JUMO GmbH & Co. KG
Delivery address: Mackenrodtstraße 14
36039 Fulda, Germany
Postal address: 36035 Fulda, Germany
Phone: +49 661 6003-0
Fax: +49 661 6003-607
Email: mail@jumo.net
Internet: www.jumo.net

JUMO Instrument Co. Ltd.
JUMO House
Temple Bank, Riverway
Harlow, Essex, CM20 2DY, UK
Phone: +44 1279 63 55 33
Fax: +44 1279 62 50 29
Email: sales@jumo.co.uk
Internet: www.jumo.co.uk

JUMO Process Control, Inc.
6724 Joy Road
East Syracuse, NY 13057, USA
Phone: +1 315 437 5866
Fax: +1 315 437 5860
Email: info.us@jumo.net
Internet: www.jumousa.com

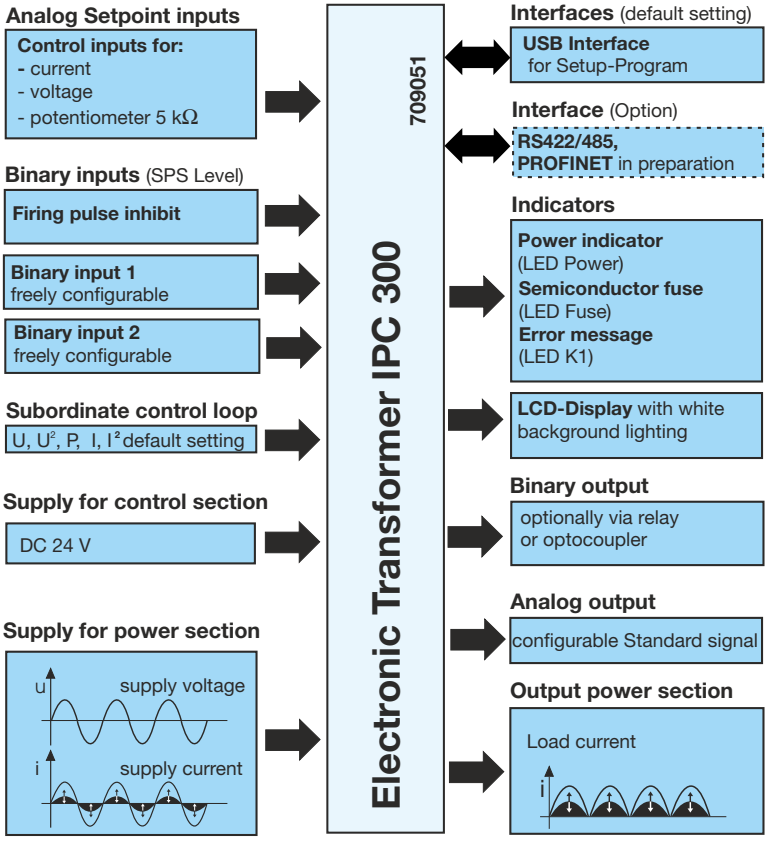
JUMO IPC 300 Electronic Transformer
70, 100, 200 A

Brief description

The JUMO IPC 300 is a power converter for controlling resistive heating loads. Due to its way of operating, the device is also referred to as an electronic transformer with a pulsating direct voltage at the output.
The microprocessor-controlled power controller displays all parameters in an LCD display with background lighting. It can be operated using the four keys at the front.
It combines the advantages of a conventional variable AC transformer (such as amplitude control and sinusoidal network load) with the advantages of a thyristor power controller (such as current limiting, load monitoring, subordinate control loops, etc.). The converter can be used in all areas where large resistive loads have to be switched.
No galvanic isolation exists between the voltage supply and the load voltage.
In addition to the power converter itself, a choke and a mains filter are essential for operation. Only the chokes and mains filters specified by JUMO may be used.
Amplitude control ensures that current consumption is sinusoidal and reduces the distortion power factor. Synchronous clock pulse control and reactive power compensation are not required.

Type 709051/X-XX-100…

Function overview



Special features

- Protective mains operation under high-powered resistive loads (no flickering)
- Operation of low-voltage heating elements directly at the supply network without adaptation transformer
- Minimal harmonics in the mains voltage of the device and low weight due to omission of a power transformer
- Short-circuit control when switching on
- Mains current in proportion with the required power (amplitude control)
- Control independent of the resistive characteristics of the heating elements
- Reduction of the phase control reactive power
- Compact dimensions
- Free selection of the subordinate control loop
  U, U^2, P, I, I^2
- Ageing process compensation for SiC heating elements
- Heating element diagnosis
- Resistance limitation, protection of molybdenum disilicide heating elements against overheating in the upper temperature range
- Integrated semiconductor fuses to protect the IPC in the event of an earth short
- For universal use for mains voltages up to AC 400 V

JUMO GmbH & Co. KG
Delivery address: Mackenrodtstraße 14
36039 Fulda, Germany
Postal address: 36035 Fulda, Germany
Phone: +49 661 6003-0
Fax: +49 661 6003-607
Email: mail@jumo.net
Internet: www.jumo.net

JUMO Instrument Co. Ltd.
JUMO House
Temple Bank, Riverway
Harlow, Essex, CM20 2DY, UK
Phone: +44 1279 63 55 33
Fax: +44 1279 62 50 29
Email: sales@jumo.co.uk
Internet: www.jumo.co.uk

JUMO Process Control, Inc.
6724 Joy Road
East Syracuse, NY 13057, USA
Phone: +1 315 437 5866
Fax: +1 315 437 5860
Email: info.us@jumo.net
Internet: www.jumousa.com

Technical data

Control

Control signal	0(4) to 20 mA	R_i = 50 Ω	
	0(2) to 10 V	R_i = 25 kΩ	
	0(1) to 5 V	R_i = 12 kΩ	Manual control through an external 5-kΩ potentiometer
Base load settings	0 to 100 %		

Voltage supply

	Type 709051-X-XX-70 and 100	Type 709051-X-XX-200
Voltage supply for control electronics	DC 24 V +15 %/ -20 % SELV	
Power consumption of the control electronics	max. 25 W	
Voltage supply for power section	AC 20 to 400 V +15 %/ -20 %, 48 to 63 Hz	
Load voltage $U_{L\ eff}$ ≂≂≂ (freely adjustable)	at AC 400 V supply to power section. Load voltage up to max. DC 380 V at AC 230 V supply , max. DC 210 V at AC 115 V supply , max. DC 90 V	
Load current $I_{L\ eff}$ ≂≂≂	DC 70 A / 100 A	DC 200 A
maximum power in 230 V mains voltage	$U_{Mains\ voltage}$ 230 V, I_{Load} 70 A: **14.7 kW** $U_{Mains\ voltage}$: 230 V, I_{Load} 100 A: **21 kW**	$U_{Mains\ voltage}$: 230 V, I_{Load} 200 A: **21 kW** **Reason:** the mains current is limited to 100 A through the EMI filter.
maximum power in 400 V mains voltage	$U_{Mains\ voltage}$: 400 V, I_{Load} 70 A: **26.6 kW** $U_{Mains\ voltage}$: 400 V, I_{Load} 100 A: **38 kW**	$U_{Mains\ voltage}$: 400 V, I_{Load} 200 A: **38 kW** **Reason:** the mains current is limited to 100 A through the EMI filter.
Load type	Resistive loads	

