



Original Operating Instructions

JM-1008 Servo Amplifier

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1 General information

1.1 Documentation

This installation manual contains information on how to mount, install, commission, use the device in accordance with its intended purpose, service, and de-commission the device in a drive system.

For further information refer to the following information products:

- Description of safety function STO
- JetSym Online Help

These documents must be available to all persons involved in handling or operating this system or its components. These persons must observe the relevant safety information.

1.2 Acronyms used in this document

BLDC	Brushless DC motor
EMC	Electromagnetic compatibility
PE	Protective Earth
PELV	Protective Extra Low Voltage
SELV	Safety Extra Low Voltage
SM	Stepper motor
U _{ZK}	DC link voltage

1.3 Scope of delivery and accessories

The following items are included in the scope of delivery:

- Servo amplifier, mating connector for power and motor connector (X1), and I/O interface (X10) included

Not included in the scope of delivery:

- D-Sub, and RJ45 mating connectors, as well as SD card, power lead, and ballast resistor.

Hint

Further accessories can be purchased from Jetter AG.

2 Safety

At the time of placing on the market, this product corresponds to the current state of the art and meets the recognized safety rules.




Besides the user manual, the rules and regulations in the operator's country are relevant to the operation of the product. These rules are defined by laws, regulations, accident prevention regulations, and safety rules.

The operating voltage of this device is classified as SELV (Safety Extra Low Voltage) and is therefore not subject to the EU Low Voltage Directive.

The operator is responsible for complying with the duties mentioned below:

- Applicable legislation, rules, and regulations
- Relevant accident prevention regulations
- Accepted safety rules
- EU directives and other country-specific regulations

2.1 Warnings used in this document

 DANGER	High risk Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
 WARNING	Medium risk Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
 CAUTION	Low risk Indicates a hazardous situation, which if not avoided, could result in minor or moderate injury.
NOTICE	Material damage Indicates a situation, which if not avoided, could result in malfunctions or material damage.

2.2 General Safety instructions

Development of heat	This device heats up in operation. To avoid burns or damages due to heat, install the device in a location that offers adequate protection. Safeguard the device against contact and make sure that there is sufficient airflow to cool the device.
Shipment and packaging	<p>The device contains electrostatically sensitive components which can be damaged if not handled properly. Damages to the device may impair its reliability.</p> <p>To protect the device from impact or shock, it must be shipped in its original packaging or in an appropriate protective packaging.</p> <p>In case of damaged packaging inspect the device for any visible damage, and inform your freight forwarder and Jetter AG of the damage caused during shipment.</p> <p>If the device is damaged or has been dropped, it is strictly forbidden to use it.</p>
Storage	When storing the device observe the environmental conditions given in chapter "Technical specifications".

Modifications and alterations to the device	<p>Modifications and alterations to the device and its functions are not allowed. In the case of modifications to the device, any liability is excluded.</p> <p>The original parts are specifically designed for the device. Parts and equipment from other manufacturers must, therefore, not be used.</p> <p>Any liability for any damages resulting from the use of non-original parts and equipment is excluded.</p>
Target groups	<p>Only competent and skilled personnel is allowed to commission and operate this device. This document is intended for competent and skilled users.</p> <p>During the whole product life cycle, safe handling and operation of the device must be ensured. In the case of missing or inadequate technical knowledge or knowledge of this document any liability is excluded.</p>
Maintenance	<p>This device is maintenance-free.</p> <p>Therefore, for the operation of the device no inspection or maintenance are required.</p>
Repairs	<p>Defective components could cause dangerous malfunctions and could compromise safety.</p> <p>Only the manufacturer is allowed to repair the device.</p> <p>Do not open the device!</p>
Disposal of obsolete equipment	<p>The device must be disposed of in accordance with the Environmental Product Declaration EPD. Applicable local environmental directives and regulations must be complied with. This product must be disposed of as waste electronic equipment. Waste packaging material must be recycled or reused.</p>

2.3 Protection against hazards

DANGER

Hazardous axis movements

Axis movements and fast accelerations cause high mechanical forces.

- Keep out of the danger zone of the machine.
- Do not disable any safety equipment.
- Have malfunctions eliminated by qualified personnel.

DANGER

Electric shock

High voltage caused by wrong connection.

- Mind the relevant safety regulations.

WARNING

Electromagnetic fields

Health hazard for persons with heart pacemakers, metal implants and hearing aids caused by electromagnetic signals.

3 Purpose

3.1 Intended conditions of use

This servo amplifier is intended for installation in electrical systems or machines. It may only be commissioned as an integrated component of such a system or machine.

Connect only electric motors and encoders to this device. Operate the device only in accordance with the intended conditions of use, and within the limits set forth in the technical specifications. Operate the servo amplifier only in a closed control cabinet. The specified installation conditions must be complied with.

This servo amplifier is a product which can be used in drive systems of category C2 (industrial environment) according to EN 61800-3. To this end, the design of the system must be EMC-compliant.

Usage as agreed upon includes operation in accordance with this manual.

3.2 Usage other than intended

Do not operate the device under conditions exceeding the technical specifications given in this manual and application examples. Noncompliance with the safety information is regarded as “usage other than intended”.

The device must not be operated under operating conditions that differ from the specified ambient conditions.

If the device is used in any way other than intended, Jetter AG shall assume no liability.

