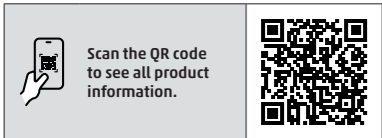


DRIVE

Series DRVI Ethernet

Use and maintenance instructions



Mat. 93-7545-0017 Rev.—Doc. 3000516047 Ver.00

Made in Italy

CE The products are designed and manufactured in conformity with the following directives:
 - 2014/30/UE "Electromagnetic compatibility"
 They also comply partially or totally with regard to the applicable parts of the following standards:
 - EN 61000-6-2:2005 Electromagnetic compatibility (EMC)
 Part 6-2: Generic standards - Immunity for industrial environments
 - EN 61000-6-4:2007 Electromagnetic compatibility (EMC)
 Part 6-4: Generic standards - Emissions for industrial environments.
 - UL 61010-1: Safety requirements for electrical equipment for measurement, control and laboratory use.
 Part 1: General requirements.
 and the following technical standards:
 - EN ISO 4414:2010 Pneumatics - General rules and safety requirements for systems and their components.

For more information regarding the declarations of conformity, see the Certifications section on the website <http://catalogue.camozzi.com>

1 General recommendations

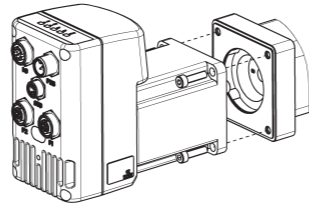
- Some hazards can only be associated with the product after it has been installed on the machine/equipment.
- It is the task of the final user to identify these hazards and reduced the associated risks accordingly.
- The products dealt with in this manual may be used in circuits that must comply with the standard EN ISO 13849-1.
- For information regarding component reliability, contact Camozzi Automation.
- Before proceeding with use of the product, carefully read all information in this document.
- The instructions in this instructions sheet must be observed together with the instructions and additional information regarding the product in this manual, available from the following reference links:
 - web site <http://www.camozzi.com>
 - Camozzi Automation general catalogue
 - Technical assistance service
- Assembly and start-up operations must be performed exclusively by qualified and authorized personnel on the basis of these instructions.
- For all situations not contemplated in this manual and in situations in which there is the risk of potential damage to objects, or injury to persons or animals, contact Camozzi Automation for advice.
- Never make unauthorized modifications to the product. In this case, any damage or injury to objects, persons or animals will be the responsibility of the user.
- All relevant product safety standards must be observed at all times.
- Never intervene on the machine/system before verifying that all working conditions are safe.
- Before installation and maintenance, ensure that the specific envisaged safety locks are active, and then disconnect the electrical mains
- Avoid covering the equipment with paint or other substances that may reduce heat dissipation.
- Avoid cleaning with aggressive agents such as to dull the plastics.

2 Installation and start-up

- During unpacking, take great care not to damage the product.
- Check whether there are any faults caused by product transport or storage.
- Separate all packaging material to enable the recovery or disposal in accordance with current standards in the country of use.
- The components must be fixed correctly using, where possible, the specific brackets and ensuring that the fixture remains efficient even when the regulator is repeatedly used at a high frequency and in the presence of strong vibrations.
- In the case of strong vibrations envisage suitable devices/systems able to dampen the effect on the component.

3 Assembly instruction

- **Fixing to a cylinder or other actuator through the four holes on the drive (Nema 23, Nema 24)**
 Use the most appropriate screws according to the application.
 See the example:



4 General Characteristics

Condition	Value
Protection class	IP65, except motor shaft
Operating ambient temperature	0 ... 50°C
Storage ambient temperature	-15 ... 70°C
Air humidity (non-condensing)	5 ... 95 %
Maximum altitude	1000 m

- **Power supply**
 The power supply section of the drive is divided in two parts:
 - **Logic (VL):** provides supply to the logic stage, fieldbus interface and input-outputs.
 - **Main (VDC):** provides supply to the power stage.
 In the table below are shown the power supply operating ranges.

