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JOYSTICKS TJ-TR-TS-TK-TU
FINGERTIP TB
FOOT OPERATOR TP

OPERATION AND MAINTENANCE MANUAL



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FREQUENTLY USED SYMBOLS

The following symbols have been adopted throughout each section to highlight specific actions:



This action is required to accomplish the proposed purpose and does not entail any risk for the operator



This action must be performed to ensure that subsequent operations proceed safely.



This action must be performed with particular care because of the possible inherent risk and subsequent situational consequences.



Hazardous situation, both for the operator performing the action and for the proper operation of the product. This situation must be handled with particular care and by qualified persons.



WARNING!

1. GENERAL DESCRIPTIONS

INTENDED USE



IPC S.r.l. designs and manufactures joysticks and transducers of various sizes and shapes, intended for OEM applications.



The only power supply levels applicable to the devices are 12 to 24 Vdc. The devices in question may be connected to other equipment which, in turn, operates with a maximum supply voltage of 48 Vdc, irrespective of the supply voltage to the individual components. The devices in question can also be used on machines with internal combustion engines, as long as the relevant maximum voltage does not exceed the 24 Vdc battery level. Power supplies exceeding 24 Vdc (max 48 Vdc) can only be customised on request.



Control devices such as TJ, TR, TS, TK, TU, TB, and TP are not to be used in safety-critical applications or for controls that impact the safety or integrity of persons or property.



Joystick types TJ, TR, TS, TK, TU, TB and TP can only be fitted to equipment that provides for their monitoring (fault/failure detection and machine emergency stop). Otherwise, an electro-mechanical safety device is mandatory. Failure to comply with the above shall release iPC S.r.l. from any civil and criminal liability.

GENERAL SAFETY INFORMATION








The Joystick and its operation are guaranteed by iPC Srl only if the following rules and instructions are followed scrupulously.

In particular, it should be noted that:



External electromagnetic fields can affect the performance and reliability of the control device.

-  Follow the instructions described for transport and device activation.
-  Personnel tasked with using the Joystick must be trained in its use.
-  Contact iPC S.r.l. for any required mechanical or electrical operation not described in this manual.
-  These products can only be marketed in the EU. Sale in non-EU countries does not imply any liability on the part of iPC S.r.l.
-  If prototypes are provided, they must not be applied to production run machines and must be returned within 10 days.

OPERATING PRINCIPLE



The TJ, TS, TK, TU, TB and TP units are Hall-effect electronic devices.



Control devices of type TJ, TR, TS, TK, TU, TB and TP are essentially angular position transducers that linearly convert the position of the handle into a variable electrical signal (output voltage). They incorporate magnetic-inductive sensors that entirely eliminate mechanical contact between the moving part and the electronic circuitry.

WARRANTY



The joystick is covered by a 24-month warranty from delivery as described in the sale contract agreement; said warranty is void in the event of incorrect use of the device.

2. PACKAGING AND TRANSPORT



The joystick will be packed in a carton with all necessary protective padding.



If the chosen mode of transport does not comply with the packaging specifications, iPC shall not be liable for any damage caused to the Joystick.

3. INSTALLATION AND FIRST USE



Joystick types TJ, TR, TS, TK, TU, TB and TP can only be fitted to equipment that provides for their monitoring (fault/failure detection and machine emergency stop). Otherwise, an electro-mechanical safety device is mandatory. Failure to comply with the above shall release iPC Srl from any civil and criminal liability.

