

Use of Murrelektronik MICO-modules in „Industrial Control Panels“ (control and switch cabinets) acc. to UL508A

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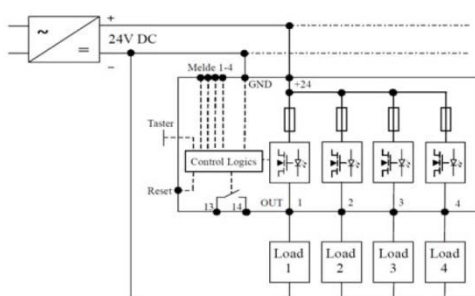
Source:

- UL508A: UL Standard for Safety for Industrial Control Panels
- UL508: UL Standard for Safety for Industrial Control Equipment
- CSA C22.2 No. 14-10: Industrial control equipment
- UL2367: UL Standard for Safety for Solid State Overcurrent Protectors

1. In General

Murrelektronik MICO modules are 4 - or 2-channel electronic control switches and are used for current monitoring of secondary control circuits (Isolated-Circuit Control Secondary / 24VDC) being supplied from switch mode power supplies. The modules are optimized for use on the load side of switch mode power supplies and provide a selective short-circuit and overload protection for each channel connected to a load. If an error occurs in a single connected load circuit / load and if the set start value of the corresponding channel is exceeded the concerned channel is automatically switched currentless according to the turn-off characteristic. This will ensure that the rest of loads connected to the power supply still work properly. Every load channel is in addition to the current electronic monitoring equipped with a fuse (Fuse acc. to UL248-14, also referenced in the supplement of UL508A SA1).

Block diagram:



2. Approvals for U.S.

Murrelektronik MICO modules have the following approvals:

- UL: Category QVRQ2, File E321289 – Special-purpose Solid-state Overcurrent Protectors – Component acc. to UL2367.
- UL: Category NMTR, File E200364 – Power Circuit and Motor-mounted Apparatus acc. to UL508.
- CSA: Class 3211-87, File 080128_0_000 Industrial Control Equipment -Miscellaneous Apparatus - Certified to US Standards acc. to UL508

3. Use of MICO modules as „Overcurrent Protection“ for Control Circuits-Isolated Secondary in „Industrial Control Panels“ (control and switch cabinets) acc. To UL508A

Most of the "Industrial Control Panels" that are intended for use in the U.S. are designed and evaluated according to UL 508A. That has the consequence that for the protection of 24DC - "Control Circuits", UL certified "Overcurrent Protection" has to be used. The selection of the components is effected on the basis of the supplement SA (UL508A). MICO modules have been certified as "special-purpose solid-state overcurrent protectors" by UL.

This UL Category (QVRQ2, File E321289) is clearly the right category for the product group of electronic overcurrent protection devices. The range of applications for MICO modules as "special-purpose solid-state overcurrent protectors" is precisely defined in the scope of the applicable UL2367 standards.

Quote UL2367: *These devices are solid-state switches that limit the output current to a safe level when the output load exceeds the current-limit threshold or when a load-side short-circuit is present. **Solid-state overcurrent protectors are intended to be used on the loadside of an isolating transformer, power supply or battery to provide a means of supplementary protection.***

Currently this relatively new UL Category (QVRQ2, File E321289) is not outlined in the Supplement SA1 (UL508A). (This problem will be solved, according to UL, with the next updates of the standards), so that for the use of MICO in systems acc. to UL508A a specific procedure is required.

After consulting UL, MICO modules should be included before the first use as a "procedure described" in the report (UL file) of the cabinet.

"Procedure described" means that components with restrictions (Conditions of Acceptability) as per UL508A or which are not outlined in the Supplement SA1 have to be evaluated on the required use before the acceptance of industrial control panels and have to be included in the report of the complete system.

This procedure also applies for example to Supplementary Protectors - UL Category QVNU2 – acc. to UL1077 (standard circuit breakers).

Quote UL508A:

SA2 Recognized Components

SA2.1 Recognized components that comply with specific requirements in this standard are specified in Table SA1.1. Recognized components described in Table SA1.1 as requiring procedure description shall be described in the manufacturer's Procedure in order to be used.

SA2.2 Recognized components other than those described in Table SA1.1 shall be investigated and described in the manufacturer's Procedure

Quote UL statement concerning the use of MICO „Industrial Control Panels“ acc. to UL508A: *This email confirms our previous comments concerning the use of these devices in UL 508A Industrial Control Panels. They may be used in UL 508A Industrial Control Panels as long as they are procedure described (meaning all device pertinent Conditions of Acceptability are described in the Customer's UL 508A Panel file) and are used in control circuits only, (i.e., isolated secondary, on the load side of power supplies) for use as a supplementary overcurrent protection device for a control circuit in a 40°C Pollution Degree 2 environment.*

4. Conclusion

Murrelektronik MICO modules can be used, under consideration of the above mentioned UL procedure, in UL Industrial Control Panel "(control and switch cabinets) acc. to UL508A in secondary 24VDC control circuits on the output side of switch mode power supplies.