Condition	Nominal value	Max value
VL	24 V	24 V ± 10%
VDC	48 V	60 V

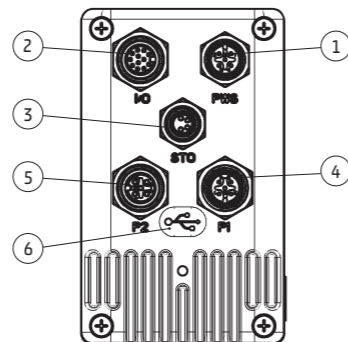
The current absorption of the logic stage is < 200mA.
▲ Attention:
 During deceleration ramps the motor acts as a generator, returning a voltage on the VDC bus. The entity of such regeneration depends on the deceleration value and on the moment of inertia of the load attached to the shaft.
 If the voltage generated reaches the maximum VDC voltage, the excess energy must be dissipated using an external braking system, otherwise the drive electronic could be damaged.
▲ Attention:
 Install fuses for power supply cable in accordance with the electrical requirements of the equipment (be careful about inrush currents). A recommended fuse value is T4A.
▲ Attention:
 It is also recommended to install a capacitor of 1000 uF, rated 100 V, after the output of the power supply.

5 Configuration files

The configuration files for all FieldBus (EDS, XML, GSDML) are available for download on site www.camozzi.com. In case of problem, contact Camozzi service.

Code	Fieldbus	Factory Value (ip adress; gateway; subnet mask; name)
DRVI-2 ^o .. ^o .. ^o .. ^o -0-E-EI- ^o	ETHERNET-IP	192.168.0.3; 0.0.0.0; 255.255.255.0; -
DRVI-2 ^o .. ^o .. ^o .. ^o -0-E-EC- ^o	ETHERCAT	-; -; -; -
DRVI-2 ^o .. ^o .. ^o .. ^o -0-E-PN- ^o	PROFINET	0.0.0.0; 0.0.0.0; 255.255.255.0; Not assigned

6 Electrical connection



Connection	Name	Function
1	PWS	Power supply
2	I/O	Inputs and outputs
3	STO	Safe Torque Off (when present) ▲ NOT CERTIFIED
4	PORT 1	Fieldbus Interface: PORT1 (Profinet) / IN (Ethercat) / IN (Ethernet IP)
5	PORT 2	Fieldbus Interface: PORT2 (Profinet) / OUT (Ethercat) / OUT (Ethernet IP)
6	-	USB (Micro-B)

- **1 - Power supply**
 The power supply connector is a 5-poles M12 (male) A-coded.
 In the table below is represented the pinout of the power supply connector.

Connector	Pin	Function	Description
	1,5	VDC	Main power supply
	2	GND	Main power ground
	3	VL	Logic power supply
	4	GND	Main power ground

- **Camozzi connector receptacle:**
 - CS-LF04HC, straight connector M12 5-poles male.
 - CS-LF05HB-D200, cable with straight M12 5-poles male connector, length 1m.
 - CS-LF05HB-D500, cable with straight M12 5-poles male connector, length 5m.

▲ Attention: The pins with GND indication are internally connected.

- **2 - GPIO**
 The GPIO connector is a 12-poles M12 (female) A-coded.
 In the table below is described the functionality of each pin and is represented the pinout of the GPIO connector.

Connector	Pin	Function	Description
	1,2	IN1	Digital input 1 (compliant to IEC61131-2)
	3,4	IN2	Digital input 2 (compliant to IEC61131-2)
	5,6	OUT	Solid state relay output (PTC resettable fuse, 0.5A hold current)
	7,8	PROXY EXTERNAL	24V digital input for external proximity
	9,10	PROXY HOMING	24V digital input for homing proximity
	11	GND	Digital ground
	12	+24V	Auxiliary +24V, max 130 mA

- **Camozzi connector receptacle:**
 - CS-LM12HC, circular connector field attachable M12 12-poles (male) A-coded.
 - CS-L012HC-D020, straight connector M12 12-poles (male) and two M8 female (proximity), length 20 cm.
 - CS-LM12HC-D500, straight connector M12 12-poles (male), length 5m.

- **3 - STO (▲ NOT CERTIFIED)**
▲ THE STO FUNCTION IS NOT CERTIFIED
 The STO connector (when present) is 4-poles M8 (female) A-coded. In the table below is shown the connector pinout and is displayed the STO connector. To allow motor movement, IN1 and IN2 must be connected to +24V, while COM1 and COM2 to GND. If IN1 or IN2 voltages are missing, the STO intervenes.