General specifications

Circuit variants	Single-phase operation	
Operating modes	Amplitude control	
Subordinate control loop	U, U^2, I , I^2 and P control configurable as a standard feature	
Current limiting	In operation, the load current can be configured in the range of 10 to 100 % I_N on the front panel. This limits the effective value of the load current.	
Load monitoring	Detection of partial load failure or load short-circuit	
R control	Setting range from R_{Nom} to 10x R_{Nom} , R_{Nom} = nominal voltage / nominal current	
SiC reserve	Message indicated when the voltage reserve for SiC heating rods is exhausted	
Analog output	Standard signal 0/4 to 20 mA, 0/2 to 10 V or 0/1 to 5 V Output value configurable	
Control accuracy	The regulation will eliminate voltage supply variations within the tolerance range (+15 %/ -20 %) with an accuracy of ± 0.5 %	
Electrical connection	Control cables via pluggable screw terminals for conductor cross sections 0.5 to 2.5 mm^2	
	in power section screw terminals 10 mm^2 to 50 mm^2	in power section screw terminals U, PE. N(V) : 10 mm^2 to 50 mm^2 Screw terminals C, D 1D, 1C: 30 mm^2 to 95 mm^2
Semiconductor fuse	The I^2t value (Switch-off integral) of the fuse integrated into the device must be less than 20,000 A^2s.	
Protection type	IP 20 according to EN 60529	
Protection rating	Protection rating I, with isolated control circuitry for connection to SELV circuits	
Admissible ambient temperature range	5 to 40 °C (3K3 according to EN 60721-3-3)	
Admissible storage temperature range	-10 to +70 °C (1K3 according to EN 60721-3-1)	
Cooling	forced convection, maximum inlet air temperature 35°C	
Resistance to climatic conditions	rel. humidity ≤ 5 to 85 % annual average, without condensation 3K3 according to EN 60721	
Installation position	Vertical	
Operating conditions	The power controller is designed as a built-in device according to: EN 50178, pollution degree 2, overvoltage category Ü III	
Site altitude	The site altitude is ≤ 2000 m above MSL.	

JUMO GmbH & Co. KG
Delivery address: Mackenrodtstraße 14
36039 Fulda, Germany
Postal address: 36035 Fulda, Germany
Phone: +49 661 6003-0
Fax: +49 661 6003-607
Email: mail@jumo.net
Internet: www.jumo.net

JUMO Instrument Co. Ltd.
JUMO House
Temple Bank, Riverway
Harlow, Essex, CM20 2DY, UK
Phone: +44 1279 63 55 33
Fax: +44 1279 62 50 29
Email: sales@jumo.co.uk
Internet: www.jumo.co.uk

JUMO Process Control, Inc.
6724 Joy Road
East Syracuse, NY 13057, USA
Phone: +1 315 437 5866
Fax: +1 315 437 5860
Email: info.us@jumo.net
Internet: www.jumousa.com

Electromagnetic compatibility	according to DIN 61326 Interference emission: class A - only for industrial use. Interference immunity: industrial requirements	
Test voltage	According to EN 50178	
Creepage distances	Control electronics to load circuit ≥ 5.5 mm, control electronics to housing ≥ 5.5 mm, device can be connected to SELV circuits. SELV = Separate Extra Low Voltage (safe low voltage)	
Leakage current	The leakage current of the IPC power converter used with an EMI filter in the supply cable (excluding the leakage current in the load) is less than 3 mA.	
Housing	Metal case	
Standard accessories	1 operating manual	
Binary output: relay (changeover contact) without contact protection circuit	30,000 electrical circuits at a switching capacity of 3 A/230 V 50 Hz resistive load	
Optocoupler output	I_{Cmax} = 2 mA, U_{CEOmax} = 32 V	
Dimensions: (length x width x height)	(348.6 × 300 × 217) mm	(403.5 × 300 × 257.5) mm
Weight	approx.16 kg	approx. 21.5 kg

Chokes

Type	**Dimensions**	**Connection cross section**	**Connection, Tightening torque**	**Weight**	**Part no.**
L = 0.6 mH / I_N = 75 A Protection type IP 10 according to EN 60529	Height: 135 mm Diameter: 155 mm	4 to 25 mm^2	Screw terminals, max. 4 to 4.5 Nm	7.5 kg	00392474
L = 0.6 mH / I_N = 100 A Protection type IP 10 according to EN 60529	Height: 208 mm Width: 200 × 200 mm	10 to 50 mm^2	Screw terminals, max. 6 to 8 Nm	approx. 20 kg	00415759
L = 0.6 mH / I_N = 200 A Protection type IP 10 according to EN 60529	Height: 190 mm Width: 200 x 385 mm	35 to 95 mm^2	Screw terminals, max. 15 to 20 Nm	approx. 37 kg	00436848

EMI filter

For voltage supply to power section						
Nominal voltage, Nominal current	Dimensions (length × width × height)	Connection cross section	Tightening torque	Weight	Admissible ambient temperature	Part no.
AC 115V/250V/440V, I_{Nom} = 16A	(255 x 60 x 125) mm	0.25 to 4 mm^2	0.6 to 0.8 Nm	approx. 4 kg	40°C	00399527
AC 115V/250V/440V, I_{Nom} = 20A	(289 x 70 x 140) mm	0.5 to 10 mm^2	1.5 to 1.8 Nm	approx. 5.5 kg	40°C	00438775
AC 115V/250V/440V, I_{Nom} = 32A	(324 x 90 x 160) mm	0.5 to 10 mm^2	1.5 to 1.8 Nm	approx. 9.5 kg	40°C	00409831
AC 115V/250V/440V, I_{Nom} = 63A	(380 x 117 x 190) mm	0.5 to 16 mm^2	2 to 2.3 Nm	approx. 17 kg	40°C	00409990
AC 115V/250V/440V, I_{Nom} = 100A	(445 x 150 x 220) mm	10 to 50 mm^2	6 to 8 Nm	approx. 26 kg	40°C	00431997

JUMO GmbH & Co. KG
Delivery address: Mackenrodtstraße 14
36039 Fulda, Germany
Postal address: 36035 Fulda, Germany
Phone: +49 661 6003-0
Fax: +49 661 6003-607
Email: mail@jumo.net
Internet: www.jumo.net

JUMO Instrument Co. Ltd.
JUMO House
Temple Bank, Riverway
Harlow, Essex, CM20 2DY, UK
Phone: +44 1279 63 55 33
Fax: +44 1279 62 50 29
Email: sales@jumo.co.uk
Internet: www.jumo.co.uk

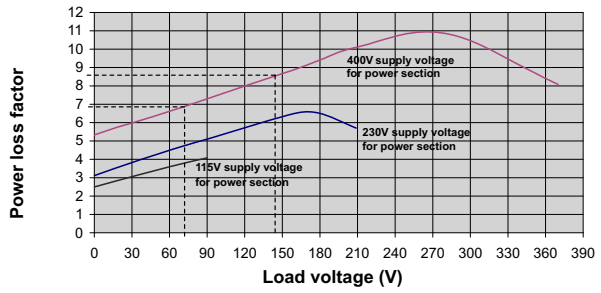
JUMO Process Control, Inc.
6724 Joy Road
East Syracuse, NY 13057, USA
Phone: +1 315 437 5866
Fax: +1 315 437 5860
Email: info.us@jumo.net
Internet: www.jumousa.com

Power loss (W)

Note:
Power loss occurs in the form of waste heat at the heat sink of the power converter, at the mains filter, and at the choke.
It has to be discharged at the mounting site (e.g. in the control cabinet) according to the climatic conditions.