4 Product description

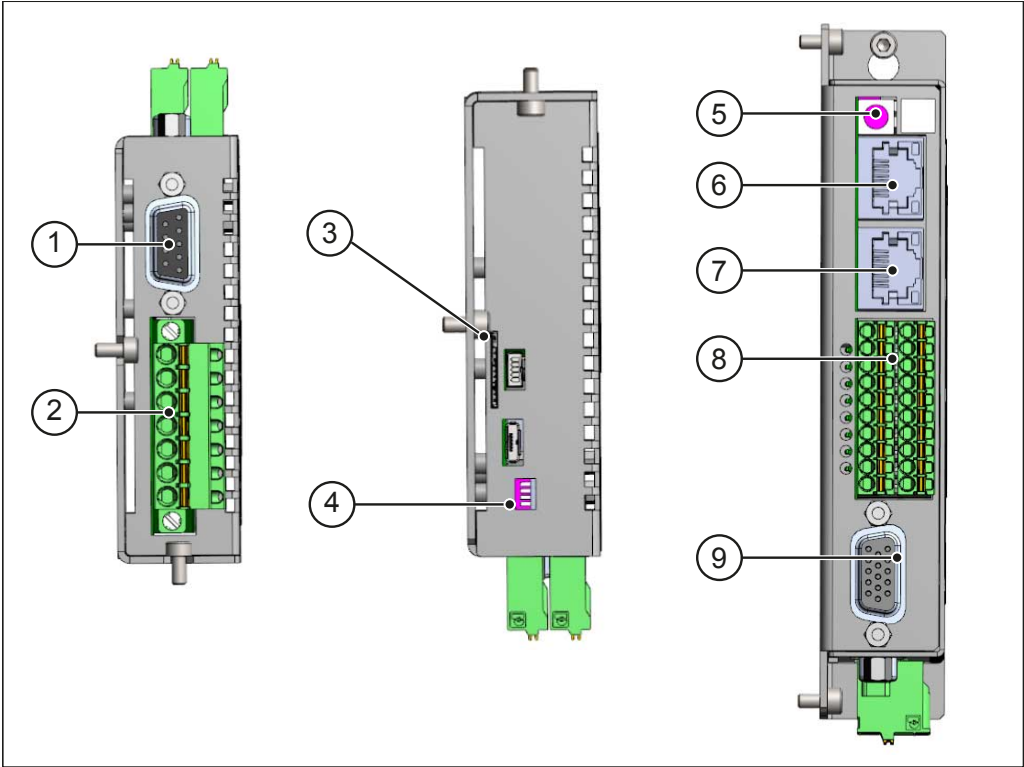


Fig. 1: Connections

1	Encoder connector X61	2	Power and motor connector X1
3	SD card X22	4	DIP switch S2
5	Address selector S1, optional	6	Fieldbus interface IN X18
7	Fieldbus interface OUT X19	8	I/O interface X10
9	Encoder connector X62	10	

4.1 Nameplate

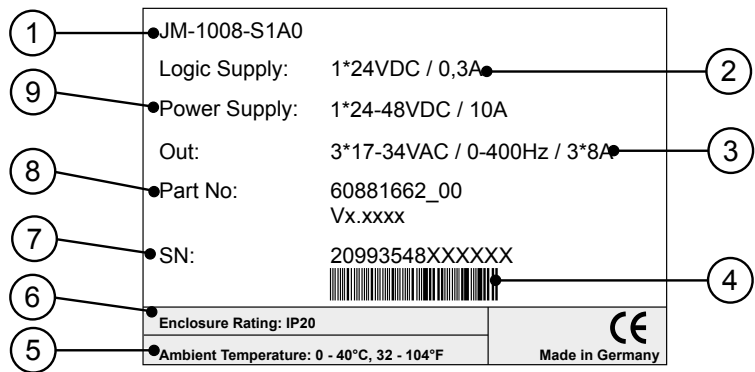


Fig. 2: Nameplate of the servo amplifier

1	Nameplate	2	Control voltage
3	Output values	4	Bar code
5	Ambient temperature	6	Enclosure IP class
7	Serial number	8	Part number
9	Power connection		

Serial number

The serial number consists of the following elements:

YY	Year of manufacture
WW	Week of manufacture
127590	Production-specific code
XXXX	4 digit consecutive device number, devices produced in this week/year

4.2 Type key

The type key consists of the following elements:

	JM	-	1	0	08	-	S1	I4	TD	A0
Product class JM = JetMove										
Module/product group 1xxx = Series 1000										
Supply voltage 0 = 0-48 VDC										
Performance class 01 - 99 = Rated current [Ampere]										
options S = Safety equipment/Safety (option) = no option (= not possible) S1 = STO (Save Torque Off)										
I = Communication interface (optional) = no option = EtherCAT® (=Jetter JX4-Bus) = Standard I4 = CANopen®										
T = Technology (option) = no option TD = HIPERFACE DSL® TE = EnDat 2.2 (digital) TL = LinMot T6 = analoger Ausgang +/-10 Volt										
A = Hardware revision/components Ax= no definite revision = always latest revision A0 = Hardware revision 0 A1 = Hardware revision 1 A2 = Hardware revision 2										

