

# CERTIFICATE OF COMPLIANCE

**Certificate Number** 20140217-E188913  
**Report Reference** E188913-A26-UL  
**Issue Date** 2014-FEBRUARY-17

**Issued to:** TRACO ELECTRONIC AG  
SIHLBRUGGSTRASSE 111 CH-6340 BAAR  
SWITZERLAND

**This is to certify that  
representative samples of**

COMPONENT - POWER SUPPLIES, INFORMATION  
TECHNOLOGY EQUIPMENT INCLUDING ELECTRICAL  
BUSINESS EQUIPMENT



AC-DC Power Module TMM 24aX, TMM 24bX (where a can be  
105, 109, 112, 115, 124; b can be 212, 215; X can be C or blank)

Have been investigated by UL in accordance with the  
Standard(s) indicated on this Certificate.

**Standard(s) for Safety:** Information Technology Equipment - Safety - Part 1: General  
Requirements, UL 60950-1 and CSA C22.2 No. 60950-1-07

**Additional Information:** See the UL Online Certifications Directory at  
[www.ul.com/database](http://www.ul.com/database) for additional information

Only those products bearing the UL Recognized Component Marks for the U.S. and Canada should be  
considered as being covered by UL's Recognition and Follow-Up Service and meeting the appropriate U.S. and  
Canadian requirements.

The UL Recognized Component Mark for the U.S. generally consists of the manufacturer's identification and  
catalog number, model number or other product designation as specified under "Marking" for the particular  
Recognition as published in the appropriate UL Directory. As a supplementary means of identifying products that  
have been produced under UL's Component Recognition Program, UL's Recognized Component Mark: , may  
be used in conjunction with the required Recognized Marks. The Recognized Component Mark is required when  
specified in the UL Directory preceding the recognitions or under "Markings" for the individual recognitions. The  
UL Recognized Component Mark for Canada consists of the UL Recognized Mark for Canada:  and the  
manufacturer's identification and catalog number, model number or other product designation as specified under  
"Marking" for the particular Recognition as published in the appropriate UL Directory.

Recognized components are incomplete in certain constructional features or restricted in performance  
capabilities and are intended for use as components of complete equipment submitted for investigation rather  
than for direct separate installation in the field. The final acceptance of the component is dependent upon its  
installation and use in complete equipment submitted to UL LLC.

Look for the UL Recognized Component Mark on the product.



William R. Carney, Director, North American Certification Programs

UL LLC

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contact a local UL Customer Service Representative at [www.ul.com/contactus](http://www.ul.com/contactus)



## UL TEST REPORT AND PROCEDURE

|                                    |   |
|------------------------------------|---|
| <b>Standard:</b>                   | UL 60950-1, 2nd Edition, 2011-12-19 (Information Technology Equipment - Safety - Part 1: General Requirements)<br>CSA C22.2 No. 60950-1-07, 2nd Edition, 2011-12 (Information Technology Equipment - Safety - Part 1: General Requirements) |
| <b>Certification Type:</b>         | Component Recognition   |
| <b>CCN:</b>                        | QQGQ2, QQGQ8 (Power Supplies for Information Technology Equipment Including Electrical Business Equipment)  |
| <b>Product:</b>                    | AC-DC Power Module  |
| <b>Model:</b>                      | TMM 24aX, TMM 24bX (where a can be 105, 109, 112, 115, 124; b can be 212, 215; X can be C or blank)   |
| <b>Rating:</b>                     | Input: 100-240Vac, 06- 0.3A, 60/50Hz.<br>Output: Refer to Enclosure ID 7-02 for detail  |
| <b>Applicant Name and Address:</b> | TRACO ELECTRONIC AG<br>SIHLBRUGGSTASSE 111<br>CH-6340 BAAR SWITZERLAND  |

This is to certify that representative samples of the products covered by this Test Report have been investigated in accordance with the above referenced Standards. The products have been found to comply with the requirements covering the category and the products are judged to be eligible for Follow-Up Service under the indicated Test Procedure. The manufacturer is authorized to use the UL Mark on such products which comply with this Test Report and any other applicable requirements of UL LLC ('UL') in accordance with the Follow-Up Service Agreement. Only those products which properly bear the UL Mark are considered as being covered by UL's Follow-Up Service under the indicated Test Procedure.

The applicant is authorized to reproduce the referenced Test Report provided it is reproduced in its entirety.

UL authorizes the applicant to reproduce the latest pages of the referenced Test Report consisting of the first page of the Specific Technical Criteria through to the end of the Conditions of Acceptability.

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.