Type 709051/X-XX-100-XX/XXX and

Power loss for IPC 70/100A, incl. choke and supply filter
P_{tot} (W)= I_{Load}(A) x power loss factor



Resistive loads and molybdenum disilicide heating elements:
Heating element data: load voltage = 140 V; load current = 90 A

Type 709051/8-01-100-XX/XXX
Nominal data of the power controller: load voltage = 150 V; load current = 100 A;
Voltage supply to the power section = 400 V

Determine the max. load voltage actually taken (e.g. 140 V) and find the point intersecting with the curve for the voltage supply in the power section. The Y axis shows the attendant power loss factor of 8.5, for example.

The power loss (W) is obtained by multiplying this power loss factor by the load current (e.g. 90 A)
that flows at max. load voltage (e.g. 140 V) through the load resistance

Power loss = 90 (A) × power loss factor

Power loss = 90(A) × 8.5 = **765W**

SiC heating elements
SiC heating element data: new: 70 V/90 A, old 140 V/45 A; P = 6,300W

Type 709051/8-01-100-XX/XXX
Nominal data of the power controller: load voltage = 150 V; load current = 100 A;
Voltage supply to the power section = 400 V; P control, P = 6,300W

Determine the maximum load voltage actually taken (e.g. 70 V) of the **new** SiC heating element and find the point intersecting with the curve for the voltage supply in the power section. The Y axis shows the attendant power loss factor of 6.8, for example.

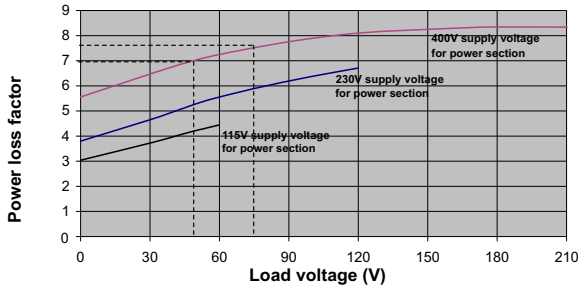
The power loss (W) is obtained by multiplying this power loss factor by the load current (e.g. 90 A)
that flows at max. load voltage (e.g. 70 V) through the **new** SiC heating element

Power loss = 90 (A) × power loss factor

Power loss = 90(A) × 6.8 = **612 W**

Type 709051/X-XX-200-XX/XXX

Power loss for IPC 200A, incl. choke and supply filter
P_{tot} (W) = I_{Load}(A) x power loss factor



Resistive loads and molybdenum disilicide heating elements:
Heating element data: load voltage = 75 V; load current = 130 A

Type 709051/8-01-200-XX/XXX
Nominal data of the power controller: load voltage = 90 V; load current = 200 A;
voltage supply to the power section = 400 V

Determine the max. load voltage actually taken (e.g. 75 V) and find the point intersecting with the curve for the voltage supply in the power section. The Y axis shows the attendant power loss factor of 7.5, for example.

The power loss (W) is obtained by multiplying this power loss factor by the load current (e.g. 130 A) that flows through the load resistance at max. load voltage (e.g. 75 V)

Power loss = 130 (A) × power loss factor

Power loss = 130(A) × 7.5 = **975W**

SiC heating elements
SiC heating element data: new: 45 V/200 A, old 90 V/100 A; P = 9,000 W

Type 709051/8-01-200-XX/XXX
Nominal data of the power controller: load voltage = 90 V; load current = 200 A; voltage supply to the power section = 400 V; P control, P=9,000W

Determine the maximum load voltage actually taken (e.g. 45 V) of the **new** SiC heating element and find the point intersecting with the curve for the voltage supply in the power section. The Y axis shows the attendant power loss factor of 6.8, for example.

The power loss (W) is obtained by multiplying this power loss factor by the load current (e.g. 200 A) that flows at max. load voltage (e.g. 45 V) through the **new** SiC heating element

Power loss = 200(A) x power loss factor

Power loss = 200(A) × 6.8 = **1,360W**

JUMO GmbH & Co. KG
Delivery address: Mackenrodtstraße 14
36039 Fulda, Germany
Postal address: 36035 Fulda, Germany
Phone: +49 661 6003-0
Fax: +49 661 6003-607
Email: mail@jumo.net
Internet: www.jumo.net

JUMO Instrument Co. Ltd.
JUMO House
Temple Bank, Riverway
Harlow, Essex, CM20 2DY, UK
Phone: +44 1279 63 55 33
Fax: +44 1279 62 50 29
Email: sales@jumo.co.uk
Internet: www.jumo.co.uk

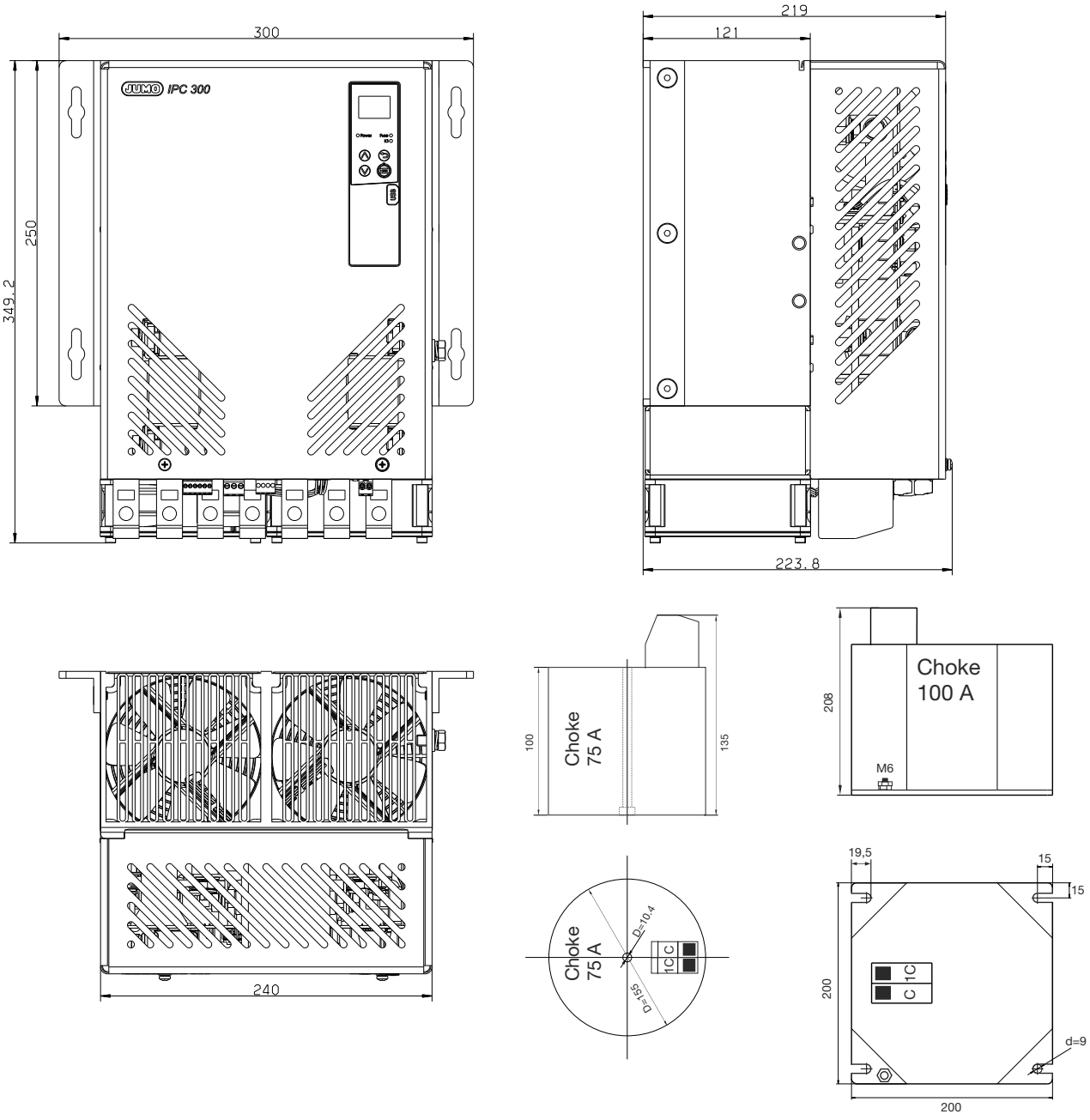
JUMO Process Control, Inc.
6724 Joy Road
East Syracuse, NY 13057, USA
Phone: +1 315 437 5866
Fax: +1 315 437 5860
Email: info.us@jumo.net
Internet: www.jumousa.com