4.3 System overview

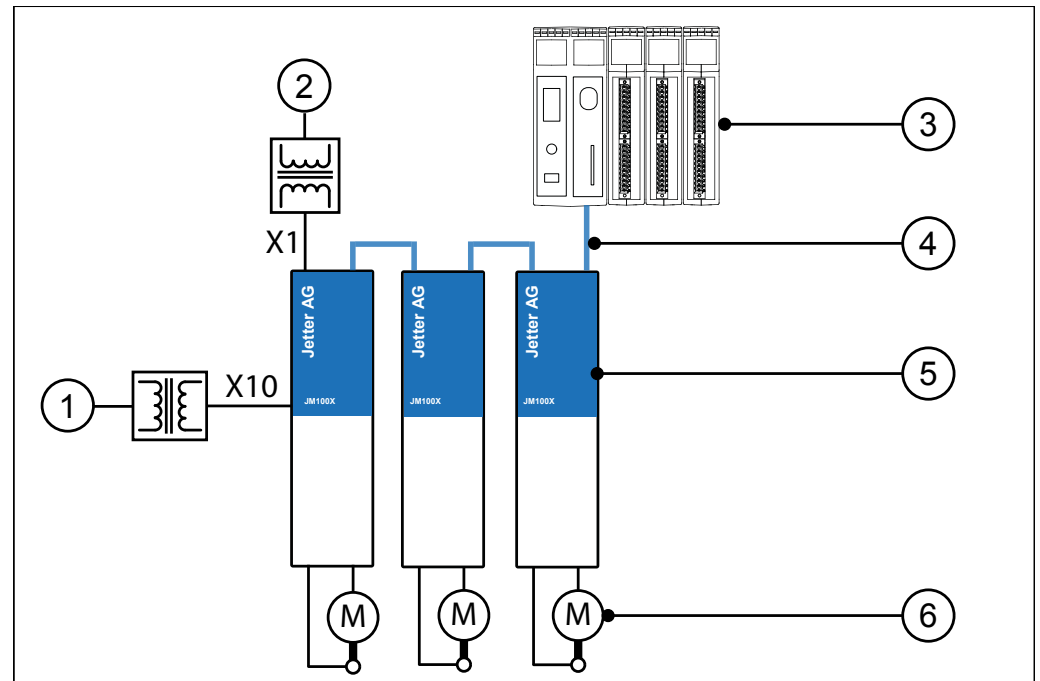


Fig. 3: Drive system - Overview

1	PELV/SELV 24 V DC	2	PELV/SELV 12 V ... 48 V DC
3	Controllers	4	Bus interfaces
5	Servo amplifiers	6	Motor with encoder

5 Technical specifications

5.1 Dimensions

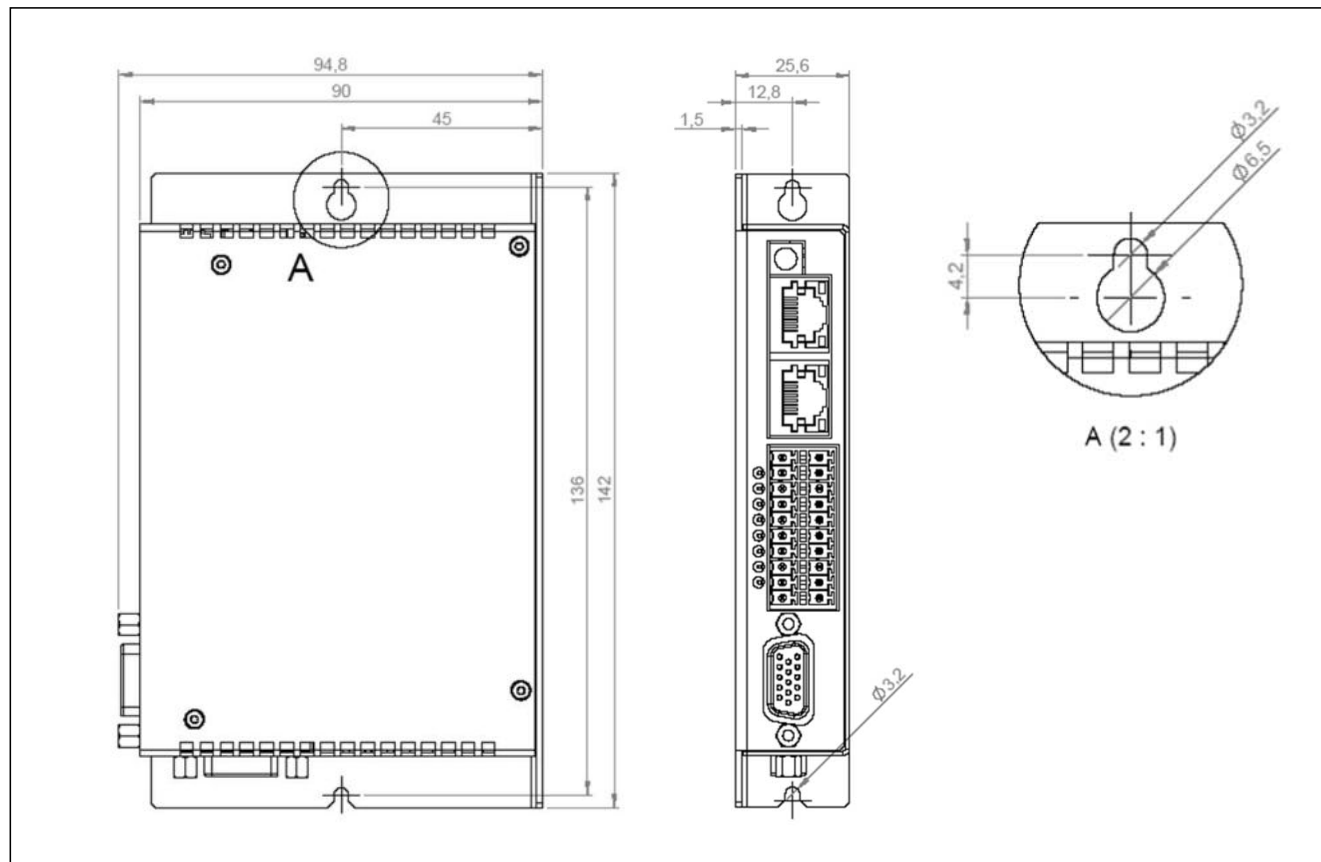


Fig. 4: Dimensions

5.2 Enclosure properties and operating conditions

Enclosure	
Material	Galvanized steel plate
Degree of protection	IP20
Allowed pollution	Pollution degree 2 to EN 61800-5-1 (To avoid conductive pollution, the device must be installed in a control cabinet to IP54)
Mechanical installation	Screwed to a conductive and grounded mounting panel
Total weight	0.41 kg
Operating conditions	
Mounting orientation	Vertical Power and motor connector X1 must point downwards
Clearance	≥ 25 mm above, below, and sideways
Cooling	Natural convection
Max. installation altitude	1000 m above sea level Installation altitude > 1000 m on request

Operating conditions

Ambient temperature in operation	0 °C ... +40 °C
Relative humidity	5 % ... 85 %, non-condensing

5.3 Environmental conditions - Storage and shipment**Transport conditions**

Ambient temperature	- 25 °C ... +70 °C
Air humidity	5 % ... 95 %, non-condensing
Mechanical conditions	2M2 EN 60721-3-2:1997

Storage conditions

Ambient temperature	- 25 °C ... +55 °C
Air humidity	5 % ... 95 %, non-condensing
Maximum storage period	1 year without restrictions

5.4 Electrical data**Control voltage**

Port	X10:1, X10:2
Input voltage	24 V DC (-15 % ... +20 %) SELV or PELV
Input current	300 mA at 24 V

Motor power supply

Connector	X1:6, X1:7
Input voltage	24 ... 48 V DC
System-independent protective measures	SELV or PELV
Regeneration	Up to 60 V DC
Max. input current	10 A
DC link capacitance	470 µF

Motor connection

Connector	X1:1 to X1:4
Output voltage	4 x 0 ... 34 V AC
Output frequency	0 ... 400 Hz
Output current	8 A
Peak current	16 A for 8 s max.
Ballast resistor	> 3 Ω

5.5 I/O interface X10**Motor holding brake**

Connector	X10:3, X10:4
Max. output current	500 mA

SI inputs and digital 24 V inputs

Input voltage	Min.	Typ.	Max.
ON	+15 V	+24 V	+30 V
OFF	-3 V	0 V	+5 V
Input current			5 mA
Cable length	30m max.		

Analog inputs

Connector	X10:16, X10:20
Voltage range	-10 V... 10 V
Design	Differential inputs
Resolution	12 bits
Sampling interval	1 ms

STO checkback contact

Connector	X10:9, X10:10
Design	PhotoMos relay (NO contact)
Rated current	< 100 mA (not short-circuit-proof)

5.6 Position encoder connector**Properties**

