

4-MOTOR TRANSLATION

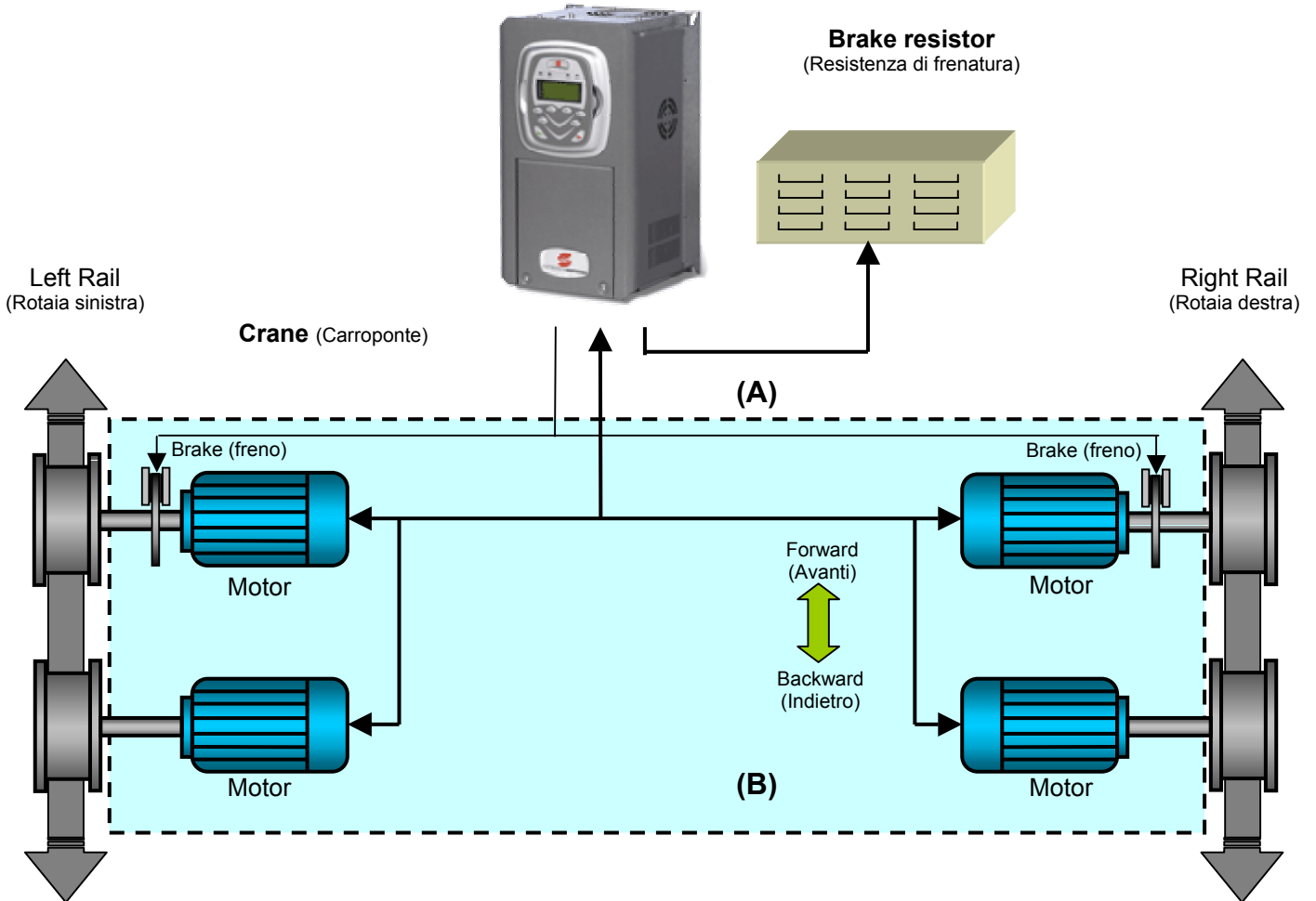


Figure 1

Side view
(Vista laterale del carro)

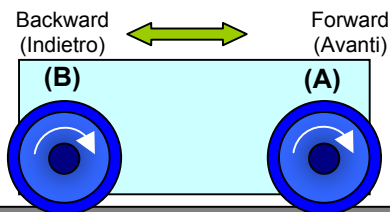


Figure 2

Wiring Diagram (Control Section)

