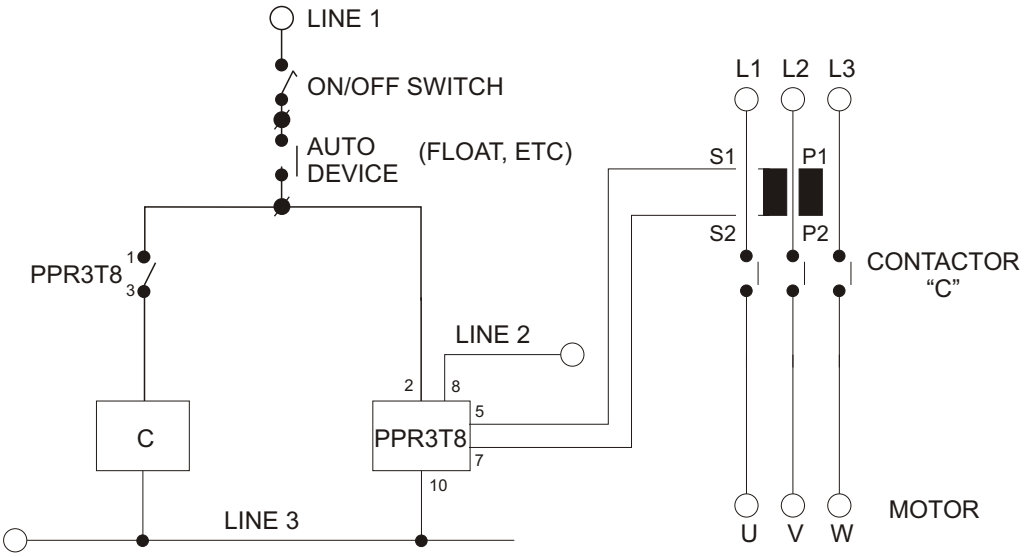
Output:	S.P.D.T. or D.P.D.T.	Supply Type:	Input transformer offering "Galvanic Protection" for 110 - 400V AC units.
AC Consumption:	3 - 6 VA approx.		
DC Consumption:	100 mA (12+24V)		
Ambient Temp:	-20°C to 60°C		
Response Time:	0.5 seconds		

Voltage Range

Voltage deviation is ±15% for AC and DC supplies.

Frequency

All AC modules will operate between 40 to 70 Hz.

	Typical PPR-3T8 wiring diagrams
PPR-3T8 with Stop-Start Buttons	
PPR-3T8 Auto-Start with ON/OFF Switch	
PPR-3T8 with Stop-Start Buttons 230v