D-Sub connector (male)	Metal or ABS, metalized, IP20; with locking screw M3
Cable type	Twisted in pairs
Core cross-section	According to the instructions given by the encoder manufacturer
Shielding connection	Shield connected to enclosure of drive module via metalized D-Sub connector.
Max. cable length	The manufacturer's instructions must be followed (up to 100 m possible)

Resolver X61

Suitable resolvers	Two-phase resolvers
Transmission ratio	0.5
Reference frequency	8 kHz
Resolution	12 bits
Max. speed	6000 min ⁻¹

HIPERFACE DSL® X61

Suitable encoders	No restrictions
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Sine/cosine encoder X62

Suitable encoders	With or without reference signal
Voltage supply	5 V
Voltage level	1 V _{ss}
Max. frequency:	100 kHz

Incremental encoder X62

Suitable encoders	5 V differential signals (RS-422) with or without reference signal
Max. frequency:	500 kHz

Digital Hall sensors X62

Suitable encoders	No restrictions
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EnDat 2.2

Suitable encoders	No restrictions
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Motor temperature monitoring

Digital sensors	Thermal circuit-breaker, PTC
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Motor temperature monitoring

Analog Sensors	KTY83-110, KTY84, PT1000
Max. cable length	For some types ≤ 1m
	The manufacturer's instructions must be followed

5.7 Fieldbus interfaces

The servo amplifier features either a CAN port, or an EtherCAT port. Detailed information can be seen from the type key.

CAN port X18/X19:

Port type	RJ45 female connector with LED
Network topology	Line terminated at both ends
Connections	Galvanically isolated
Connecting cable	CAT5 Ethernet cable
Max. cable length	30 m (depending on the bit rate)
Bit rate	1 MBit/s
Communications profile	CANopen DS301 with application profile DSP402

EtherCAT port X18/X19:

Port type	RJ45 female connector with LED
Network topology	No restrictions (e.g. line, ring)
Connecting cable	CAT5e STP or FTP Ethernet cable
Max. cable length	100 m between two nodes

6 Mechanical installation

This servo amplifier has been designed for being installed in a control cabinet. Die Schutzart ist IP20. The specified ambient conditions during operation must be complied with.

The servo amplifier must be fastened to a metal mounting panel in vertical direction with the power and motor connector X1 pointing downwards. Its rear panel must have full contact with the mounting panel.