Dimensions

Type 709051/X-XX-100-XX/XXX

Note:

	Tightening torque
Screws in power section 100A (hex key width SW5 mm)	max. 5 to 8 Nm
Gray screw terminals of the control electronics	X8_1, X8_2, X10_1, X10_2: 0.2 to 0.25 Nm X1, X16: 0.4 to 0.5 Nm
75 A choke screw terminals 100 A choke screw terminals	4 to 4.5 Nm 6 to 8 Nm



JUMO GmbH & Co. KG
Delivery address: Mackenrodtstraße 14
36039 Fulda, Germany
Postal address: 36035 Fulda, Germany
Phone: +49 661 6003-0
Fax: +49 661 6003-607
Email: mail@jumo.net
Internet: www.jumo.net

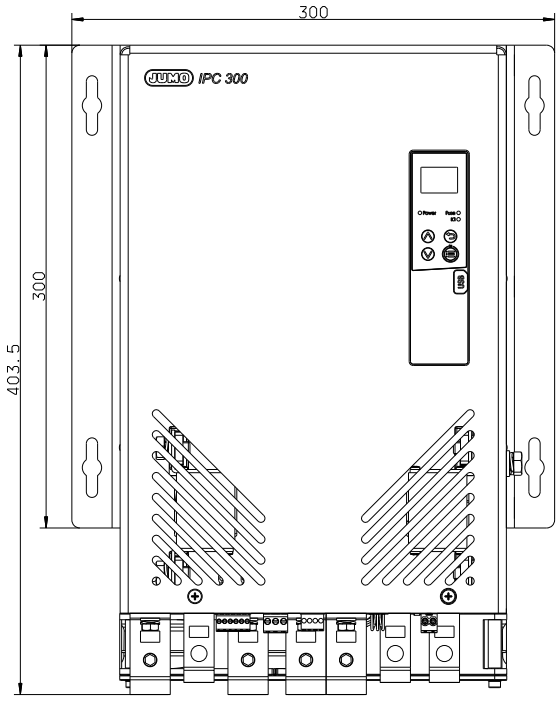
JUMO Instrument Co. Ltd.
JUMO House
Temple Bank, Riverway
Harlow, Essex, CM20 2DY, UK
Phone: +44 1279 63 55 33
Fax: +44 1279 62 50 29
Email: sales@jumo.co.uk
Internet: www.jumo.co.uk

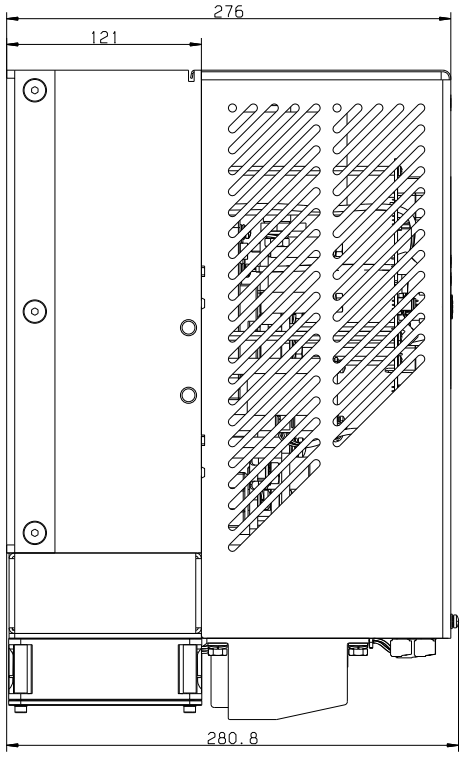
JUMO Process Control, Inc.
6724 Joy Road
East Syracuse, NY 13057, USA
Phone: +1 315 437 5866
Fax: +1 315 437 5860
Email: info.us@jumo.net
Internet: www.jumousa.com

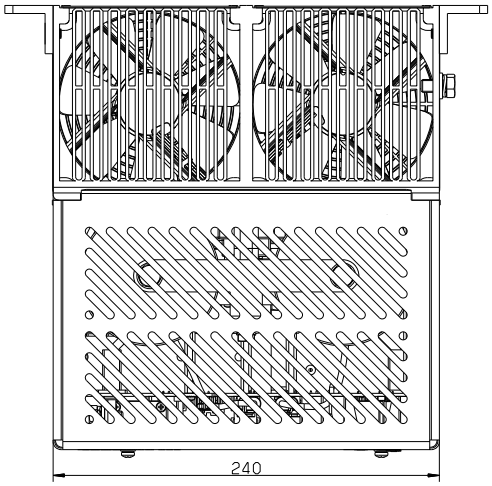
Type 709051/X-XX-200-XX/XXX

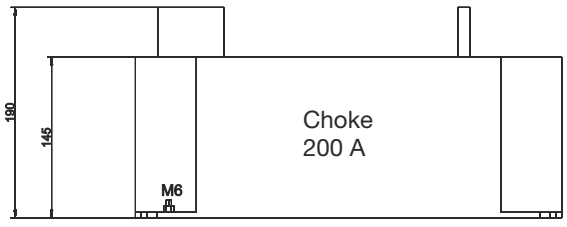
Note:

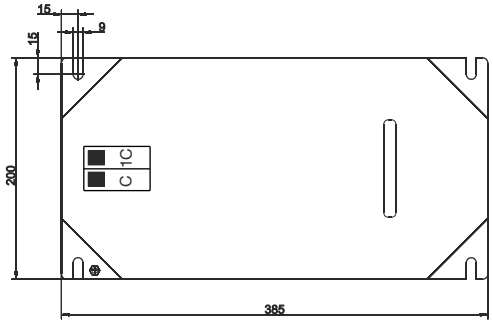
	Tightening torque
Screw terminals U, PE, N(V) hex key width SW5 mm Screw terminals C, D, 1D, 1C hex key width SW6 mm	6 to 8 Nm 15 to 20 Nm
Gray screw terminals of the control electronics	X8_1, X8_2, X10_1, X10_2: 0.2 to 0.25 Nm X1, X16: 0.4 to 0.5 Nm
200 A choke screw terminals	15 to 20 Nm