Connector	Pin	Function	Description
	1	IN1	STO1 signals
	2	COM1	Common signal of STO1
	3	IN2	STO2 signals
	4	COM2	Common signal of STO2

- **Camozzi connector receptacle:**
 - CS-DM04HB, circular connector field attachable M8 4-poles (male) A-coded.
 - CS-LM04HB-D500, straight connector M8 4-poles (male), length 5m.

- **4, 5 - Profibus fieldbus interface**
 The Profinet connectors are 4-poles M12 (female) D-coded.
 In the table below is shown the connector pinout.

Connector	Pin	Function	Description
	1	TXP	Transmission data (+)
	2	RXP	Reception data (+)
	3	TXN	Transmission data (-)
	4	RXN	Reception (-)

- **Camozzi connector receptacle:**
 - CS-SB04HB-D100, co-moulded cable with straight M12D 4-poles male connector, length 1m.
 - CS-SB04HB-D500, co-moulded cable with straight M12D 4-poles male connector, length 5m.
 - CS-SB04HB-DA00, co-moulded cable with straight M12D 4-poles male connector, length 10m.
 - CS-SB04HB-DD00, co-moulded cable with straight M12D 4-poles male connector, length 15m.
 - CS-SB04HB-DG00, co-moulded cable with straight M12D 4-poles male connector, length 20m.
 - CS-SB04HB-DJ00, co-moulded cable with straight M12D 4-poles male connector, length 25m.
 - CS-SB04HB-DM00, co-moulded cable with straight M12D 4-poles male connector, length 30m.
 - CS-SB04HB-DS00, co-moulded cable with straight M12D 4-poles male connector, length 40m.
 - CS-SB04HB-DY00, co-moulded cable with straight M12D 4-poles male connector, length 50m.
 - CS-SI04HB-F050, moulded cable with straight RJ45 male - M12D 4 pin female connector (adaptor and panel mount) to connect to the controller.

- **6 - USB interface**
 The USB port allows the drive configuration by means of the UVIX interface.
 The USB connector is a Micro USB type B.

- **Camozzi connector receptacle:**
 - G11W-G12W-2, standard cable with micro-USB connector length 2m.

7 LED indicators

The integrated unit provides the LED indicators.
 Their functionality is shown in the functionality tables, and their detailed description is shown in the LED indicators description table.

• **LED indicators functionality**

Indicator	Name	Color	Function
	L/A1	Red	Link/activity LED for Ethernet 1 channel
	L/A0	Red	Link/activity LED for Ethernet 0 channel
	X = BF Y = SF	Red Red	Bus failure (Profinet) System failure (Profinet)
	X = NS Y = MS	Green/red Green/red	Network status (Ethernet IP) Module status (Ethernet IP)
	X = ERR Y = RUN	Red Green	Error (Ethercat) Run (Ethercat)
	SYS	Red/green	System LED

• **LED indicators description**

LED	State	Color	Function	Description
SYS		Green	1 BLINK	Servo OFF
		Green	2 BLINK	Servo ON
		Red	1 BLINK	VL / VDC UVLO or OVLO
		Red	2 BLINK	Over temperature or I2T
		Red	3 BLINK	STO
		Red	4 BLINK	Homing error / internal error

8 Limitations of use

- Never exceed the technical specifications stated in the paragraph "General characteristics" and the Camozzi general catalogue.
- With the exception of specific intended applications, do not use the product in environments where there is the risk of direct contact with corrosive gas, chemical products, salt water, water or steam.
- If possible, do not install the device:
 - in closed and small spaces
 - exposed to direct sunlight (if necessary, provide a shield)
 - near heat sources or in areas subject to sudden changes in temperature
 - near power on parts with no proper insulation
 - near conductors or electrical devices with high alternate or impulsive currents (danger of parasitic currents);
 - near sources of high intensity electromagnetic waves (antennas) (danger of parasitic currents and / or arcing of electric arcs).

9 Environmental notes

- At the end of the product's life cycle, separate the relative materials to enable recycling.
- Observe all current standards in the country of use governing waste disposal.