- Prior to installing the servo amplifier, check it for transport damages.
 - The mounting plate in the control cabinet must not be coated.
 - Make sure that the clearance around the device meets the specification.
- 1 Drill the mounting holes.
 - 2 Screw the fastening bolts into the mounting panel by half of their length.
 - 3 By means of the keyholes in the rear panel, hang up servo amplifier by the fastening screws.
 - 4 Screw the lower screw down tightly.
 - 5 Screw the upper screw down tightly.

7 Electrical installation

7.1 General remarks

The user is responsible for ensuring that the installation of servo amplifier JM-100x, motor, and other devices complies with the safety instructions (e. g. DIN, VDE), as well as with all other relevant federal or local regulations as to dimensioning of conductors, protection, grounding, breakers, overcurrent protection, etc.

Only qualified personnel who have completed an electrotechnical education, and who are familiar with the documentation and the warnings and precautions given therein.

Damaged products must not be installed.

The allowed input voltage range of the servo amplifier must not be exceeded.

The rated voltage of the connected motors must be higher than, or at least equal to, the supply voltage (X1).

7.1.1 Electromagnetic compatibility

To avoid electromagnetic interferences, great attention must be paid to the installation and wiring of digital servo amplifiers. This is particularly true for ground potential connections and shieldings.

EMC can be split into two categories:

- Immunity to interference (interferences from external sources)
- Emitted interference (interferences emitted from the devices)

Root cause for emitting interferences

The output stage of the servo amplifier features a high-speed semiconductor switch triggered by pulse-width modulation. This is necessary to be able to generate a variable current and a variable frequency for motor control. The high clock rate and the steep voltage rise caused by the switching output stage result in unavoidable emitted interferences.

Emitted interferences strongly depend on the following factors:

- Installation location
- Wiring and installation
- Additional components (line filter, line reactor, ...)
- Combination of servo amplifiers for a machine or system

7.1.1.1 EMC requirements

Standards relevant to this device

This servo amplifier is a product which can be used in drive systems of category C2 (industrial environment) according to EN 61800-3.

EU standards and legislation

At EU level (in all member states of the European Union), standards are implemented into national laws. EMC regulations are governed by EU Directive 2014/30/EC.