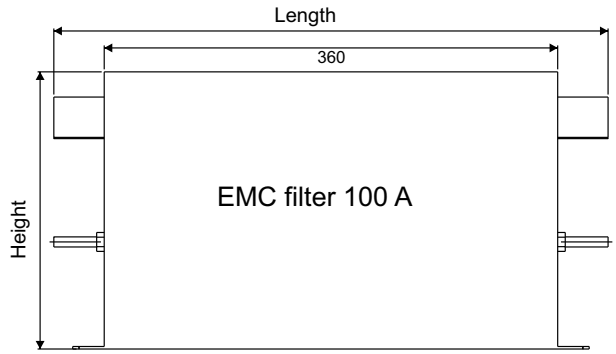


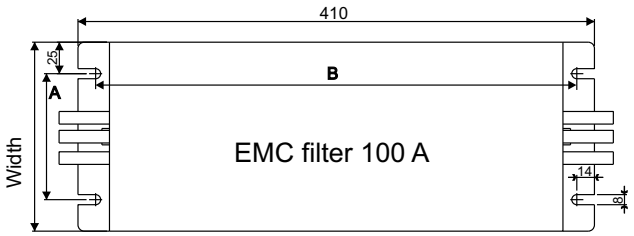
JUMO GmbH & Co. KG
Delivery address: Mackenrodtstraße 14
36039 Fulda, Germany
Postal address: 36035 Fulda, Germany
Phone: +49 661 6003-0
Fax: +49 661 6003-607
Email: mail@jumo.net
Internet: www.jumo.net

JUMO Instrument Co. Ltd.
JUMO House
Temple Bank, Riverway
Harlow, Essex, CM20 2DY, UK
Phone: +44 1279 63 55 33
Fax: +44 1279 62 50 29
Email: sales@jumo.co.uk
Internet: www.jumo.co.uk

JUMO Process Control, Inc.
6724 Joy Road
East Syracuse, NY 13057, USA
Phone: +1 315 437 5866
Fax: +1 315 437 5860
Email: info.us@jumo.net
Internet: www.jumousa.com

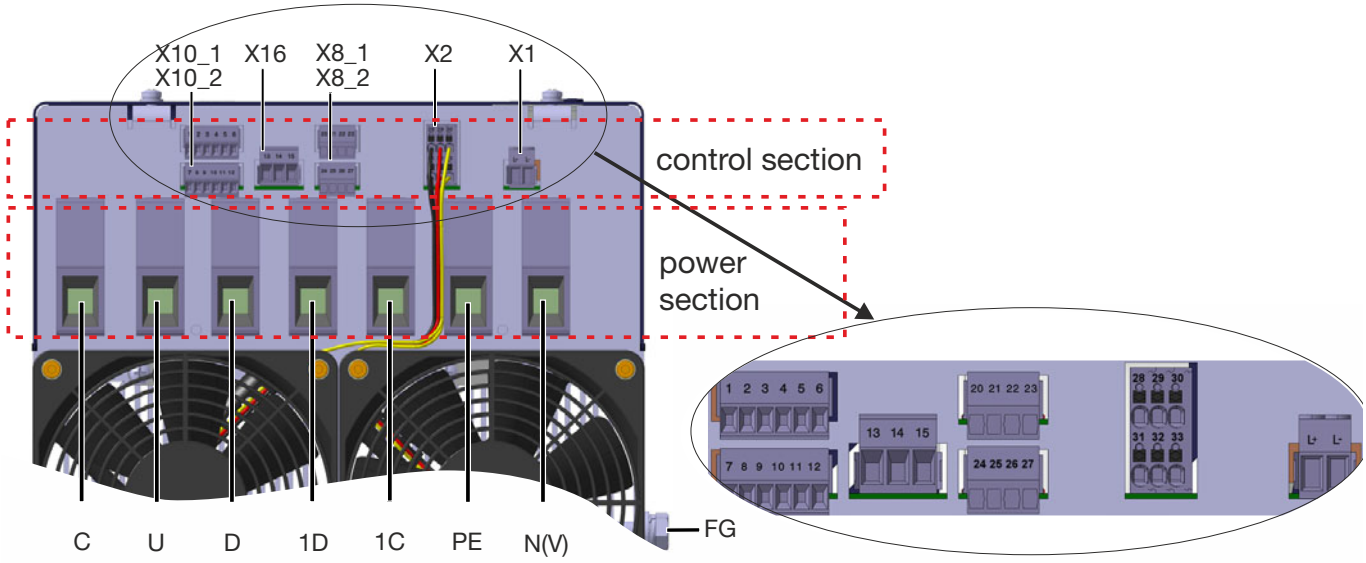
EMI filter current	**Length** in mm	**Width** in mm	**Height** in mm	**Fastening holes** Spacings in mm		**Tightening torque**	**Connection cross section** in mm^2
for the power section				**A**	**B**		
16A	255	60	125	25	240	0.6 to 0.8 Nm	0.25 to 4
20 A	289	70	140	50	295	1.5 to 1.8 Nm	0.5 to 10
32 A	324	90	160	50	295	1.5 to 1.8 Nm	0.5 to 10
63 A	380	117	190	65	330	2 to 2.3 Nm	0.5 to 16
100 A	445	150	220	100	385	6 to 8 Nm	10 to 50





Connection diagram

Type 709051/X-XX-070... or type 709051/X-XX-100...

