

INSTRUCTION MANUAL

(Translation of the original)



Model: ELECTRONIC ENGINE BRAKE

Code: PMU.MF S



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GENERAL INFORMATIONS

This manual deals with the information necessary for the installation and configuration of the equipment.

Note: only trained and qualified personnel are authorized to install and configure the device.

This equipment has been developed to reduce the braking time of the engine, working together with the brake already present in the system.



The information preceded by the symbol must be respected.



The information contained in this warning indicates a PROHIBITION and must be scrupulously observed.



The information contained in this warning indicates an OBLIGATION and must be scrupulously observed.

RESPONSABILITIES

The equipment manufacturer disclaims any responsibility for improper use or reasonably foreseeable misuse which could result in equipment damage or even a hazardous event.

Always check the braking performance by observing the engine stop time. In case of anomalies, the use of the equipment must be immediately interrupted.

The warranty becomes void immediately if the equipment is opened or used outside the parameters mentioned in this manual.

REASONABLE FORESEEABLE MISUSE

All uses not explicitly indicated are not considered reasonably foreseeable, in particular:

- Use of the equipment in an unprofessional environment or by non-professional personnel;
- Use of the equipment by unauthorized and untrained personnel for this purpose;



The reasonably foreseeable misuse above and all uses not explicitly mentioned in this manual are prohibited.



It is forbidden to use the equipment in environments with explosive atmospheres.



It is forbidden to make changes to the electronic brake.



Any changes to the component for uses other than those envisaged will void the conformity of the machine and the responsibility of the manufacturer.



**It is forbidden to remove and tamper with the safety devices;
Their tampering exposes the operator to contact with moving parts.**

INSTALLATION

The device must be installed inside the electrical panel in which the engine drive circuit is located. The fixing must be done through the rear connection of the DIN rail.

The device must be connected directly to the motor to be braked (maximum motor power = 15 HP) and not to other components.

The device is available in three versions: - 5 HP - 10 HP - 15 HP.

The fuse size must be selected based on the amperage measured at the point where the ammeter is inserted (see "Electrical diagrams" on page 8).

Proper grounding of the equipment and the equipment itself is essential.

The equipment must be integrated into the drive circuit by installing an additional contactor whose function

is to switch the motor phases in the brake module during the stop process.

Both the motor connection and the control signals of the equipment must follow the diagram contained in this manual. As an alternative, the system can work in combination with a safety relay.

TECHNICAL FEATURES

Supply voltage = 24Vdc / Vac \pm 5%

Nominal voltage = 220VAC-440VAC *

Maximum consumption = 3.0W

Frequency = 50Hz / 60Hz

Ambient temperature = +10 ° C to +45 ° C

Storage and transport = from -10°C to + 60°C

Motor enable contact = 1 contact NO

Brake enable contact = 1 NO contact

Safety interlock contact = 1 NO contact

Contact capacity = 2A - 24Vdc / 300W - 250Vac

Power failure detection = Yes

Maximum cross-section of the cable = 2.5 mm²

Connection cable = flexible

Removable terminals = No

Protection level = IP20

Dimensions (A / L / C) = 58mm x 70mm x 86mm

* The converter voltage will depend on the model of the equipment.

(Models 220vac, 380vac or 440vac \pm 10%)

Supply Voltage	13	24 Vcc/24 Vac
	14	0 Vcc/24 Vac
In	15-16	Brake drive contact
Out	17-18	Brake enabling
	19-20	Motor enabling
	21-22	Safety connection
Power Control	1	In Phase 1
	3	Out Phase 1
	5	In Phase 2
	6	Out Phase 2

BRAKE SETTING

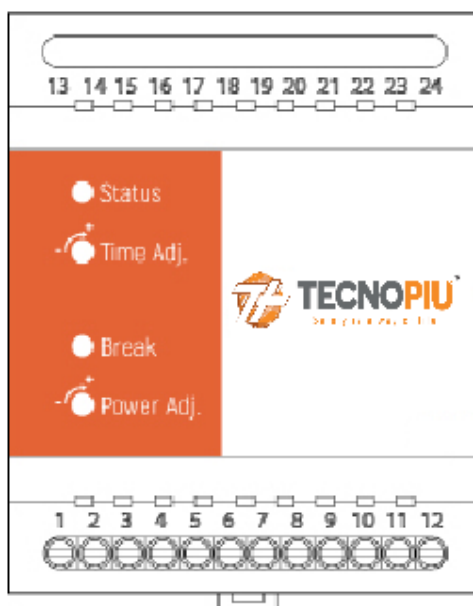
The braking device has two adjustments to be made once the equipment is installed:

1) REGULATION OF BRAKING TIME

It is very important that this adjustment is carried out in such a way as to minimize the sending of braking current to the engine after its stop, avoiding excessive heating of the module and of the motor.