7.2 Block diagram

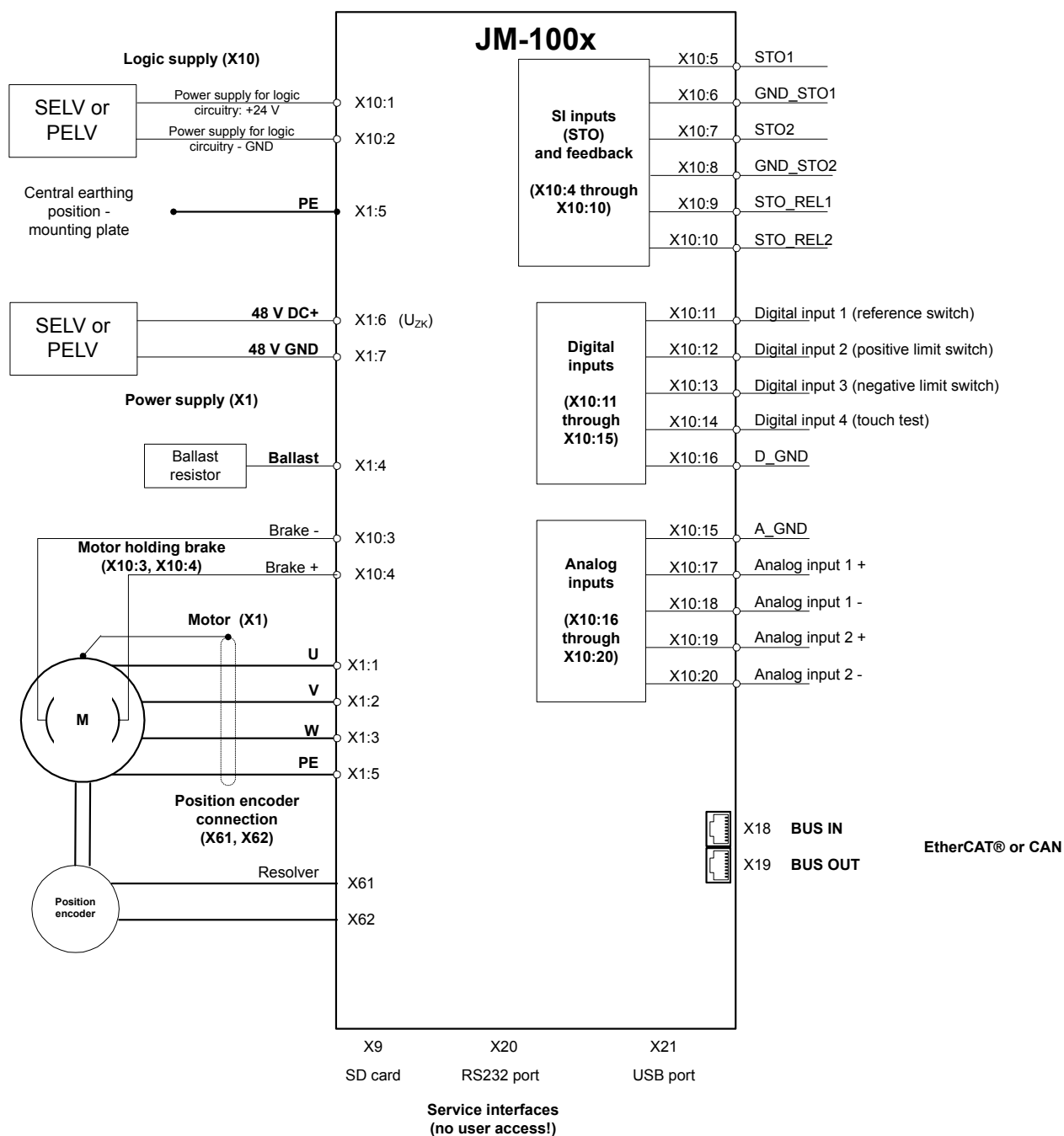


Fig. 5: Block diagram_JM-100X

7.3 Pin assignment of connections

7.3.1 Power and motor connector X1

PIN	Signal	Function
X1:1	U	Motor connection
X1:2	V	Motor connection
X1:3	W	Motor connection
X1:4	Ballast	Motor connection or ballast resistor to be connected between this terminal and 48 V GND
X1:5	PE	Protective earth cable connection
X1:6	48 V DC	Motor power supply independent of motor type
X1:7	48 V GND	

PIN	Signal	Motor type		
		Servo motor	DC motor with brushes	LinMot
		BLDC		Low-rating linear motors
		3-phase stepper motor		2-phase stepper motor
X1:1	U	U	U+	U+
X1:2	V	V	U-	U-
X1:3	W	W	n. c.	V+
X1:4	Ballast	Ballast	Ballast	V-
X1:5	PE	Protective earth cable connection		
X1:6	48 V DC	Motor power supply independent of motor type		
X1:7	48 V GND			

7.3.2 I/O interface X10

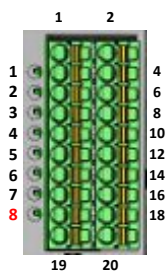


Fig. 6: I/O connector X10

The I/O interface includes the following pins: Power supply for logic circuitry, motor holding brake, 2 SI inputs, 1 checkback contact, 4 digital 24 V inputs (not SI), and 2 analog inputs.

For more information on how to connect individual inputs or outputs refer to the connection diagram.

PIN	Signal	Pin	Signal
X10:1	Power supply for logic circuitry +24 V	X10:2	Power supply for logic circuitry GND
X10:3	Motor holding brake -	X10:4	Motor holding brake +
X10:5	STO1	X10:6	GND_STO1
X10:7	STO2	X10:8	GND_STO2
X10:9	STO_REL1	X10:10	STO_REL2
X10:11	Digital input 1 (pos. limit switch)	X10:12	Digital input 2 (neg. limit switch)
X10:13	Digital input 3 (reference switch)	X10:14	Digital input 4 (touch probe)
X10:15	A_GND	X10:16	D_GND
X10:17	Analog input 1+	X10:18	Analog input 2+
X10:19	Analog input 1-	X10:20	Analog input 2-

7.3.3 Encoder X61/X62

Der Servoverstärker unterstützt den Anschluss eines Motorlagegebers an X61 oder X62. A second encoder which is directly fitted to the mechanical system can be used to detect its position.

The following combinations are supported:

Motor encoder	Second encoder
Resolver	No encoder
	Sine/cosine incremental encoder
	Incremental encoder RS-422
	EnDat 2.2 (digital)
HIPERFACE DSL®	No encoder
	Sine/cosine incremental encoder
	Incremental encoder R-422
EnDat 2.2 (digital)	No encoder
	Sine/cosine incremental encoder
	Incremental encoder RS-422
Sine/cosine incremental encoder	No encoder
Incremental encoder R-422	No encoder
LinMot (is in preparation)	No encoder

X61

Supports the following devices:

- Resolver (optional, not with option TD)
- Motor temperature monitoring
- HIPERFACE DSL® (optional, only with option TD)



Fig. 7: Pinout of the X61

Resolver

PIN	Signal	Pin	Signal
X61:1	Ref+ R1 (exciter winding+)	X61:2	Sine+
X61:3	Cosine-	X61:4	TH+ motor temperature monitoring
X61:5	n. c.	X61:6	Ref- R1 (exciter winding)
X61:7	Sine-	X61:8	Cosine+
X61:9	TH- motor temperature monitoring		

DSL HIPERFACE®

PIN	Signal	Pin	Signal
X61:1	n. c.	X61:2	n. c.
X61:3	DSL+	X61:4	TH+ motor temperature monitoring
X61:5	n. c.	X61:6	n. c.
X61:7	n. c.	X61:8	DSL -
X61:9	TH- motor temperature monitoring		

X62

Devices to connect with X62 are: SinCos encoder, incremental encoder (RS-422), or digital Hall sensors, as well as the motor temperature sensor.

PIN	Sin/Cos	RS-422	Hall	EnDat	Remarks
X62:1	+5 V				Sensor supply voltage
X62:2	GND				
X62:3	n. c.		n. c.	n. c.	
X62:4	n. c.		n. c.	Data +	
X62:5	SIN+	A+		n. c.	
X62:6	SIN-	A-		n. c.	
X62:7	COS+	B+		n. c.	
X62:8	COS-	B-		n. c.	
X62:9	R+	R+	Referencing	n. c.	
X62:10	R-	R-	Referencing	n. c.	
X62:11	n. c.			Data -	
X62:12	n. c.			Clock +	
X62:13	n. c.			Clock -	
X62:14	TH+				Motor temperature monitoring
X62:15	TH-				Motor temperature monitoring

7.3.4 Fieldbus interfaces X18 / X19

The servo amplifier features either a CAN port, or an EtherCAT port. Detailed information can be seen from the type key.