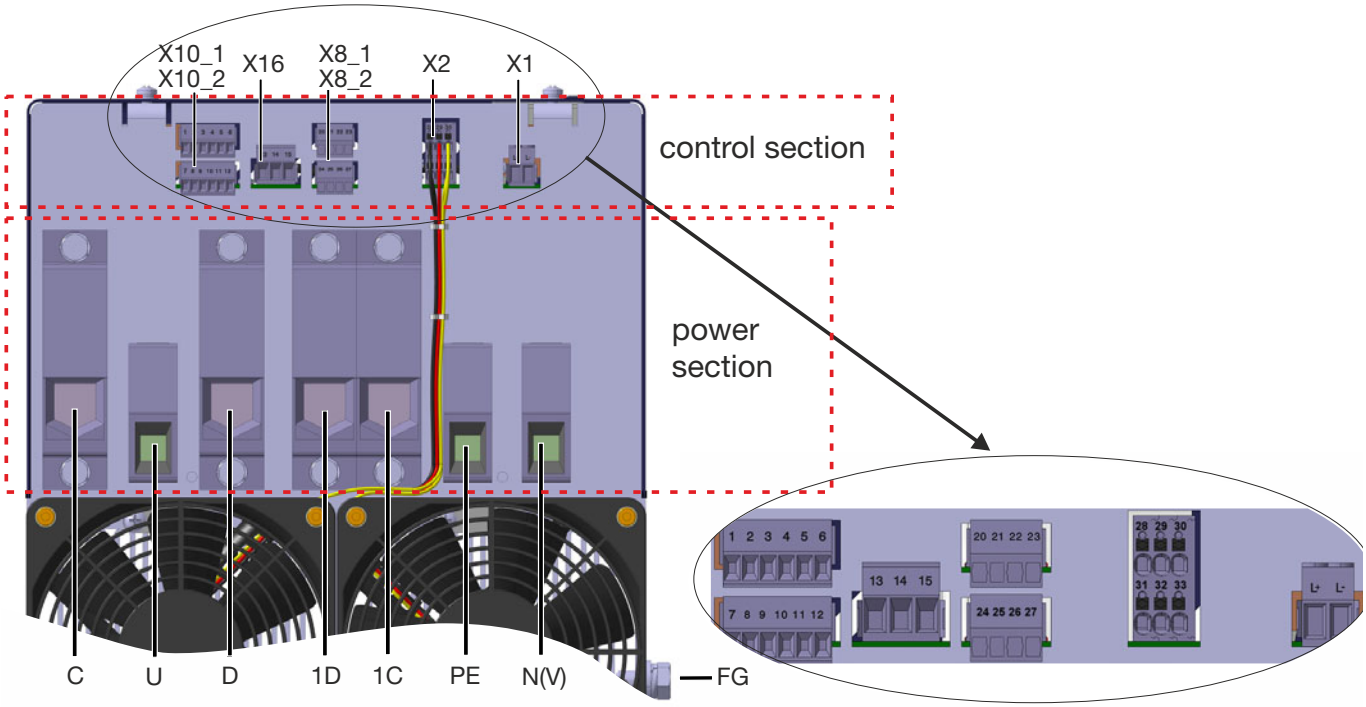


JUMO GmbH & Co. KG
Delivery address: Mackenrodtstraße 14
36039 Fulda, Germany
Postal address: 36035 Fulda, Germany
Phone: +49 661 6003-0
Fax: +49 661 6003-607
Email: mail@jumo.net
Internet: www.jumo.net

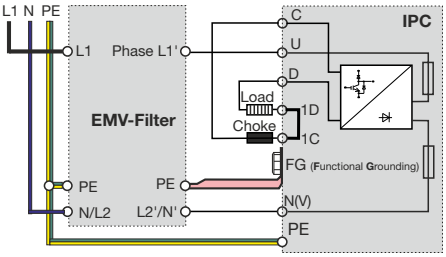
JUMO Instrument Co. Ltd.
JUMO House
Temple Bank, Riverway
Harlow, Essex, CM20 2DY, UK
Phone: +44 1279 63 55 33
Fax: +44 1279 62 50 29
Email: sales@jumo.co.uk
Internet: www.jumo.co.uk

JUMO Process Control, Inc.
6724 Joy Road
East Syracuse, NY 13057, USA
Phone: +1 315 437 5866
Fax: +1 315 437 5860
Email: info.us@jumo.net
Internet: www.jumousa.com

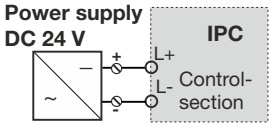
Type 709051/X-XX-200



Power section

Connection for	Screw terminals (fixed)	Connection
Voltage supply for power section via EMI filter	U N(V)	
Protective conductor connection	PE	
Functional equipotential bonding	FB	
Choke connection	C 1C	
Load connection	D + 1D -	

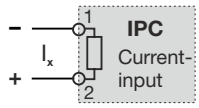
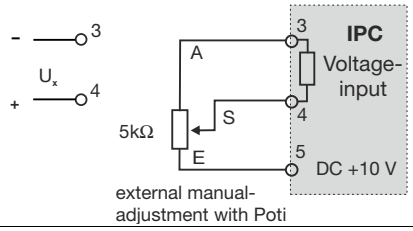
Control electronics

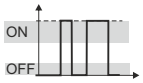
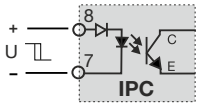
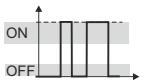
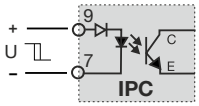
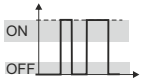
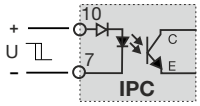
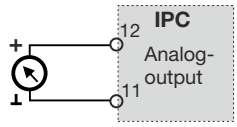
Connection for	Screw terminal X1 (pluggable)	Connection
Voltage supply for control section DC 24 V	(L+) (L-)	

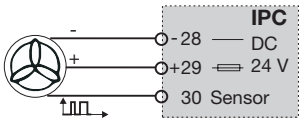
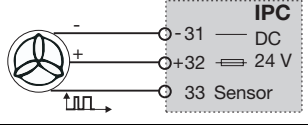
JUMO GmbH & Co. KG
Delivery address: Mackenrodtstraße 14
36039 Fulda, Germany
Postal address: 36035 Fulda, Germany
Phone: +49 661 6003-0
Fax: +49 661 6003-607
Email: mail@jumo.net
Internet: www.jumo.net

JUMO Instrument Co. Ltd.
JUMO House
Temple Bank, Riverway
Harlow, Essex, CM20 2DY, UK
Phone: +44 1279 63 55 33
Fax: +44 1279 62 50 29
Email: sales@jumo.co.uk
Internet: www.jumo.co.uk

JUMO Process Control, Inc.
6724 Joy Road
East Syracuse, NY 13057, USA
Phone: +1 315 437 5866
Fax: +1 315 437 5860
Email: info.us@jumo.net
Internet: www.jumousa.com

Connection for	**Screw terminal X10_1 (pluggable)**	**Connection**
Setpoint specification for current input	1 2	
Setpoint specification for voltage input (surge proof up to max. DC +32 V)	3 (GND) 4	
Output DC 10 V fixed voltage (max. +10 V, 2 mA)	5	
GND (ground) for setpoint specification	6 (GND)	

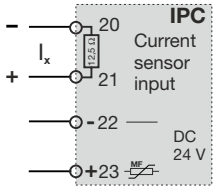
Connection for	**Screw terminal X10_2 (pluggable)**	**Connection**
Firing pulse inhibit ON logic level "1" = DC +11 to 30 V OFF logic level "0" = DC 0 to +5 V 	8 7 (GND PLC)	
Binary input1 ON logic level "1" = DC +11 to 30 V OFF logic level "0" = DC 0 to +5 V 	9 7 (GND PLC)	
Binary input2 ON logic level "1" = DC +11 to 30 V OFF logic level "0" = DC 0 to +5 V 	10 7 (GND PLC)	
GND for firing pulse inhibit and binary inputs	7	
Analog output Various internal controller variables can be output as a standard signal of 0(4) to 20 mA, 0(2) to 10 V, and 0(1) to 5 V.	12	
GND for analog output	11	

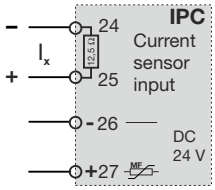
Connection for	**Screw terminal X2 (pluggable)**	**Connection**
Fan left: DC 24 V, 5.4 W (already wired per default)	28 - 29 + 30 sensor	
Fan right: DC 24 V, 5.4 W (already wired per default)	31 - 32 + 33 sensor	

JUMO GmbH & Co. KG
Delivery address: Mackenrodtstraße 14
36039 Fulda, Germany
Postal address: 36035 Fulda, Germany
Phone: +49 661 6003-0
Fax: +49 661 6003-607
Email: mail@jumo.net
Internet: www.jumo.net

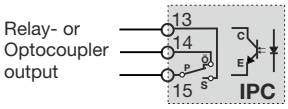
JUMO Instrument Co. Ltd.
JUMO House
Temple Bank, Riverway
Harlow, Essex, CM20 2DY, UK
Phone: +44 1279 63 55 33
Fax: +44 1279 62 50 29
Email: sales@jumo.co.uk
Internet: www.jumo.co.uk

JUMO Process Control, Inc.
6724 Joy Road
East Syracuse, NY 13057, USA
Phone: +1 315 437 5866
Fax: +1 315 437 5860
Email: info.us@jumo.net
Internet: www.jumousa.com

