

Controller Description

The Micha range of Contactor-Diode Over-Voltage Limiters are available in a range of specifications according to the customer's requirements. Because of the wide variation in currents and voltages, each is made to order to meet the end user's needs.

All work on the same principle. A number of diodes are wired in series with the Live output and under low voltage conditions, a normally-closed contactor shorts each diode (or pair of diodes). As the source voltage rises, the contactors sequentially open, introducing a voltage drop across the diodes and thereby reducing the voltage seen at the Output.

The following diagram shows a typical configuration for a 48V Negative Earth system. Dual-diode modules are used to increase the voltage drop across each stage::

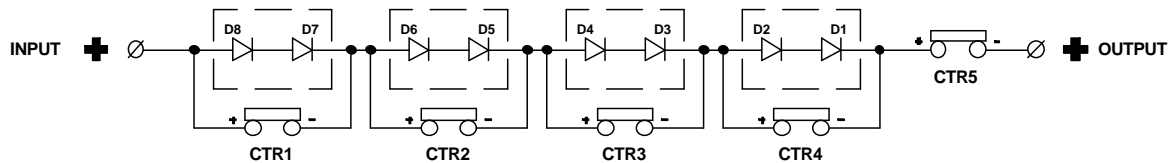


Figure 1: Typical 48V configuration

Contactors 1 - 4 are used to short out the diodes, while Contactor 5 is used for Load Disconnect.

The Control board includes a microprocessor, with an alphanumeric LCD display and four push-button switches to access the user menus. Input Volts and Output Volts are display by default, and the user can also view and adjust the Output Volts, Diode Voltage Drop, switching hysteresis, regulation response time, as well as configure three alarms for individual Low and High Volt settings. Additionally, the alarms can be configured to latch (requiring manual reset) and the output contactor set to disconnect the output on low or high output volts conditions.

A 'remote disconnect' input is available to enable the output to be turned off using a set of normally-open contacts.

Typically each diode drops 0.75V. On 12V and 24V systems, four single diodes are generally sufficient to provide a suitable forward total drop of approximately 3V. On 48V systems, dual-diode modules are used to increase the potential voltage drop to 6V. A range of diode modules are available which, combined with a suitable heatsink, can carry between 25A and 200A continuous current. Turn-on surge currents can also be catered for, with the largest diode/heatsink module capable of withstanding typically 500A for 10seconds, and 400A for one minute.

The Over-Voltage Limiters can be supplied either in our own IP66-rated enclosure in Painted or Stainless Steel, or can be supplied as kits for the end-user to fit to their own housings. Diode/Heatsink assemblies are supplied with gaskets and fixings, and are available with the following ratings:

Continuous Current	Diode/Heatsink Module Ref.	Micha PN	No of Diodes	Total Volt Drop	Heatsink W x L x H	Max I for 10 sec	Max I for 1 min
25A	E1U-2S MDD95/14 PS200/300A	501 981	2	1.5	160x300x40	150	130
25A	E1U-4S MDD95/14 PS200/300A	501 982	4	3.0	160x300x40	120	100
25A	E1U-6S MDD95/14 PS200/300A	501 983	6	4.5	160x300x40	100	75
50A	E1U-2S MDD95/14 PS240/300A	501 984	2	1.5	200x300x40	150	130
50A	E1U-4S MDD95/14 PS240/300A	501 985	4	3.0	200x300x40	100	80
50A	E1U-6S MDD172/14 PS240/300A	501 986	6	4.5	200x300x40	80	70
100A	E1U-2S MDD172/14 PS240/300A	501 987	2	1.5	200x300x40	150	130
100A	E1U-4S MDD250/14 PS385/300A	501 988	4	3.0	300x300x85	200	170
100A	E1U-6S MDD600/14 PS385/300A	501 989	6	4.5	300x300x85	150	130
150A	E1U-2S MDD250/14 PS385/300A	501 990	2	1.5	300x300x85	300	250
150A	E1U-4S MDD600/14 PS385/300A	501 991	4	3.0	300x300x85	200	180
150A	E1U-6S MDD600/14 PS485/500A	501 992	6	4.5	400x500x85	450	325
200A	E1U-2S MDD600/14 PS385/300A	501 993	2	1.5	300x300x85	500	400
200A	E1U-4S MDD600/14 PS485/500A	501 994	4	3.0	400x500x85	500	400

Note: Heatsink dimensions exclude the diode module which is fitted internally.