7.3.4.1 Fieldbus interface

As fieldbus interfaces, two RJ45 ports are available.

Connector X18, BUS IN, is the CAN input.

Connector X19, BUS OUT, lets you connect further fieldbus nodes.

The status LED is for diagnostics.

Setting the drive address via address selector S1

Address selector S1 is used to configure the drive address. The address range is from 1 to 15. Drive address "0" must not be set.

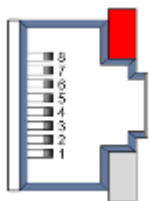


Fig. 8: X18
BUS IN



Fig. 9: X19
BUS OUT

PIN	Signal	Pin	Signal
X18/19:1	CAN_H	X18/19:2	CAN_L
X18/19:3	CAN_GND	X18/19:4	n. c.
X18/19:5	n. c.	X18/19:6	n. c.
X18/19:7	CAN_GND	X18/19:8	n. c.

Terminating resistor

The first and the last device on the CAN bus must be equipped with a terminating resistor of 120 ohms. To enable the terminating resistors, set S2:4 accordingly.

Commissioning

To commission the interface, proceed as follows:

- Connect the CAN master or a CAN node having connection to a CAN master to X18.

- Enable the terminating resistor or connect additional CAN devices to X19.
- Check the CAN status LED.

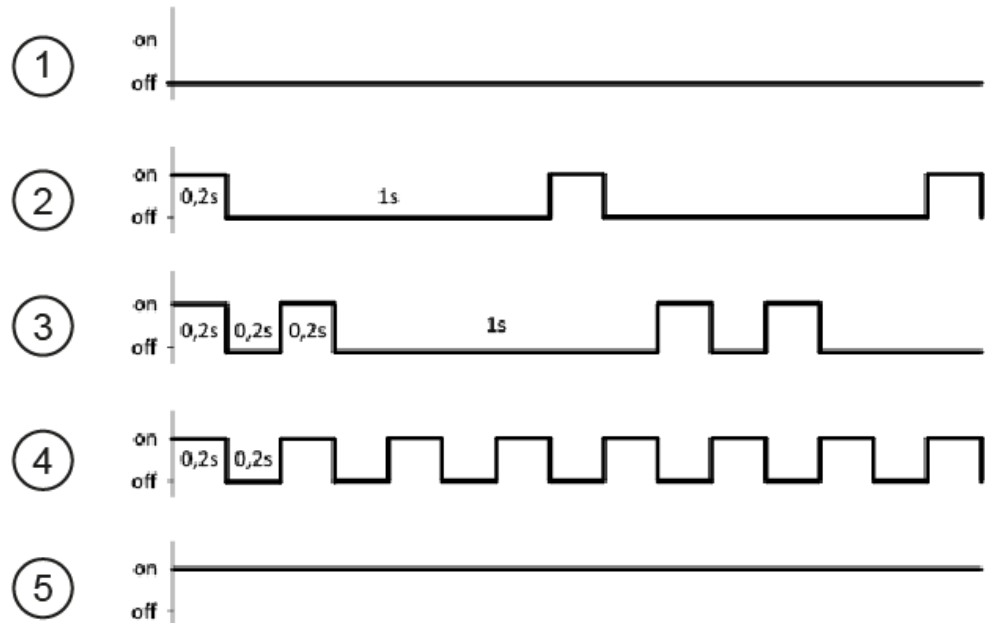
CAN status LED

Two LEDs show the status of the bus.

Red: BUS ERROR

Green: BUS RUN

The following illustration shows their flashing code.



LED BUS RUN

Pos.	Signal	Description
1	OFF	Bus node state is STOPPED Communication with SDO or PDO is not possible
2	1 x flashing	Bus node state is STOPPED Communication with SDO or PDO is not possible
4	Flashing at regular intervals	Bus node state is PRE-OPERATIONAL The node has not been activated yet Communication is possible only via SDO
5	ON	Bus node state is OPERATIONAL Communication is possible via PDO, and SDO.

LED BUS ERROR

Pos.	Signal	Description
1	OFF	No error occurred.
2	1 x flashing	Overflow in bus interface. Too many frames on the bus. Possible cause of this error: Missing terminating resistor, incorrect shielding/cable length, or bus load too high.
3	2 x flashing	Guarding or heartbeat error. Guarding or heartbeat telegrams ceased to arrive. The bus node state is PRE-OPERATIONAL . The servo amplifier responds to this error.
4	Flashing at regular intervals	Configuration error. PDO string too long or too short.

7.3.4.2 DIP switch

The device is delivered with all switches OFF. The DIP switch lets you enable/disable the functions listed below.



Fig. 10: DIP switch

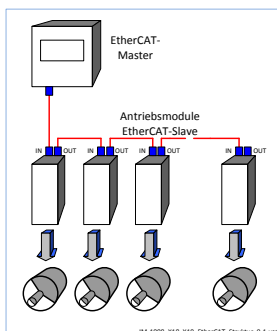
No.	Position	Function
S 2:1	OFF	no function
	ON	no function
S 2:2	OFF	no function
	ON	no function
S 2:3	OFF	no function
	ON	no function
S 2:4	OFF	CAN bus terminating resistor disabled
	ON	CAN bus terminating resistor (120 ohms) enabled

7.3.4.3 EtherCAT ports X18/X19

For connection to the EtherCAT bus 2 RJ45 ports are available. X18 is the EtherCAT input, X19 connects to other EtherCAT devices (slaves).

