

DIGITAL SERVOAMPLIFIER

TGA-24-9/20

Instruction manual

Edition 03/2004



TGdrives
servotechnika

Safety instructions

- Read this documentation before carrying out installation. Incorrect handling of the servoamplifier can lead to personal injury or material damage.
- The servoamplifier contains electrostatically sensitive components which may be damaged by incorrect handling. Ground yourself before touching the servoamplifier.
- Do not open the units. Keep all cover and switchgear cabinet doors closed during operation.
- Servoamplifiers may have hot cooling surfaces during operation.
- Never undo the electrical connections to the servoamplifier while it is live. There is danger of electric arcing with damage to contacts.

European directives and standards

Servoamplifiers are components, which are intended to be incorporated into electrical plants and machines for industrial use.

When the servoamplifiers are built into machines or plants, the intended operation of the amplifier is forbidden until it has been established that the machine or plant fulfills the requirements of the EC Directive on Machines 98/37/EC and the EC Directive on EMC (89/336/EEC).

The manufacturer of the machine or plant is responsible for ensuring that they meet the limits which are required by the EMC regulations.

CE – conformance

Conformance with the EC Directive on EMC 89/336/EEC is mandatory for the supply of servoamplifiers within the European Community.

The servoamplifiers TGA-24 have been tested by an authorized testing laboratory in a defined configuration with the system components which are described in this documentation. Any divergence from the configuration and installation described in this documentation means that you will be responsible for the performance of new measurements to ensure that the regulatory requirements are met.

Prescribed use of the servoamplifier

The servoamplifiers are components which are built into electrical equipment or machines, and can only be used as integral components of such equipment.

The servoamplifiers TGA-24 is **only** intended to drive with specific brushless synchronous servomotors, with closed-loop control of torque, speed and/or position.

The servoamplifiers **may only** be operated in a closed switchgear cabinet, taking into account the ambient conditions in technical specification. Use only copper wire. Wire size may be determined from EN60204.

We only guarantee the conformance of the servoamplifiers with the standards for industrial areas, if the components (motors, cables, amplifiers etc) are delivered by TG Drives s.r.o.

