

SAFETY COMPONENTS

Certificate of conformity
Related to EN/ IEC 61508
and EN 954-1/ ISO 13849-1 standards
N° 72148-1 /2006

The National Institute for Industrial Environment & Risks (INERIS – Institut National de l'Environnement Industriel et des Risques), a public industrial and commercial organisation, established by decree No. 90-1089 of 7 December 1990, under ecology and durable development ministries supervision,

issues a certificate of conformity related to EN/ IEC 61508 and EN 954-1/ ISO 13849-1 standard for the following product :

Trade mark: **TELEMECANIQUE**

Name : **ALTIVAR**

Manufacturer : **SCHNEIDER TOSHIBA INVERTER EUROPE SAS**

Type : **61 and 71**

Certificate : **SCHNEIDER TOSHIBA INVERTER EUROPE SAS**
requested by **Rue André Blanchet 27120 Pacy sur Eure (France)**

Description : The **ALTIVAR 61 and 71** products are variable speed drive dedicated to performing command and control functions for asynchronous motors. They include the **Power Removal** safety function which requires power supply to the motor to be interrupted when a dedicated button is switched off. It shall not be possible for the motor to generate a torque that can result in a hazardous movement.

This safety function, after examination is declared compliant with essential requirements for safety of the EN/ IEC 61508 and EN 954-1/ ISO 13849-1 standards.

1. Functional Safety

The **Power Removal** safety function complies with functional safety levels and is declared classified as follows:

EN 954-1/ ISO 13849-1 – Safety of machinery – Safety-related parts of control systems.

Category 3 Part 1 – General principles for design.

EN/ IEC 61508 – Functional safety of electrical / electronic / programmable electronic safety-related systems

SFF (safe failure fraction)	> 92%
Common mode considered	1%
PFH (Probability of failure per hour)	10^{-8}
SIL (Safety Integrity Level)	2

The **Power Removal** safety function is warranted to perform a stop category 0 related to the EN 60204-1 standard. This mode corresponds to the removal of power from the motor, which is therefore allowed to freewheel.

2. Versions of configuration

- ✓ ALTIVAR 61 and 71 range of products from 0,37 KW to 630 KW, corresponds to technologic sizes 2 to 15;
- ✓ The control-command software for the Power Removal safety function for the complete range are listed in the document INERIS /DCE/LEEL/JDr 72148;
- ✓ The hardware Versions comply with those listed in the document INERIS /DCE/LEEL/JDr 72148.

3. Evaluation

The **Power Removal** safety function integrated in **ALTIVAR 61 and 71** products has been assessed in compliance with the requirements of standards. A certification report has been produced by INERIS with the following reference INERIS /DCE/LEEL/JDr 72148.

4. Requirements for use

- ✓ The functional safety dedicated cable is to be carried out with cables in compliance with the EN 60204-1 standard. This cable shall respect the requirement for use given by SCHNEIDER TOSHIBA INVERTER EUROPE SAS,
- ✓ The control-command means used for the PWR input activation shall comply with safety levels in accordance with the required safety levels for the intended application,
- ✓ A periodic maintenance test shall be performed at least once a year in order to verify the Power Removal safety function when the PWR input is activated.



Verneuil-en-Halatte, 2006 03 25

Director of the Certifying Body,
By delegation,
Deputy Manager of Certification

B. PIQUETTE