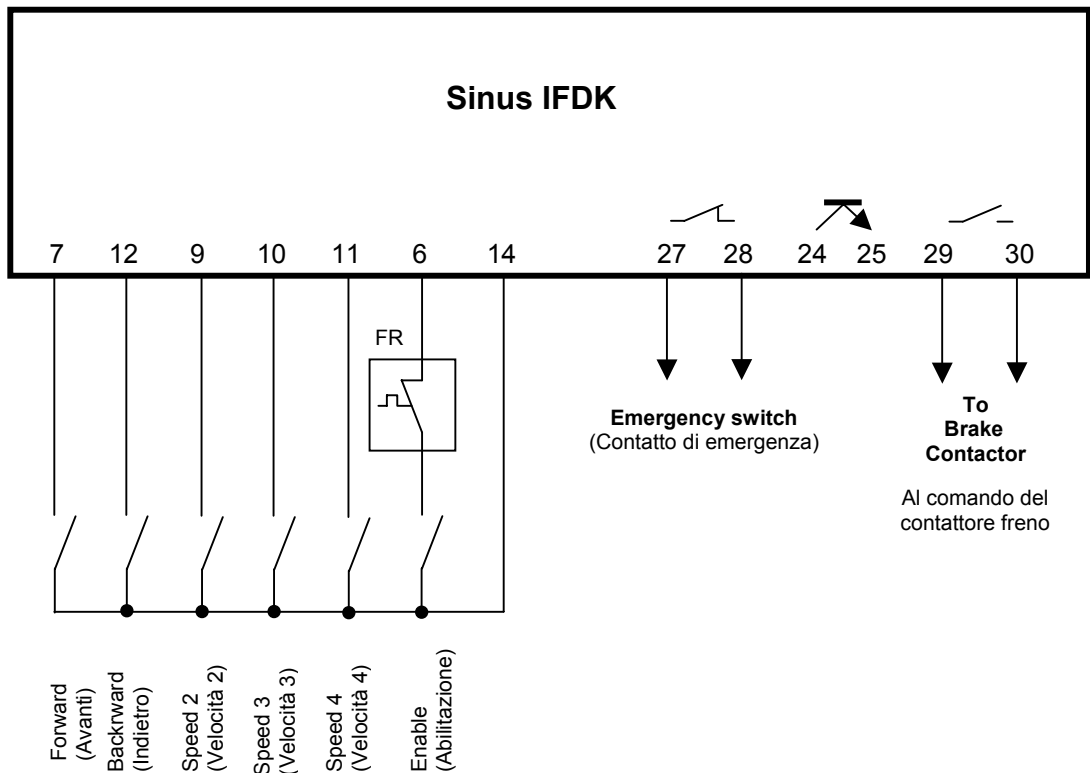


Fig. 3

FR1= NC Contacts of thermal relays for each motor.
Because a software thermal protection is provided for the inverter, this auxiliary contact is **not required when only one motor is used.**