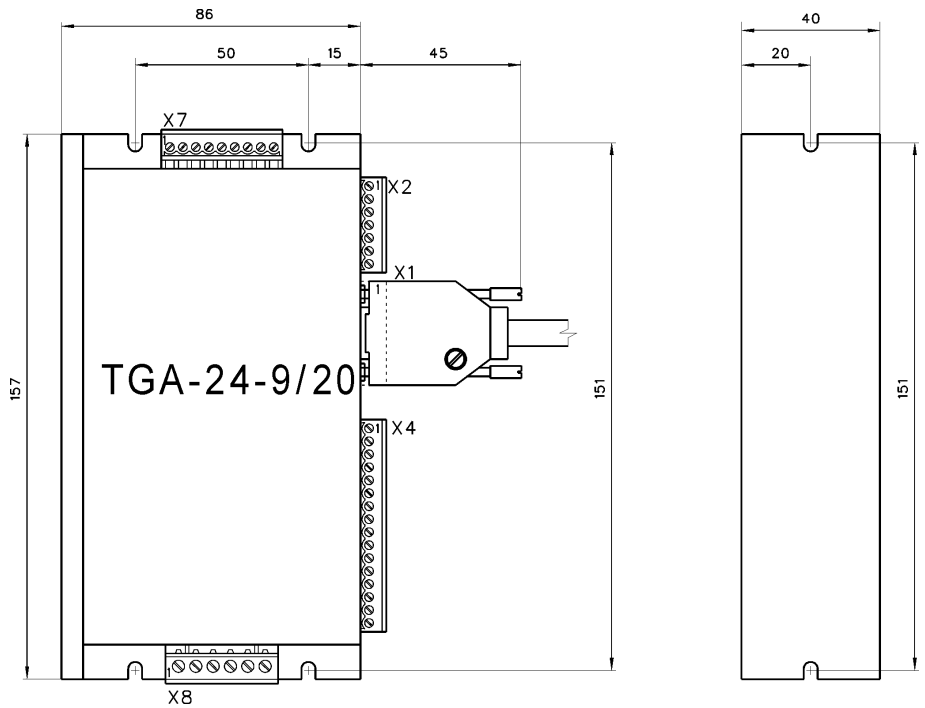
Technical data

Parameters	Unit	Data
Rated supply voltage	V =	24 (12 – 40)
Rated installed load for S1 operation	W	230
Rated output current	A _{rms}	9
Peak output current (max. ca 5 s)	A _{rms}	18,5
Overvoltage protection treshold (transil)	V	47
Dissipation at rated load	W	20
Fusing		
Supply 24 VDC – internal – external	–	T 10 A
	–	C 8 A
Inputs / outputs		
Analog input, resolution 12 bit Input resistance	V	0 – 5 / 0 – 10
	kΩ	6.6
Digital inputs with adjustable function 24 VDC	qty	10
	V	low 0 .. 5/high 7 .. 30
	mA	6
Digital outputs with adjustable function, 24 VDC, PNP	qty	4
	V	max. 36
	mA	25
Counter inputs for IRC or stepper-motor signals	–	5V (RS422)
Connectors		
Control signals	–	Interhart 3.81,
Power	–	Interhart 5.08,
Resolver input	–	Interhart 3.81,
Communication	–	SubD 9-pole plug
Mechanical		
Weight	kg	0.6
RoDimensions without connectors	mm	157 × 86 × 40
Environment		
Operating temperature	°C	0 - 40
Relative humidity	%	max. 85

