



CE

TUP 354

Technical Data

Control Input	0-10Vdc
Power supply	24Vac/dc (+/-10%)
Terminals	Rising clamp for 0.5-2.5mm ² cable
Alarm output	Volt free contact VFC when over temperature alarm is active
LED indication	Pulses when output is ON
Max. heater duty	TUP 327: 15,6/27 kW TUP 336: 21/36 kW TUP 354: 31/54 KW
	Over 40°C, de-rating should be approx. 10% for every 5C more ambient than specified
No. of phases	3
Rated supply	230/380-440V/50Hz
Dissipated heat	TUP 327: 85 W TUP 336: 167 W TUP 354: 250 W
Rated load up to @40°C	TUP 327: 37,5A per phase TUP 336: 52,2A per phase TUP 354: 78,2A per phase
Terminals	
Control	Rising Clamp for 0,5-mm ² cable
Power	Rising Clamp for 16mm ² cable
Torque Settings	1,2Nm (power terminals only) TUP 327 2,0Nm (power terminals only) TUP 336 2,5Nm (power terminals only) TUP 354
Amb.temp. range	0...+55°C maximum operational 80%RH max.
Dimensions	W188 x H130 x D128 mm
Fixing Holes Dim.	4 Holes 5mm dia. 85x175mm centres
Weight	2,05 kgs
Conformity	CE-marked

Features

- Full Seamless Control of Resistive Loads
- Alarm Output for Fault Condition
- PWM (Pulse Width Modulation) Control
- Over-Temperature Protection with Auto Reset
- Adjustable Cycle Time & Signal Rescaling Facility
- Manual Override Facility
- Ambient Range 0...+55°C, 80% RH
- LED indication
- Small Footprint
- Terminals for Simple Installation

Application

- Electric Heater Batteries
- Under Floor Heaters
- Ceiling Heating
- Ultraviolet Heaters
- Radiant heating
- Trace Heating
- Hot Water Tanks
- Smelting
- Heating Cable
- Infrared Heaters
- Furnaces
- Industrial Heaters
- Plastic Processing
- Dryers
- Space Heating
- Heating Tape
- Extruders
- Immersion Heaters
- Heater Mats
- Hot Plates
- Air Curtains
- Annealing
- Soldering Pots
- Space Heating
- Stress Relieving
- Dust Heaters

General

The TUP Power Controllers are designed to provide continuously adjustable control of electric heating loads from a BMS controller or similar.

The TUP-series use solid-state switching with "zero crossing technology" to reduce RFI problems and provide accurate switching control.

The TUP Power Controllers feature over temperature protection with automatic reset and alarm output, LED indication of output ON and are designed for panel mounting.

The TUP 354 features integral cooling fans which turn on automatically when required.

No additional heatsinks and fans are needed.

Ordering

TUP 327	15,6/27kW	230/380-440Vac	3- Phase Controller
TUP 336	21/36kW	230/380-440Vac	3- Phase Controller
TUP 354	31/54kW	230/380-440Vac	3- Phase Controller



Operation

The TUP Power Controllers are designed to control electric heating loads in linear proportion to the incoming 0-10 Vdc control signal.

Control is by solid-state semiconductor devices which control the load using pulse width modulation (PWM) techniques.

These devices feature zero crossing point switching of the AC load which virtually eliminates RFI problems.

Caution!!!!

In normal operation the heatsink surface can exceed +90°C.

Dangerous voltages exist inside the unit and particular care should be taken.

No attempt should be made to open the unit.

The TUP Power Controllers must be installed in accordance with the relevant statutory regulations and installation must be carried out by an experienced and fully qualified engineer.

Ventilation

The TUP Power Controllers are designed to operate in a maximum ambient temperature of +55°C, which should not be exceeded.

Where ambient temperatures exceed 40°C enclosures or control panels should be ventilated with a cooling fan.

Over Temperature Monitoring

An electronic thermal cutout is fitted to the heatsink to protect against over temperature.