2) REGULATION OF BRAKING POWER

As with the braking time, the braking power must be adjusted in such a way that the power applied to the engine is the one needed to stop the engine at the desired moment. Excessive power will cause excessive heating of the motor and the braking device.



WARNING LIGHT	STATUS	FUNCTION
STATUS	Fixed green	Brake device powered
	Slow flashing green	Engine running
	Fast flashing green	Block due to anomaly
BREAK	Fixed blue	Device braking

In the event that the brake shuts down (STATUS light fast flashing green), to restore the set parameters (RESET) disconnect the power supply to the device, wait 10-15 seconds and then restore it.

MAINTENANCE

The device should be periodically tested to ensure that the braking function works normally. All cables and connections must also be checked to avoid equipment malfunction.

Regular inspections must be performed to verify the integrity of all parts described in this manual.

- Maintenance and repair operations must only be carried out by personnel qualified for these functions and in perfect psychophysical conditions;
- Before every maintenance, proceed to a thorough cleaning;
- During these operations, personnel not assigned to these functions must remain at a distance of safety;
- The entire electrical system is completely isolated only if the fuses of the line that carries voltage to the machine have been removed or if the line disconnecter has been activated, if foreseen;
- Before proceeding to the intervention, make sure that nobody can reactivate the line by exposing adequate reports;
- Before carrying out the operation, check by means of a voltmeter that the input terminals are free of tension;
- If the need to search for a fault requires working under tension, this must be done by particularly expert personnel with perfect equipment and tools;
- In case of danger of accidental contacts always operate with the electrical cabinet switched off;
- Check the electrical panels to turn off the power supply line before working on the electrical panels energies to the paintings themselves and to have affixed a special sign of "Maintenance in progress" on the aforementioned sectioning.
- The earth conductor of an instrument must always be connected first and detached last.

For the following operations we recommend the following periodicity:

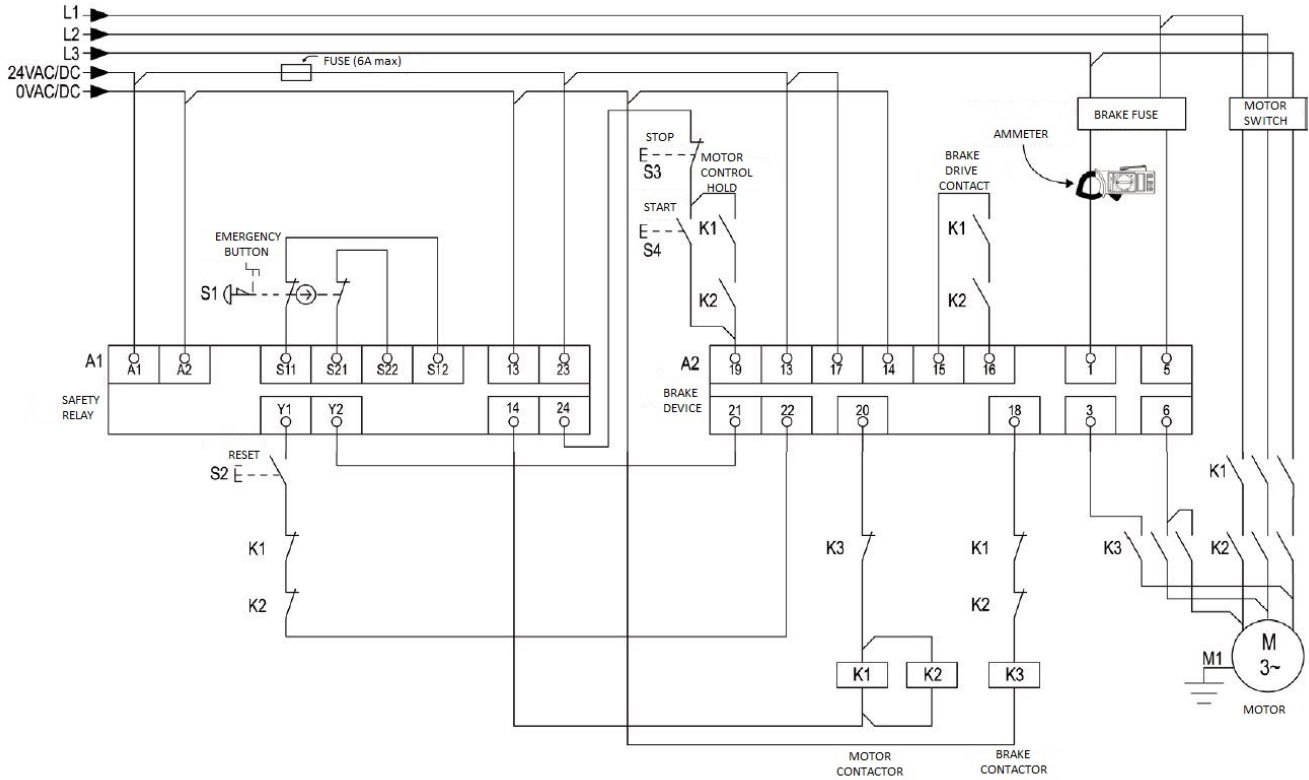
- Once a year for normal environments;
- Once every six months for dusty and special environments.