Specification liable to change.

Various combinations of heatsinks can be used depending on the available space and enclosure size. For example, to achieve a 3V drop at 100A, either one single heatsink assembly with four diodes (501 988) can be used, or two dual assemblies (501 987) can be utilised if the depth of the enclosure limits the width of the heatsink.

Figure 2 below shows a typical 48V system, with a diode/heatsink assembly on either side which helps to dissipate the heat generated by the diode forward voltages.

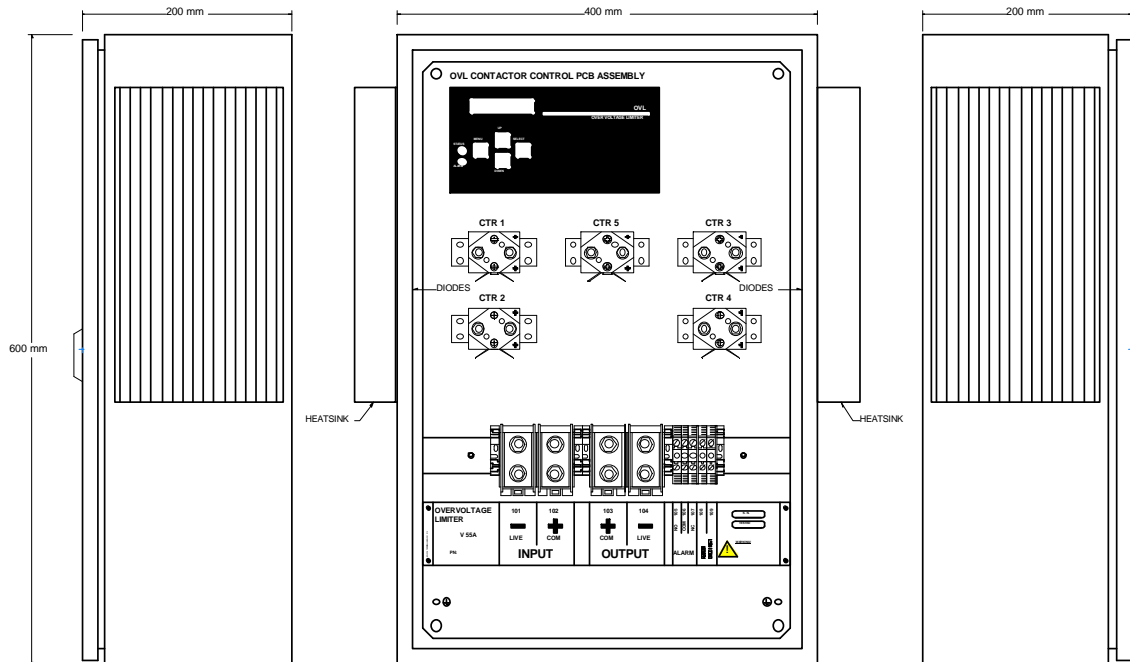


Figure 2: Typical dual heatsink configuration in Painted Steel Enclosure.
The diode modules are mounted on the inside face of the heatsinks.

Normally-closed contactors are used to limit operational current when the input voltage is low. A power-saving switching technique is used when the contactors are energised to ensure the greatest possible efficiency.

General Specifications:

Supply Input Voltage Range:	10-36VDC or 20-72VDC
Input/Output Terminals:	High Current Din-Rail Mounted Stud type
Relay / Remote Disconnect Terminals:	Din-Rail Mounted terminals suitable for 6mm ² cable
Alarm relay:	Single-pole changeover volt-free contact: 1A at 24VDC
Operating Temperature range:	0°C to +50°C
Enclosure:	Painted Steel or Stainless Steel IP66.
Options:	Conformal Coating on pcb's MCB / MCCB on Input and/or Output Viewing window on enclosure Removable gland-plate

Specification liable to change.