Connection for	Screw terminal X8_1 (pluggable)	Connection
External current sensor 2 0(4) to 20 mA $P_{max.}$ at DC 24 V: ≤ 2.5 VA	20 - sensor signal 0(4) to 20 mA 21 + sensor signal 0(4) to 20 mA	
	22 - DC 24 V supply 23 + DC 24 V supply	

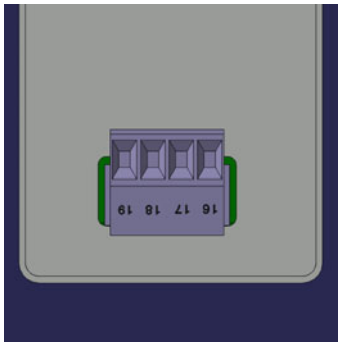
Connection for	Screw terminal X8_2 (pluggable)	Connection
External current sensor 3 0(4) to 20 mA $P_{max.}$ at DC 24 V: ≤ 2.5 VA	24 - sensor signal 0(4) to 20 mA 25 + sensor signal 0(4) to 20 mA	
	26 - DC 24 V supply 27 + DC 24 V supply	

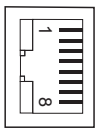
Binary output

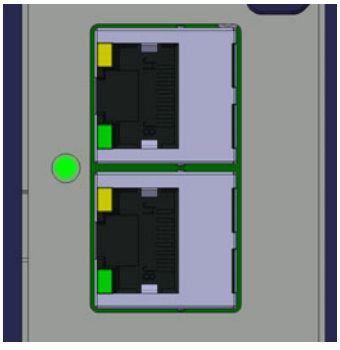
Connection for	Screw terminal X16 (pluggable)	Connection
Relay or optocoupler	13 N/O contact or collector	
	14 N/C contact	
	15 pole or emitter	

Interfaces (option)

Modbus connection	RS422	RS485
 pluggable screw terminals	TxD (-)	RxD/TxD B(-)
	TxD (+)	RxD/TxD A(+)
	RxD (-)	-
	RxD (+)	-
The shield of the Modbus lines must be routed to ground potential (PE)		



PROFINET		
	1 TX+	Transmission data +
	2 TX-	Transmission data -
	3 RX+	Received data +
	6 RX-	Received data -
2 RJ-45 sockets (on the front)		

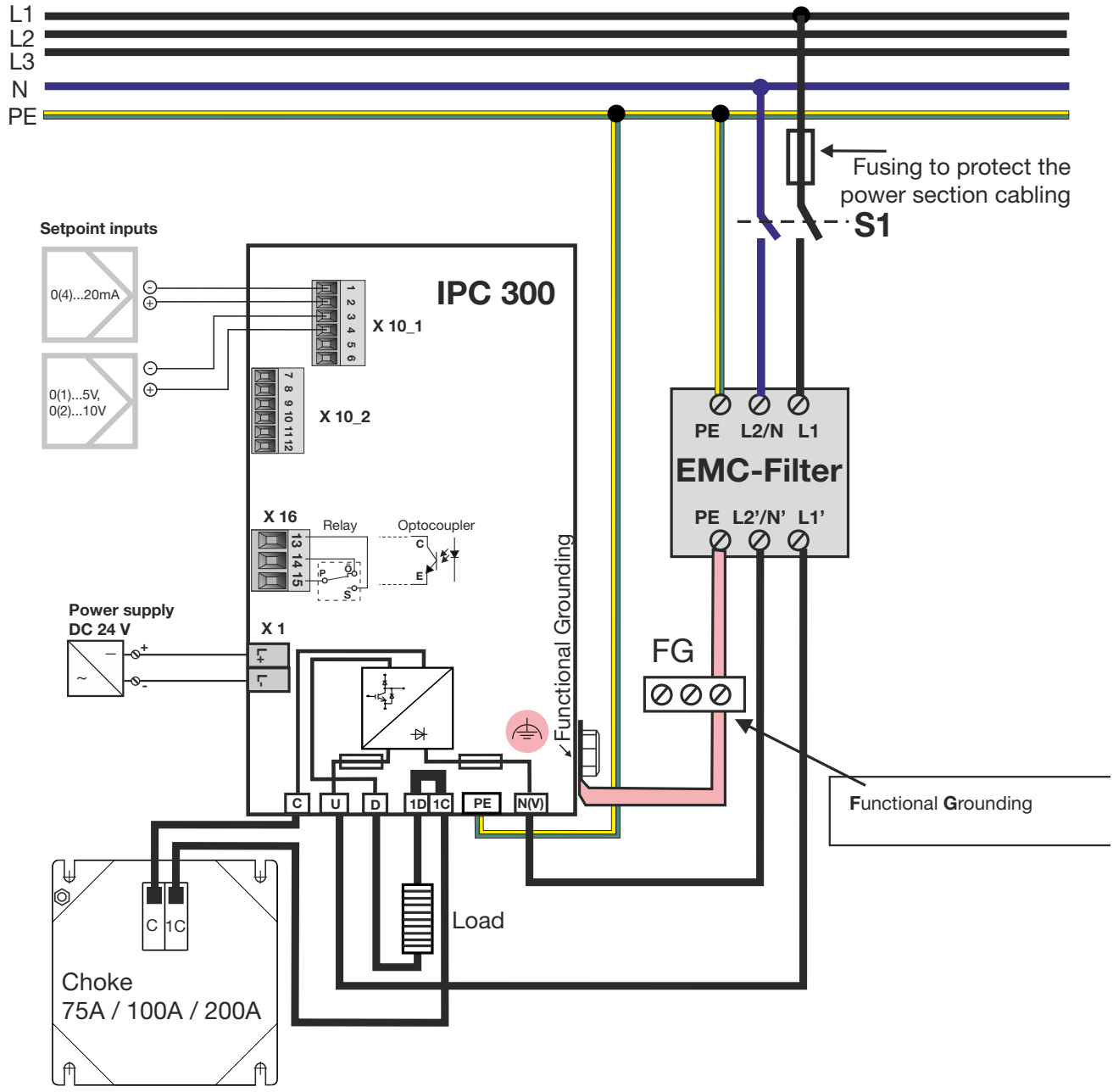


JUMO GmbH & Co. KG
Delivery address: Mackenrodtstraße 14
36039 Fulda, Germany
Postal address: 36035 Fulda, Germany
Phone: +49 661 6003-0
Fax: +49 661 6003-607
Email: mail@jumo.net
Internet: www.jumo.net

JUMO Instrument Co. Ltd.
JUMO House
Temple Bank, Riverway
Harlow, Essex, CM20 2DY, UK
Phone: +44 1279 63 55 33
Fax: +44 1279 62 50 29
Email: sales@jumo.co.uk
Internet: www.jumo.co.uk

JUMO Process Control, Inc.
6724 Joy Road
East Syracuse, NY 13057, USA
Phone: +1 315 437 5866
Fax: +1 315 437 5860
Email: info.us@jumo.net
Internet: www.jumousa.com