Connector pinout

PIN		Signal	Pin		Signal
IN	OUT		IN	OUT	
X18:1	X19:1	TxP	X18:2	X19:2	TxN
X18:3	X19:3	RxP	X18:4	X19:4	n. c.
X18:5	X19:5	n. c.	X18:6	X19:6	RxN
X18:7	X19:7	n. c.	X18:8	X19:8	n. c.



Commissioning

- 1 Connect EtherCAT® masters to the RJ45 jack X18.
- 2 Connect EtherCAT® slaves to the RJ45 jack X19.
- 3 Check the link-LED.

LINK-LED IN/OUT

OFF: No connection to the EtherCAT network

ON: EtherCAT device connected

Flashing: Communication with EtherCAT node is running

7.4 Service interfaces

The service interfaces are not intended for users. They are reserved for Jetter-internal service purposes.

The service interfaces are listed below:

- RS-232 interface (X20)
- USB port (X21)
- SD card slot (X22)

7.5 LED display - I/O interface

The servo amplifier is equipped with 8 status LEDs. They are located to the left of the I/O interface X10 and allow for visual diagnostics.

The LEDs are controlled by the microcontroller. Therefore, the indicated operating conditions depend on its firmware.

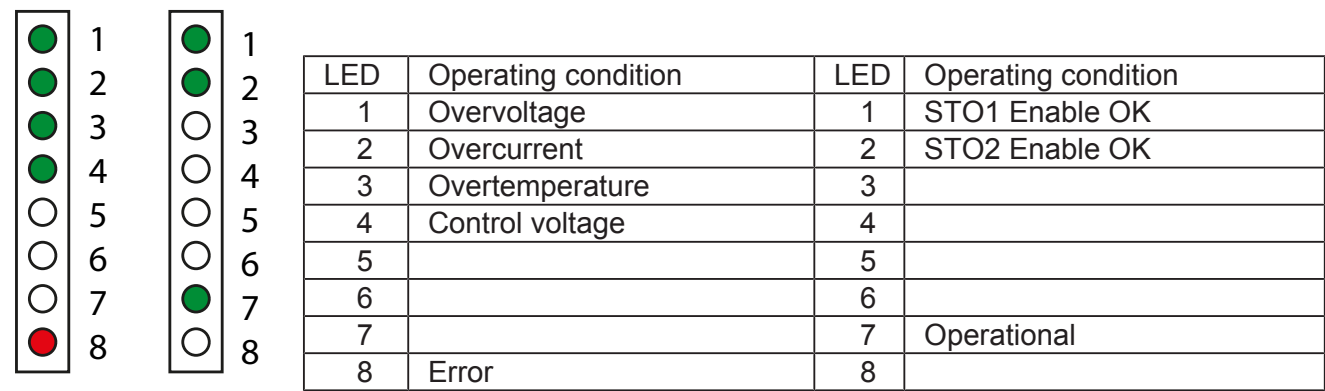


Fig. 11: Error indication

8 Maintenance and repairs

8.1 Maintenance

If the servo amplifier is used according to its intended conditions of use, it is maintenance-free.

8.2 Repairs

The servo amplifier must not be repaired by the operator.

If the servo amplifier is defective, replace the whole servo amplifier and contact your account manager.

8.3 Replacing the servo amplifier

- 1 Remove power from the servo amplifier.
- 2 Lockout the power supply.
- 3 Make sure that the servo amplifier is de-energized.
- 4 Remove all cables from the servo amplifier.
- 5 Remove the defective servo amplifier from the mounting plate.
- 6 Replace it by a new one with the same revision number or by a compatible device.
- 7 Wire the new servo amplifier as per instructions given in chapter "Electrical installation".
- 8 Energize the servo amplifier.

Individual components of the servo amplifier must not be replaced or repaired. Only replacing the servo amplifier as a whole is permitted.

8.4 Disposal of obsolete equipment

Sort the components according to your local legislation and send them for recycling. Recyclable material includes:

- Copper
- Aluminum
- Sheet metal
- Plastics
- Electrical and electronic waste

Environmental protection

Our products do not contain hazardous substances, which could be released if the device is used for its intended purpose. Normally, no negative effects on the environment can be foreseen.

However, if the products are disposed of improperly, negative effects cannot be excluded.

9 Service

9.1 Operating system

The OS is stored to the flash memory in the CPU. This memory cannot be accessed by the user. Important system files, such as firmware, images or EDS, are protected.

Jetter AG are continuously striving to enhance the operating systems of their products. Enhancing means adding new features, and upgrading existing functions.

There are several ways of updating an operating system:

- Via programming tool JetSym
- Via MicroSD card

Hint

For more information on this subject, refer to JetSym online help.

Current OS files are available for download on our homepage in the downloads area of the respective product.

For more information on this subject, refer to our homepage.

[Start | Jetter - We automate your success.](#)

9.2 Customer service

Should you have any questions, suggestions, or problems, please don't hesitate to contact our service representatives. To contact them, please call our technical hotline or use the contact form on our homepage:

[Technische Hotline | Jetter - We automate your success.](#)

You are also welcome to send an e-mail to our technical hotline:

hotline@jetter.de

Please supply the following information when contacting our technical hotline:

- Hardwareversion und Seriennummer
For the hardware revision number, please refer to the nameplate.
- Betriebssystemversion
For the OS version, please refer to the JetSym software.

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