framatome

THORC Motor Control Modules

for Nuclear Power Plants

The THORC Motor Controller reduces costs and required space while increasing safety.

Challenge

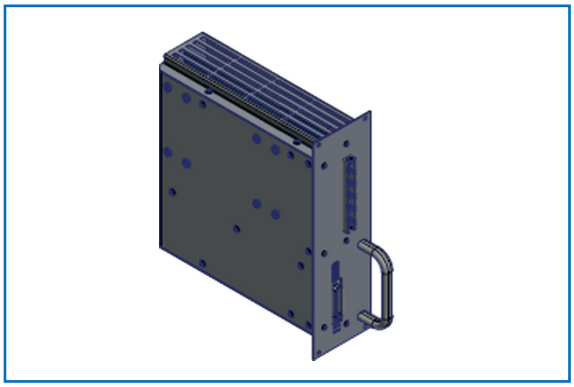
Traditional thyristor-controlled cabinets are equipped with software control. These products are subject to complex software qualification, which adds to the cost of the system and creates delays. Traditional mechanical contacts wear out often, requiring high maintenance and do not cover all coil voltages. The situation is further compounded by the fact of limited mounting spaces.

Solution

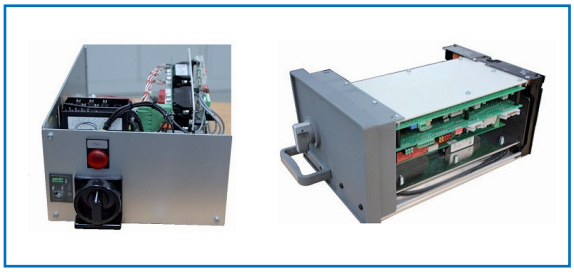
Framatome's thyristor-based THORC Motor Control Module is a nuclear-qualified software-free product. THORC contains specially designed semiconductor motor controllers for directional switching and reversing of asynchronous motors for controlled actuators without any software or complex functions. Compared to other devices based on contactor technology, these wear-free thyristor controller modules are characterized by high switching rates, long lifetime and very low maintenance.

THORC Motor Controllers are designed for mounting in Framatome's THORC Motor Control Center which has a small footprint size of 400 mm x 900 mm. With THORC Lite, Framatome offers also a Motor Controller which is interface-compatible to the Siemens withdrawn products 6DT1043 and 6DT1044 (for replacement in existing mounting places). Solutions are also available for inside plug-in switchgear units (e.g. Siemens 8PV and ABB MNS).

THORC Motor Controller



THORC Lite Motor Controller



THORC Motor Controller solution for inside plug-in switchgear units

Customer benefits

- Reduce qualification costs (no software qualification required)
- Reduce maintenance costs
  - Quick fitting
  - Wear- and tear-free semiconductor technology
  - Electric brake (no holding brake)
- Increase plant safety with higher availability
- Get flexibility of installation with high modularity

Your performance
is **our** everyday **commitment**

Technical information

- The THORC Motor Controller is of modular design and available for different mounting locations.
- The Three-Phase Motor Controller switches two phases. Reversing is achieved by interchanging phases “L1” and “L3”. Phase “L2” is not switched.
- The Single-Phase Motor Controller switches one phase to one of two outputs depending on the process actuation signal.
- The control of the module is effected by 24 V signals (open / close or forward/reverse). Signal inputs are electrically isolated internally. The inputs for direction control are interlocked.
- The adjustable braking function enables a series of braking pulses to be issued after each direction command signal. The direction commands (open / close or forward/reverse) and the braking function can be deactivated by a blocking signal (externally controlled).
- The module is equipped with travel and torque limit monitors. A monitor for PTC thermistors of motor windings is included in the module.

Key figures

2.5 kW maximum for single-phase motors

5.5 kW maximum for three-phase motors

50 A gG fuse “up to“ short circuit strength

70°C design temperature

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