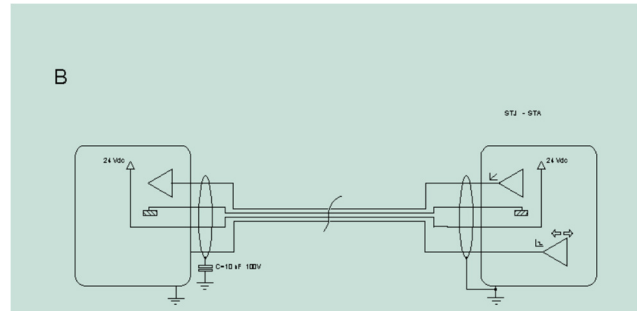
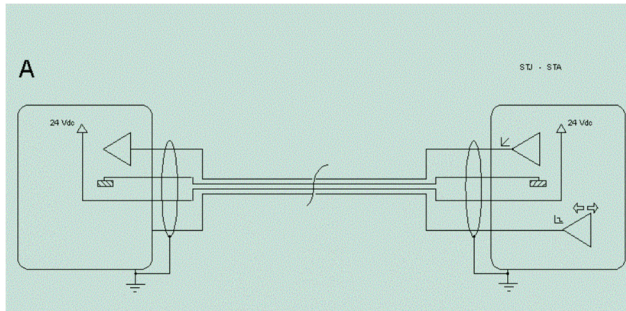


Electromagnetic susceptibility and emissions are greatly influenced by the installation arrangements.
Particular attention must be paid to wiring (cable length), proximity to power cables and shielding.

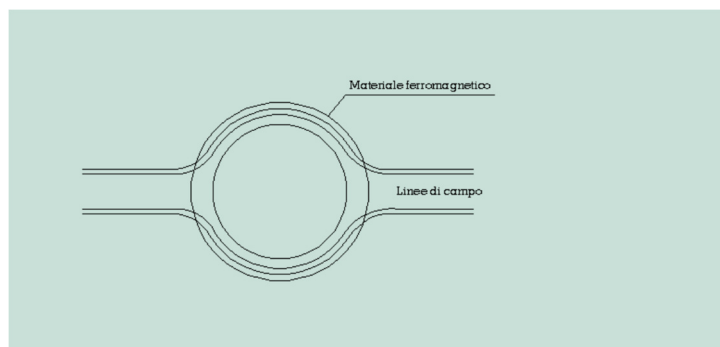
Please note that the following compliance checks are essential:
IEC 801-2, IEC 801-3 , IEC 801-4 , IEC 801-5, IEC 801-6 .

CRITERIA FOR REDUCING ELECTROMAGNETIC SUSCEPTIBILITY

- ☝ Connect all metal parts of the machine to each other.
- ☝ Route power leads away from control cables.
- ☝ Choose short routes for control cables in contact with metal surfaces.
- ☝ Opt for A-type cable connections if medium frequency disturbances are expected, B-type for low frequency disturbances.



- ☝ Ferromagnetic materials are permeable to external fields by an order of magnitude up to 100, 1000 or 50000 times greater than diamagnetic or paramagnetic materials (i.e. all other types of materials). This means that a magnetic field which impinges on a closed metal body of minimal thickness is deflected; hence, it does not disturb the space enclosed by the metal enclosure. The metal enclosure acts as a shield. Conversely, a magnetic field produced within a space enclosed by a ferromagnetic body can give rise to an external magnetic field with a field strength depending on the specific intensity of the source.



4. IMPROPER AND INCORRECT USE

IMPROPER USE



Improper use is defined as deployment of the joystick in operations for which it was not designed.

The following uses are considered improper:



Use of the Joystick as a safety device.



Use of the run consent button as a safety device.



Use of the Joystick by untrained personnel.

INCORRECT USE



Incorrect use is defined as handling of the joystick without complying with the instructions in this operating and maintenance manual.



Failure to comply with these requirements may affect the safety of operations that are normally performed.

The following are considered incorrect use:



Handling the joystick in any way other than as specified on the packaging.



Connecting the Joystick to supply voltages other than those specified in the section INTENDED USE under GENERAL DESCRIPTIONS.



Failure to comply with the procedures described in the section INSTALLATION AND FIRST USE.



Assigning device installation to unqualified persons.



Carrying out repairs without the assistance of authorised persons.



Use non-original spare parts.



Replacing control devices with models other than those installed by the manufacturer.

5. FAULTY OPERATION



Any Joystick malfunction must be detected (see section INSTALLATION AND FIRST USE) by the equipment to which the Joystick is fitted.