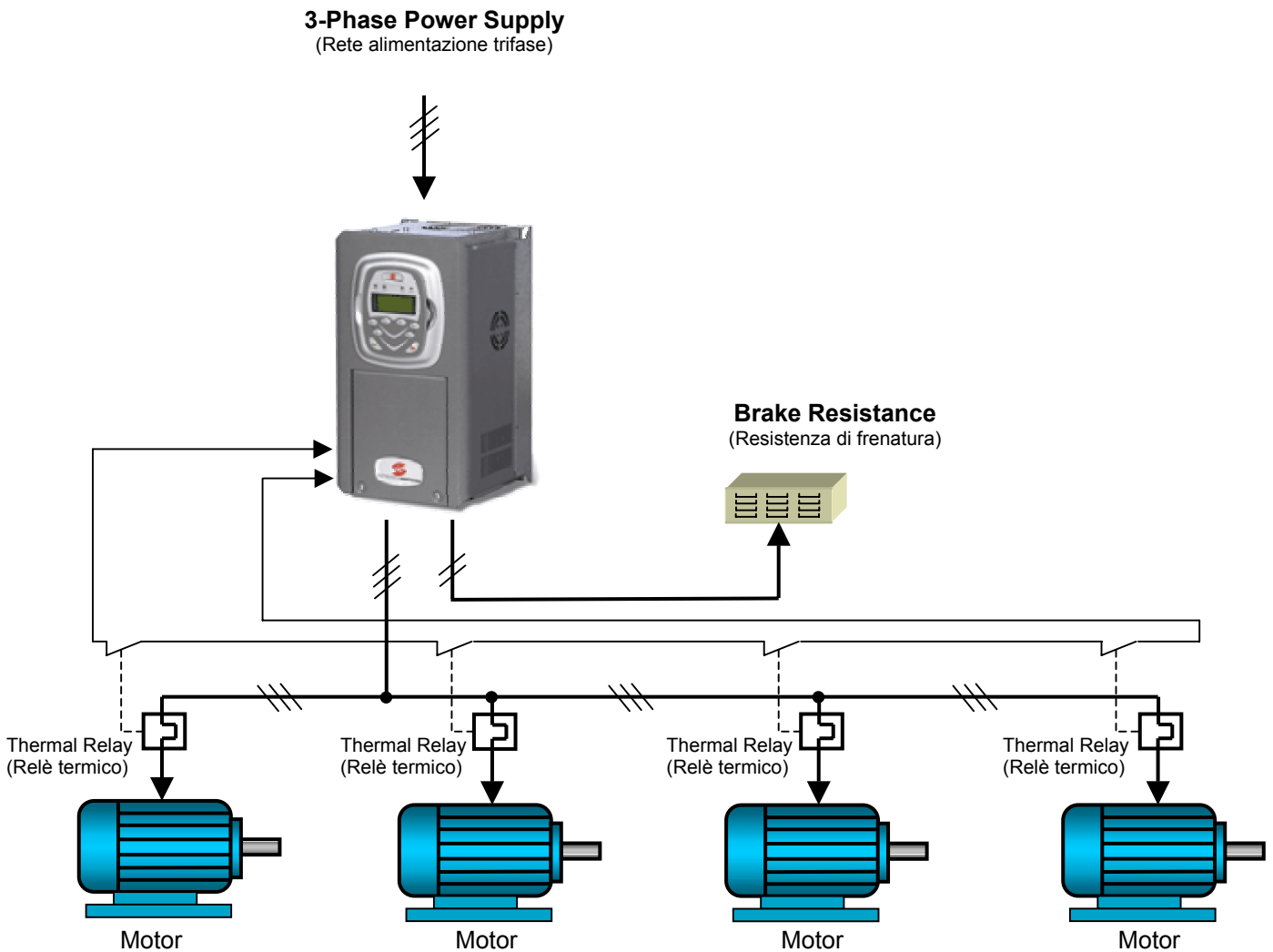


Fig. 4

Operation

This application is designed for the translation of a bridge crane on rails, where acceleration and braking are to be controlled with a uniform motion, thus avoiding wearing rails and the connected mechanical parts. The system may control one or multiple motors connected in parallel (4 motors in the example) for an overall power equal to the inverter size. Several preset speeds may be controlled (5 speeds in the example) by means of remote controls; the mechanical braking may be controlled for each manoeuvre or for the system emergency stop.

If the application involves two or more motors, use a proper thermal protection (thermal relay) for each motor. The thermal protections **must not cut off the power connection**, but have to stop the inverter operation with a simple NO contact (see Figure 3 and Figure 4). If only one motor is used, just enable the software thermal protection provided in the inverter software.

Installation

The inverter and braking unit are to be installed inside a cubicle. Follow the instructions given in the User Manual of the inverter.

Braking resistors are to be assembled outside the cubicle for a more efficient heat dissipation.

Always use thermostats provided inside the braking resistance.

Wiring

For the inverter wiring, follow the instructions given in the User Manual of the inverter.

Never install contactors, disconnecting switches, fuses or thermal relays at the inverter output.

The motor must be connected directly to the inverter.

Use heatproof wires for braking resistance connections.

Controlling the Mechanical Brake

The mechanical brake of the bridge crane is controlled directly by the inverter by means of a digital output. Wearing is reduced to a minimum. The brake deactivates with zero speed and activates with the motor torque.

In case of emergency stop, the mechanical brake activates independently of the motor speed.

Programming Example using RL2 as a Braking Command

Reference	P15= ...Hz (first speed)
Digital Output	P73=1%(Level) P74=0% (hyst.)
Ramp	P05= ...Sec P06=...Sec
Multispeed	P40=...Hz (second speed) P41=...Hz (third speed) P43=...Hz (fourth speed)
Inom Mot	C05= rated current of the transformer
V/F Pattern	C10= ...% Torque increment at low rpm
Spec Function	C57=Yes (enables braking unit)

Important

The diagrams and parameter values above are given as an example, but may be changed to meet the system requirements. The installer is responsible for the correct operation of the system and must observe the safety regulations in force. Please refer to the information given in the User Manual of the inverter being used.