The TUP Power Controllers will switch off the load if the heatsink temperature exceeds +95°C and will reconnect the load once the heatsink temperature has dropped below +85°C.

Under normal operating conditions the heatsink temperature will not reach +95°C but this might occur, for example, if the ambient temperature exceeds +40°C.

The TUP is fitted with a fan deck, the fans will turn on and off as required to control the heatsink temperature.

Installation and Configuration

The TUP Power Controllers are designed for mounting on a vertical panel.

It is important that free air movement around the heatsink is not restricted.

Allow sufficient air space between adjacent units to allow optimum performance of the heatsink.

Installation must be carried out by a suitably trained electrician, and in accordance with the relevant statutory regulations.

Load Supply and Back-Up Protection

The TUP Power Controllers must be protected by external fuses.

The fuses should be rated at or below the maximum rating of the module and must be of the quick acting semiconductor type.

External Fuse Ratings:

TUP 327	40A High Speed Semiconductor Type
TUP 336	50A High Speed Semiconductor Type
TUP 354	75A High Speed Semiconductor Type

Load cables must be sized such that they are rated in excess of the fuse ratings.

If in doubt, contact Automatikprodukter for advice.

Maximum Load

The power rating of the units are given as a guide.

The maximum current (which is dependant on the actual supply voltage and actual load) as shown in the technical data must not be exceeded.

Earthing

The protective conductor terminal must always be bonded to a good Earth.

This earth bond lead should be rated higher than the maximum load.



Control Supply

The control circuitry is fully isolated from the load supply and needs its own 24V (ac or dc) supply.

The control supply common is linked to the 0-10V Input Signal common.

All low voltage signal and supply cables should be kept separate from high voltage or mains cables, separate trays or conduit should be used.

Screened cable should be used for connections to BMS controllers, where possible the cable screen should be connected to a functional earth (not mains safety earth); normally the screen should be earthed at one end only to avoid earth loops.

Cycle Time

The cycle time is preset.

An 0-10Vdc input signal of 5V equates to the load being at 50% ON and likewise with an input of 2.5V the load will be 25% ON.

A 10V input will equal 100% i.e.full ON.

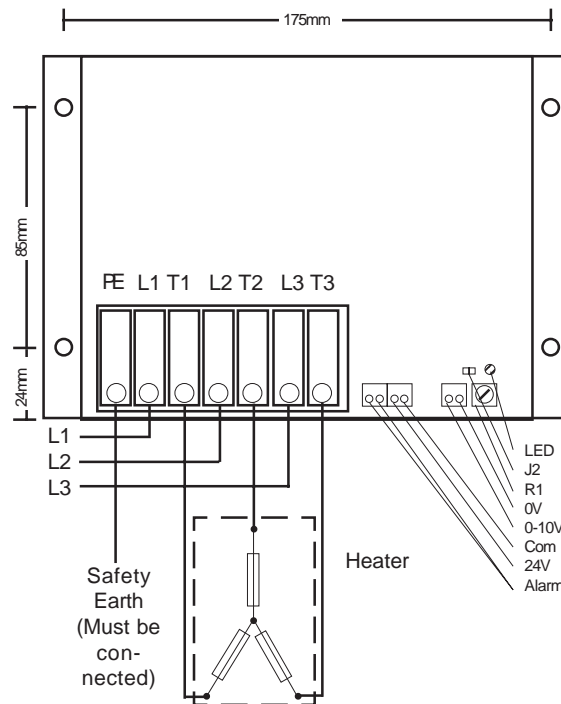
Adjustment of the cycle time is possible using test point J2, and R1 but is not normally required.

Caution!!!

Incorrect adjustment of these controls can cause an overload condition and subsequent destruction of the TUP Power Controller units.

DO NOT ATTEMPT TO ADJUST THESE CONTROLS WITHOUT REFERENCE TO THE FACTORY

Connection



Star point **must** not be connected to Neutral