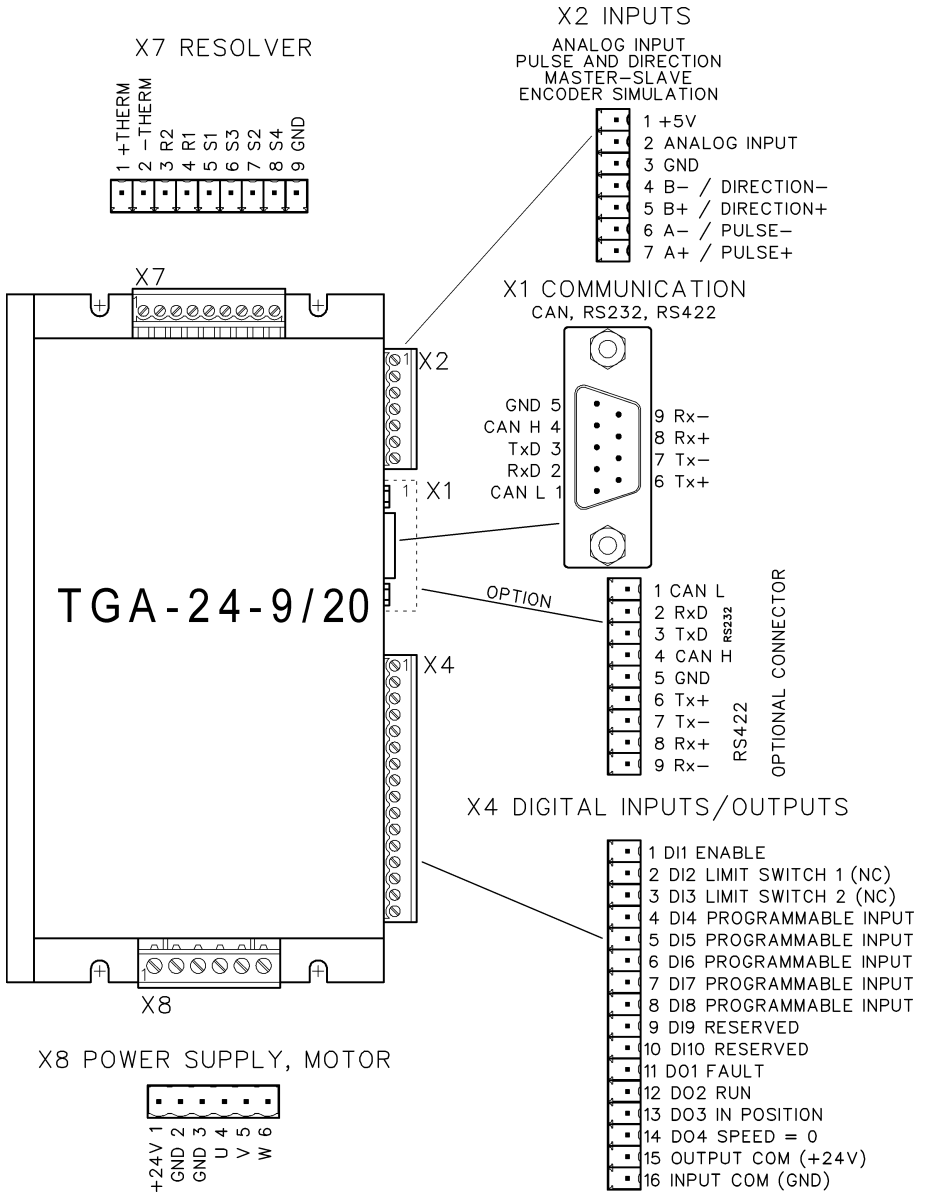
Instalation

Dimensions

Material: 2 or 4 screws M4

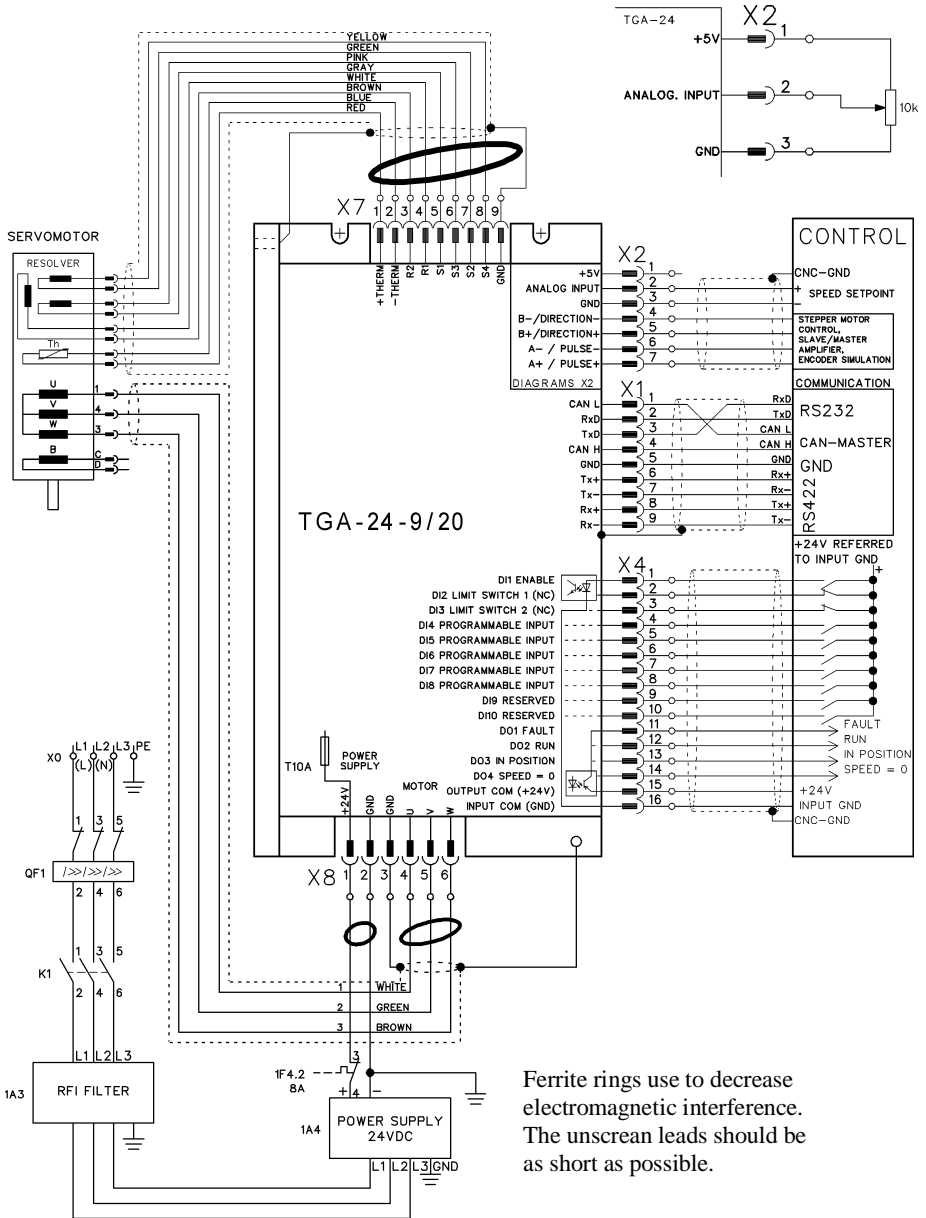


Interfaces description



Recommended connection diagram

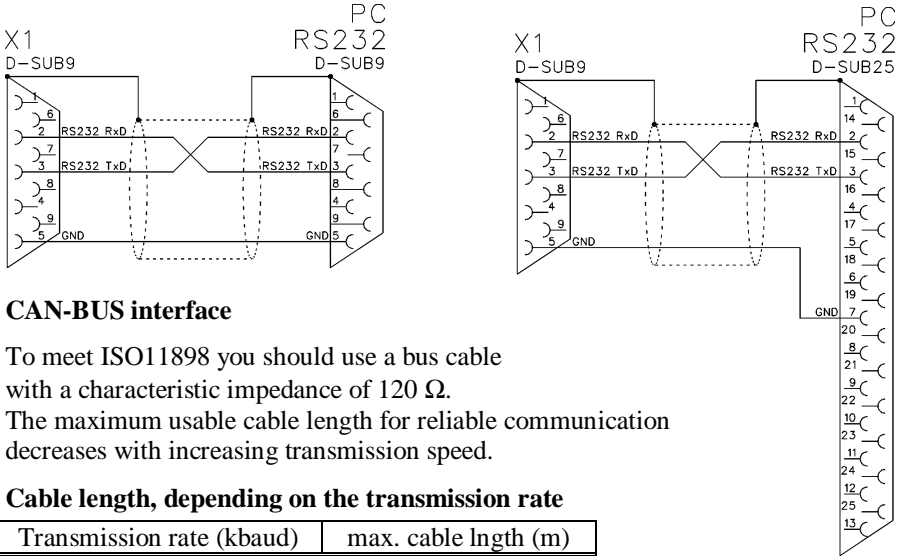
Speed control by means of potentiometer



RS232 interface, PC connection (X1)

The setting of the regulator parameters, inputs/outputs setting, position control and position profiles can be carried out with an ordinary commercial PC.

Connect the PC interface (X1) of servoamplifier while the supply to the equipment is switched off via a normal commercial 3-core null-modem cable to a serial interface on the PC (see the diagrams below).



CAN-BUS interface

To meet ISO11898 you should use a bus cable with a characteristic impedance of 120 Ω.

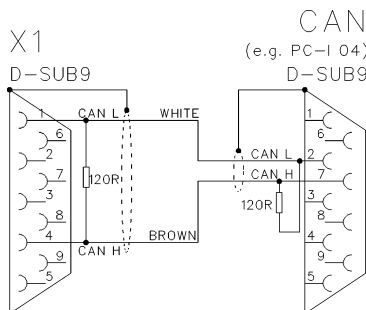
The maximum usable cable length for reliable communication decreases with increasing transmission speed.

Cable length, depending on the transmission rate

Transmission rate (kbaud)	max. cable length (m)
1 000	20
500	70
250	115

