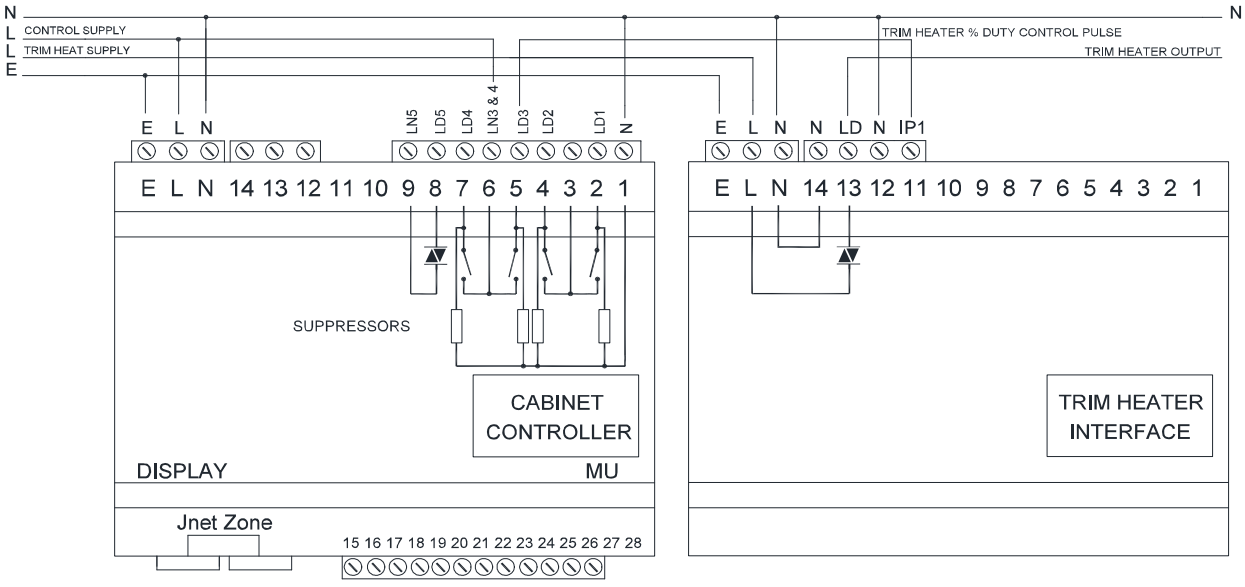

Electrical Installation Requirements
To prevent damage and electrical interference, care should be taken to observe suitable placement and correct electrical connections of this module.

The incoming supply powers both the heater output and the module itself. If the control pulse input is on a different phase from the heater / module supply it is important to connect as per the diagram to ensure correct phase / neutral separation.

Where more than one TPWM601 is used with a single controller, the control inputs may be connected in parallel, but the outputs may not. To switch more than 1500W, the heater load must be split into discrete groups each totalling less than 1500W.

Exceeding the maximum rated load may result in overheating and module damage.

Module must not be installed without adequate ventilation. Under full load at 100% duty the module may dissipate as much as 10W.

CE Conformance
This unit conforms with the relevant EU standards when installed according to the JTL Installations Requirements for this product

Description
The TPWM601 module provides an interface between JTL cabinet controllers and cabinet trim heaters. Controller output relays are not suitable for frequent switching of high current loads required by trim heaters, and the duty cycle time period is too long for good trim heater regulation and protection.

The TPWM601 module addresses these issues by direct switching of the heaters, and by translating the duty cycle fixed time period from 5 minutes in the controller to 2 seconds at its output. It can take up to 5 minutes for the TPWM601 to determine the duty percentage from the cabinet controller. Until this has been determined the default duty is 50% - 1 second on, 1 second off.

The TPWM601 minimises any electrical switching noise (EMC) by ensuring on/off switching occurs at the zero-cross point in the mains waveform.

The TPWM601 will switch resistive heating loads of up to 1500W directly. Two or more modules can be controlled by a cabinet controller for heater loads exceeding 1500W.

The TPWM601 must be adequately ventilated owing to the heat generated during operation. The heat generated can be as much as 10W at full load, reducing with lower duty and lower heater power.

Operation

Operation of the TPWM601 is controlled by the cabinet controller for the purpose of reducing the energy consumed by trim heaters. As standard JTL cabinet controllers are equipped with trim heater control logic. This guide uses the UAPI controller for illustration, but the same settings may be used with other controllers supporting trim heat control. The item numbers may vary.

The feature must be enabled on Item 390. The default condition, 'oFF', turns the heaters off only when the cabinet is 'isolated' and performs no duty cycle control. To operate using duty cycle control Item 390 must be set to 3, 4 or 5. Strategy 3 is '24hr' and uses only the fixed duty percentage set on Item 392 to drive the TPWM601. This is the value used to adjust for any mismatch between the cabinet design and any over-capacity of the installed heater tapes.

Further reductions in power consumption are possible on a dynamic basis via the JTL network and these use the value set in Item 392 as a base. When Item 390 is set to 4, 'trad', a further adjustment is made to the trim heater duty during non-trading hours. This is set on Item 393 and operates as a percentage of the value set on Item 392. For example if Item 392 and Item 393 are both set to 50%, the trim heater duty during non-trading hours will be 25% of the total trim heater capacity, ie 50% of 50%.

When Item 390 is set to 5, 'Jnet', the controller looks for an adjustment delivered via the Jnet network on Item 394. This adjustment, similar to the non-trading hours, operates on the value set on Item 392 but is active all the time, not just during non-trading hours.

Item 396 is used to set the trim heater duty if a load shedding command is issued via the Jnet network.

In order to take advantage of Jnet network features, other equipment such as timers, temperature and humidity monitors, or load shedders need to be present on the Jnet network.

RELEVANT ADJUSTABLE PARAMETERS IN UAPI

Item	Function	Range
390	Control strategy	1- None, 2-Off, 3-24hr, 4-trad, 5-jnet
392	Fixed output for strategy 3, base for strategy 4 and 5	0 - 100%
393	Non-trading adjustment	0 - 100%
396	Load shedding adjustment	0 - 100%

OTHER USEFUL ITEMS IN UAPI

Item	Function
391	Actual output (% of full power)
394	Network delivered adjustment. (%)
395	Trim heater relay oFF/th.on

Supply Requirements and Input/Output Specification

230 V ac 48-52 Hz
Supply 10w maximum at 1500w heater load
Control input <10mA, 230Vac

Full operating manuals information can be obtained from your supplier or JTL Systems.

Technical documentation can also be obtained from our website www.jtl.co.uk.

CE This unit conforms with the relevant EU standards when fitted in accordance with its installation instructions.

Applicable Documentation

Firmware Variations	Doc No. 05063
Connections Diagram	Doc No. 05016
Application Drawing	Doc No. 05017

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