Wiring for single-phase mode Phase / N

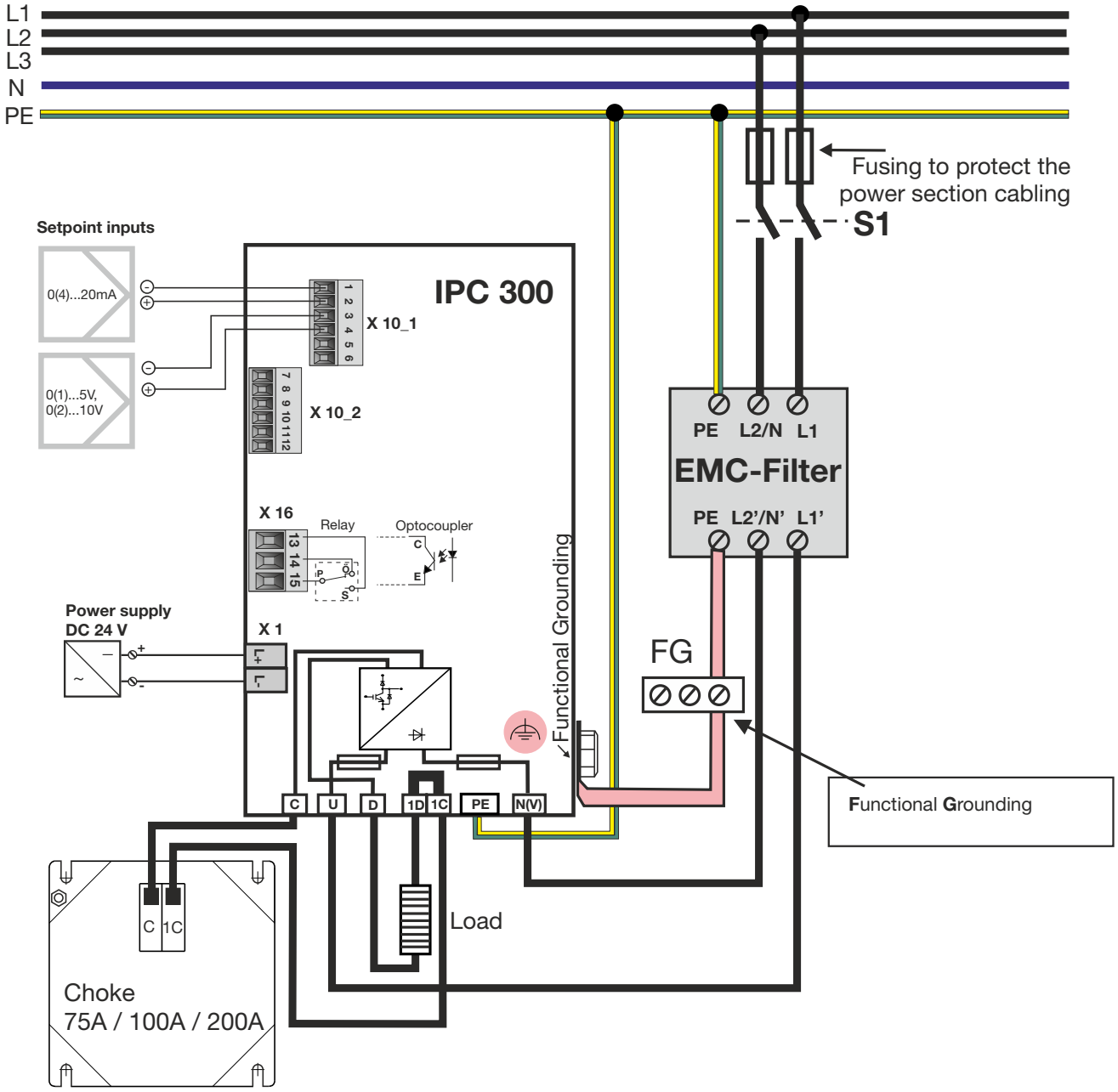


JUMO GmbH & Co. KG
Delivery address: Mackenrodtstraße 14
36039 Fulda, Germany
Postal address: 36035 Fulda, Germany
Phone: +49 661 6003-0
Fax: +49 661 6003-607
Email: mail@jumo.net
Internet: www.jumo.net

JUMO Instrument Co. Ltd.
JUMO House
Temple Bank, Riverway
Harlow, Essex, CM20 2DY, UK
Phone: +44 1279 63 55 33
Fax: +44 1279 62 50 29
Email: sales@jumo.co.uk
Internet: www.jumo.co.uk

JUMO Process Control, Inc.
6724 Joy Road
East Syracuse, NY 13057, USA
Phone: +1 315 437 5866
Fax: +1 315 437 5860
Email: info.us@jumo.net
Internet: www.jumousa.com

Wiring for single-phase mode Phase / Phase



JUMO GmbH & Co. KG
Delivery address: Mackenrodtstraße 14
36039 Fulda, Germany
Postal address: 36035 Fulda, Germany
Phone: +49 661 6003-0
Fax: +49 661 6003-607
Email: mail@jumo.net
Internet: www.jumo.net

JUMO Instrument Co. Ltd.
JUMO House
Temple Bank, Riverway
Harlow, Essex, CM20 2DY, UK
Phone: +44 1279 63 55 33
Fax: +44 1279 62 50 29
Email: sales@jumo.co.uk
Internet: www.jumo.co.uk

JUMO Process Control, Inc.
6724 Joy Road
East Syracuse, NY 13057, USA
Phone: +1 315 437 5866
Fax: +1 315 437 5860
Email: info.us@jumo.net
Internet: www.jumousa.com

Order details

	(1)	**Basic type**
709051		JUMO IPC 300 with voltage supply to control electronics: DC 24 V +15 %/ -20 % and voltage supply to power section: AC 400 V, 230 V or 115 V
	(2)	**Version**
8		Standard with default settings
9		Customer-specific configuration (specifications in plain text)
	(3)	**Language**
01		German
02		English
03		French
	(4)	**Load current**
70		DC 70 A ≂
100		DC 100 A ≂
200		DC 200 A ≂
	(5)	**Interface**
00		None
54		RS422/485 Modbus RTU
63		PROFINET
	(6)	**Extra codes**
252		Relay (changeover contact)
257		Optocoupler

	(1)		(2)		(3)		(4)		(5)		(6)
Order code		/		-		-		-		/	
Order example	709051	/	8	-	01	-	100	-	54	/	252

Scope of delivery

1 power converter in the ordered version
1 operating manual

Accessories

Item	**Part no.**
Setup program 709051 (IPC 300)	00752979
USB cable A-connector B-micro-connector 3 m	00616250
Semiconductor fuses (2x required): 2 extra-fast semiconductor fuses have been installed in the device to protect the IPC in the event of an earth shot. The I^2t value of the semiconductor fuse must be less than 20,000 A^2s.	00434229
Choke for type 709051/X-XX-070-XX/XXX: L = 0.6 mH, I_{Nom} = **75A**, protection type IP 20, according to EN 60529	00392474
Choke for type 709051/X-XX-100-XX/XXX: L = 0.6 mH, I_{Nom} = **100A**, protection type IP 20, according to EN 60529	00415759
Choke for type 709051/X-XX-200-XX/XXX: L = 0.6 mH, I_{Nom} = **200A**, protection type IP 20, according to EN 60529	00436848
EMI filter for AC 115V/250V/440V, I_{Nom} = **16A**	00399527
EMI filter for AC 115V/250V/440V, I_{Nom} = **20A**	00438775
EMI filter for AC 115V/250V/440V, I_{Nom} = **32A**	00409831
EMI filter for AC 115V/250V/440V, I_{Nom} = **63A**	00409990
EMI filter for AC 115V/250V/440V, I_{Nom} = **100A**	00431997