framatome

THORC LITE Motor Control Modules

Description and Technical Datasheet

Application

Framatome's software-free thyristor-based THORC LITE Motor Control Module is designed for the directional switching of safety-related drives (1E). Additionally, the module contains a function for bringing actuators to a standstill by DC braking (without a holding brake). Compared to other device operating principles, based for example on contactor technology, the wear-free THORC LITE Motor Control Module offers advantages in terms of high switching rates, long lifetime and low maintenance.

Function

The three-phase THORC LITE Motor Control Module switches two phases. Reversing is achieved by interchanging phases "L1" and "L3". Phase "L2" is interconnected switched. The single-phase THORC LITE Motor Control Module switches one phase to one of two outputs depending on the process actuation signal. The module is controlled by 24 V signals (open / close or forward / reverse). Signal inputs are internally electrically isolated. The inputs for direction control are interlocked. The adjustable brake 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). A Monitor for PTC thermistors of motor windings is included in the modules.

Design of the THORC LITE Motor Control Module

Depending on application, single-phase and three-phase THORC LITE Motor Control Modules can be configured. The module is a plug-in unit with indicators on its front plate for the following operating states:

- Faults
- Status
- Power supply

THORC LITE Motor Control Module Inputs and Outputs

Input signals

- Close
- Open
- Blocking

Performance Features

- Designed for safety applications
- Type tested
- Seismic tested
- EMC tested
- High Temp. tested up to 70°C
- Temperature monitoring in conjunction with PTC thermistor
- Interlock against simultaneous execution of forward and reverse signals
- Inclusion of torque and travel limit signals in the control process
- Blocking of the "forward", "reverse" and "braking" command signals by external signal
- SIPLUG interface
- Compatible to SIEMENS 6DT1043 / 6DT1044 Module

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Technical data (general)

Rated power (P_n)	2.5 kW single-phase and 5.5 kW three-phase
Rated voltage (U_n)	230 V / 400 V three-phase
Rated operating voltage (U_e)	0.8 U_n to 1.2 U_n (static)
Rated frequency (f_n)	50 Hz
Rated operating frequency (f_e)	43 Hz to 66 Hz
Pole number	AC-53a (according to IEC 60947-4-2)
Operating mode	Continuous
Dimensions (width x height x depth)	81 mm x 265 mm x 230 mm (+40 mm handle)
Weight	3 kg
Ambient temperature	0°C to 70°C
Ambient conditions	• 3K3 with 95% relative humidity (operating) • 2K4 with 95% relative humidity (storage and transport)
Enclosure	IP20 (according to IEC 60529

Input and output signals	
Output signals (linked to Control voltage)	• Feeder fault (AZF): maximum 100 mA • I/O fault (EAF): maximum 10 mA • Motor temperature (MTH): maximum 10 mA • Maintenance (WRT): maximum 10 mA
Input signals	• Clockwise rotation (RL): maximum 8.5 mA • Counter-clockwise rotation (LL): maximum 8.5 mA • Blocking (BLK): maximum 8.5 mA • Feeder Switch (WRT)

Technical data	
Permissible duty cycle	• F10 S600 according to IEC 60947-4-2 • F30 S200 according to IEC 60947-4-2 • F50 S30 according to IEC 60947-4-2
Time response	• Input signal delay: maximum 1 to 3 ms • Minimum pulse duration: 50 ms • Pause time after braking: minimum 13 ms
Brake	Oscillation package with direct current brake pulse (0 to 10 half-cycles adjustable)
Rated insulation voltage (U_i)	2 kV (to DIN EN 61439-1)
Rated impulse withstand voltage (U_{imp})	4 kV (to DIN EN 61439-1)
Short-circuit strength	up to 50 A gG fuse
Overvoltage category	III (to IEC 60664-1)
Pollution degree	2 (to IEC 60664-1)

Connections and voltage levels	
Power connection	11 Pole Flat Lug Plug (DIN 41612-H11)
Signal connection	25 Pole SUB D Female (DIN 41652-1)
Control and signal voltage (U_s)	• 24 V DC (rated voltage) 0.2 A maximum • 17 V to 30 V • Overvoltage category III • Rated insulation voltage: 50 V AC
Control signal level	• High: 19 V to 33 V • Low: –3 V to 5 V
SIPLUG interface	• Signals “LFS” and “RFS”

Contact: electrical-systems@framatome.com
www.framatome.com

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