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Reviewed by: Eddie Chen / Reon Tsai

**Supporting Documentation**

The following documents located at the beginning of this Procedure supplement the requirements of this Test Report:

- A. Authorization - The Authorization page may include additional Factory Identification Code markings.
- B. Generic Inspection Instructions -
  - i. Part AC details important information which may be applicable to products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of this Test Report.
  - ii. Part AE details any requirements which may be applicable to all products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of each Test Report.
  - iii. Part AF details the requirements for the UL Certification Mark which is not controlled by the technical standard used to investigate these products. Products are permitted to bear only the Certification Mark(s) corresponding to the countries for which it is certified, as indicated in each Test Report.

**Product Description**

The products covered by this report are AC-DC Power Module intended for building-in as a component of the end product Information Technology Equipment (ITE). Electrical components mounted on PWB then housed with plastic enclosure and potting epoxy.

**Model Differences**

All models are similar, except for model designation, (T1) transformer secondary windings, output ratings.

Model nomenclature: Models TMM 24aX, TMM 24bX

"a" can be 105, 109, 112, 115, 124, denotes single output voltage 5V, 9V, 12V, 15V and 24V.

"b" can be 212, 215, denotes dual output voltage +12V and -12V; +15V and -15V.

"X" can be C, denote unit with terminal block; blank denote unit without terminal block.

Model TMM 24aC, TMM 24bC are similar to model TMM 24a, TMM 24b except enclosure used with terminal block

**Technical Considerations**

- Equipment mobility : for building-in
- Connection to the mains : To be determined in the end product
- Operating condition : continuous
- Access location : To be determined in the end product
- Over voltage category (OVC) : OVC II
- Mains supply tolerance (%) or absolute mains supply values : +10%, -15%
- Tested for IT power systems : No
- IT testing, phase-phase voltage (V) : N/A
- Class of equipment : Class II (double insulated)
- Considered current rating of protective device as part of the building installation (A) : 20A
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : up to 5000 meters
- Altitude of test laboratory (m) : less than 2000 meters

- Mass of equipment (kg) : 0.145 kg for Model TMM 24a, TMM 24b; 0.161 kg for Model TMM 24aC, TMM 24bC;
- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 65°C with output 100% load; , 75°C with output 50% load; , 80°C with output 25% load.
- The product is intended for use on the following power systems: TN
- The equipment disconnect device is considered to be: Disconnect device shall be determined in the End-Product use.

#### Engineering Conditions of Acceptability

For use only in or with complete equipment where the acceptability of the combination is determined by UL LLC. When installed in an end-product, consideration must be given to the following:


- The end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-SELV: 281 Vrms, 488 Vpk
- The following secondary output circuits are SELV: DC output
- The following secondary output circuits are at non-hazardous energy levels: DC output
- The following secondary output circuits are Limited Current Circuits: Secondary pin of CY5 and CY3
- The power supply terminals and/or connectors are: Models TMM 24aC, TMM 24bC (where a can be 105, 109, 112, 115, 124; b can be 212, 215) are suitable for field wiring; , Models TMM 24a, TMM 24b (where a can be 105, 109, 112, 115, 124; b can be 212, 215) are suitable for factory wiring only
- The maximum investigated branch circuit rating is: 20 A
- The investigated Pollution Degree is: 2
- Proper bonding to the end-product main protective earthing termination is: Not required
- The following input terminals/connectors must be connected to the end-product supply neutral: AC(N)
- The following magnetic devices (e.g. transformers or inductor) are provided with an OBJY2 insulation system with the indicated rating greater than Class A (105°C): T1 (Class B)
- The following end-product enclosures are required: Electrical, Mechanical
- The equipment is suitable for direct connection to: AC mains supply
- For models TMM 24aC and TMM 24bC (with terminal block type), the spacing for double/reinforced insulation from primary small board to outside of plastic enclosure is insufficient; suitable insulation shall be evaluated in the end product use.

#### Additional Information

N/A

#### Markings and instructions

| Clause Title                          | Marking or Instruction Details  |
|---------------------------------------|---|
| Power rating - Ratings                | Ratings (voltage, frequency/dc, current)                                    |
| Power rating - Company identification | Listee's or Recognized company's name, Trade Name, Trademark or File Number |

|   |   |
|---|---|
| Power rating -<br>Model   | Model Number  |
| Power rating -<br>Class II symbol   | Symbol for Class II construction<br><br>(60417-2-IEC-5172) |
| Fuses - Rating  | Rated current and voltage and type located on or adjacent to fuse or fuseholder.  |
| Warning to service personnel  | "CAUTION: Double pole/neutral fusing"   |
| <b>Special Instructions to UL Representative</b><br>Inspect the transformer(s) listed in BD1.1 per AA1.1- (C). When the tests are conducted at other location, inspect test record and specification sheet provided by the component manufacturer. Verify the specification sheet indicates 100% routine test specified in BD1.1 is conducted at the component manufacturer. The test record noted above shall be submitted to the manufacturer from transformer manufacturer. The test record can be in the form of a actual test record. A stamp or sticker on the transformer or other method verifying the routine test is being completed on 100% production is also acceptable. |   |