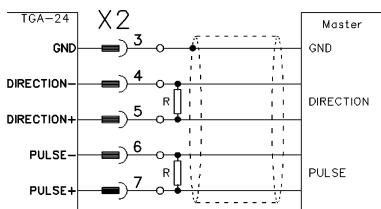
For EMC reasons, the SubD connector housing must fulfill the following conditions:

- metal or metalized housing
- provision for cable shielding connection in housing, large-area connection



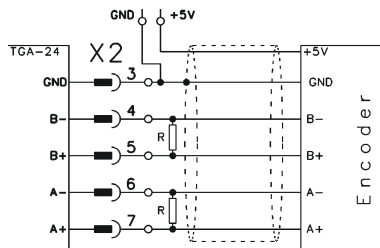
Connection to stepper-motor controller (X2)

This interface can be used to connect the servoamplifier to a stepper-motor controller with 5V signal level. The value of R according to line impedance: $150\Omega - 1k\Omega$.



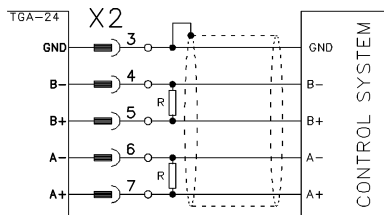
Interface for encoder input (X2)

This interface can be used to operate the servoamplifier as a slave, mastered by an encoder with RS422 signals level in gearing mode or by another servoamplifier (electronic gearing).



Interface for encoder simulation (X2)

This interface can be used to output incremental position value (RS422 signals level) in all of the operation modes as feedback for the control system or as setpoint position in Master-Slave operation.



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