- 1) Verifying absence of damage to components: visual inspection of components to detect damage, mechanical wear, overheating and any other anomalies. At visual examination finished proceed with the restoration or replacement of the component.
- 2) Checking the connection of the circuits: sample checking of the tightening bolts of coupling of busbars and connection terminals.
- 3) Verification and functionality of components: perform all the operations specified in the respective manuals of maintenance.
- 4) Check of safety and emergency circuits: check of emergency and safety circuits functionality. In the event of a fault, replace the malfunctioning component.

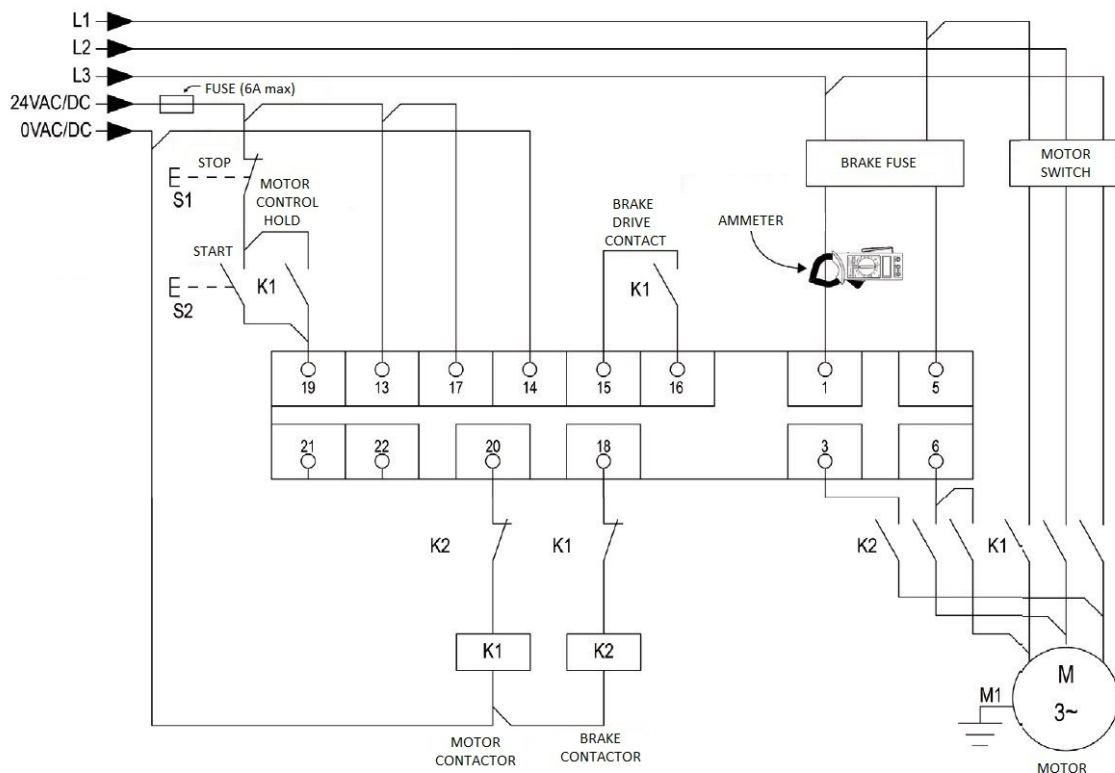
ELECTRICAL DIAGRAM

This manual contains 2 examples of connection diagrams for the braking device. One, without the use of the safety relay and another with the use of the safety relay in the mechanical guards and in the emergency button.

The use of the safety relay is very important for the protection of the operator, acting in combination with protection systems and also with the use of manual reset.



Electrical diagram with safety relay



Electrical diagram without safety relay