

1 - General

Ce This manual is intended for personnel technically qualified to install, operate and maintain the Operator Interface Terminals (OIT) which are described herein. It contains all the necessary information for correct usage of the products. However, for advanced usage of our products please contact your nearest sales office for additional information.

The contents of this manual are not contractual and cannot under any circumstance extend or restrict contract warranty clauses.

2 - Qualification of personnel

Only **qualified personnel** are authorized to install, operate or maintain the products. Any work performed by an unqualified person or failure to follow the safety instructions in this document or on the equipment may risk the safety of personnel and/or cause irreparable damage to equipment. The following personnel may be regarded as being **"Qualified"**:

- Design personnel familiar with control system safety concepts (for example, design engineers, etc),
- Individuals who are familiar with the installation, connection and startup of control system equipment (for example installers or wiring technicians working during the installation phase, technicians setting up the equipment, etc),
- Personnel trained to operate and manage control system equipment (for example, operators, etc),
- Personnel who are trained and experienced in the adjustment and repair of control system equipment (for example, installation engineers, post sales service engineers, etc).

3 - Warnings

Warnings serve to prevent specific risks encountered by personnel and/or equipment. They are indicated in the documentation and on the products by different warning symbols, according to the severity of the risk:

Danger or Warning or Attention or 

Indicates that not following instructions or ignoring these warnings will cause serious personal injury, death and/or serious damage to equipment.

Caution or Important or 

Indicates that not following a specific instruction can lead to minor injury and/or damage to equipment.

Note or Comment

Highlights important information relating to the product, its operation or its accompanying documentation.

4 - Conformity of use

The products described in this manual **conform to the European Directives** (*) to which they are subjected (CE marking). However, they can only be used correctly in the context of the applications for which they are intended (described in the various documents) and when connected to approved third party products.

If all handling, transport and storage specifications are observed, and all instructions for installation, operation and maintenance are followed, the products will perform properly, with no danger to personnel or equipment.

(*) DEMC and DLV Directives, concerning Electromagnetic Compatibility and Low Voltage.

5 - Installation and set up

It is important to observe the following rules when installing and starting up equipment.

- safety instructions must be followed. These instructions are in the documentation or on the equipment being installed and set up.
- Magelis 24VDC low voltage circuits should always have a ground connection in its power supply.
- before a device is powered up, check its nominal voltage to ensure that it has been adjusted to conform with the supply voltage.
- if the device is supplied with 24 VDC, the low voltage circuits must be protected. Only use power supplies, which conform to current standards.
- check that the supply voltages are within the tolerance ranges defined in the technical characteristics of the devices.
- all measures must be taken to ensure that any power return does not lead to a dangerous state which may risk personnel or the installation.
- emergency stop devices must remain effective in all the device's operating modes, even during abnormal operations (for example, when a wire becomes disconnected). Resetting these devices must not cause uncontrolled or improper restarts.
- Magelis OIT must not be used for emergency stops or other controls critical to the safety of personnel or equipment. Separate hard wired operator interface devices (that do not depend on solid state electronics) must be used for such critical controls.
- cables which carry signals must be located where they do not cause capacitive, inductive or electromagnetic interference with the control system functions.
- control system equipment and their control devices must be installed to ensure that they are protected against unintentional operation.
- appropriate safety measures must be taken for the inputs and outputs,(including OITs function keys), to prevent improper states in the control system device, if no signal is received.

6 - Equipment operation

The continued safe operation and continued device service is provided by the ability to avoid faults and to minimize effect of faults, if they occur.

A system is said to be fail-safe if the occurrence of faults never causes a dangerous situation.

A fault inside the control system is known as:

- passive, if it results in an open output circuit (no command is sent to the actuators).
- active, if it results in a closed output circuit (a command is sent to the actuators).

From the safety point of view, a given fault may be dangerous depending on the type of command given during normal operation. A passive fault may be dangerous if the normal command is the operation of an alarm. An active fault may be dangerous if it maintains or activates an undesirable command.

It is important to note the basic difference between the behaviour of an electromechanical relay and an electronic component (for example a transistor).

It is important to correctly estimate the types and consequences of faults when automating a system using electronic products such as PLCs, including when relay output modules are used on PLCs.

The system designer must **use devices external to the PLC** to protect against active faults inside the PLC, which are not indicated and are judged to be dangerous to the application. This may require solutions from various different technologies such as mechanical, electromechanical, pneumatic or hydraulic devices.

To protect against dangerous faults, which may occur on output circuits or pre-actuators, it is sometimes beneficial to resort to general principles and use the large processing capacity of PLCs, for example by using "inputs to check the correct execution of commands requested by the program".

7 - Electrical and thermal characteristics

Details of the electrical and thermal characteristics of devices are given in the associated technical documents (installation manuals, service instructions).

8 - Environmental conditions

Devices, such as Magelis XBT OITs, meet "TC" treatment (1) requirements. For installations in industrial production workshops or in environments, which correspond to "TH" treatment (2), these devices should be installed in enclosures with minimum IP54/TYPE 12 protection, stipulated by standards IEC 60664, and UL50.

Magelis XBT OITs, which themselves have IP20 protection, can therefore be installed without enclosures in restricted-access locations which do not exceed pollution level 2 (control room with no machines or dust-producing activities).

(1) "TC" treatment: all climate treatment.

(2) "TH" treatment: treatment for hot and humid environments.

9 - Preventive or corrective maintenance

Availability

System availability, in terms of its combined reliability, maintainability and maintenance logistics, is the ability to perform a required function, at a given moment and within a defined time period.

Availability is therefore specific to each application, since it is a combination of:

- the architecture of the automatic system,
- the reliability and maintainability : intrinsic characteristics of the equipment (PLCs, sensors, machine, etc),
- maintenance logistics : characteristic intrinsic to the user of the control system (software structure, fault indication, process, on-site replacement parts, training of personnel).

Troubleshooting :

- control system equipment should only be repaired by qualified Schneider Electric personnel. Only certified replacement parts or components should be used.
- Always remove power before performing any operation on equipment.