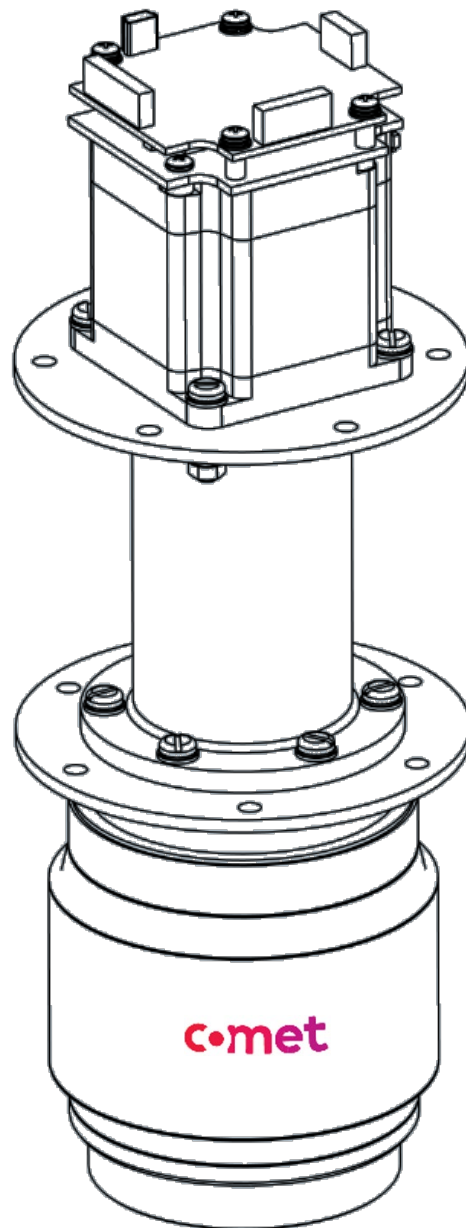


# Electrical Installation of ID-1200



## Document Information

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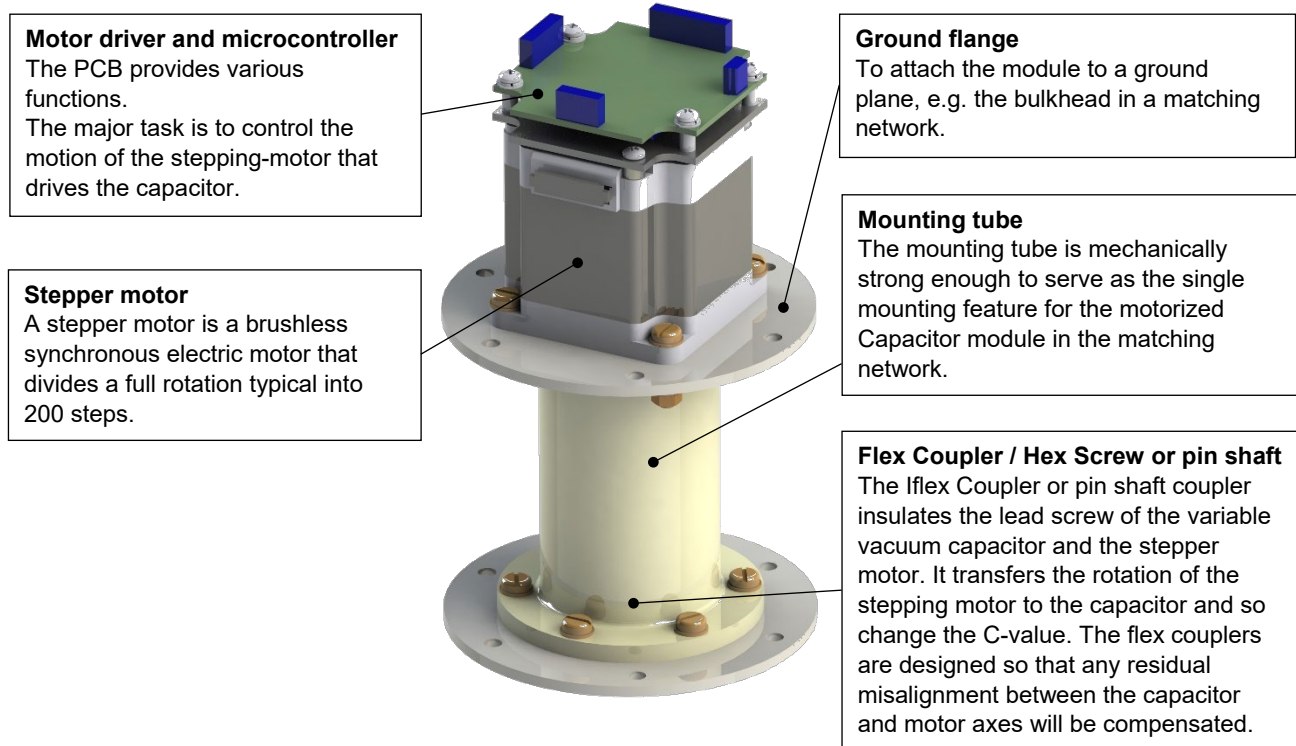
Doc. Rev.	Date	Author(s)	Change(s)	Status
1.0	2007-03-30	O. Lehmann	Initial document	released
1.1	2010-06-25	A. Renggli	Various additions	internal
02	2014-01-24	W. Bigler / T. Fenske	Reviewed with minor modifications / configuration section added	released
03	2018-02-14	M. Armbruster / T. Fenske	Added UNIVERSAL variant, minor corrections	released
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## 1. Overview Driver Unit ID – 1200

Picture 1 show and explain the components of the driver unit ID – 1200.



**Fig. 1:** Components of the driver unit ID – 1200

## 2. Stepper motor for all variants

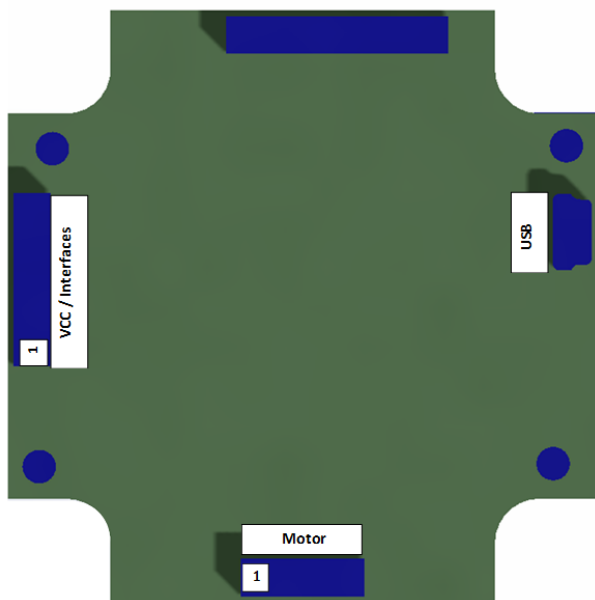
The UNIVERSAL variant of the ID-1200 is equipped with an Oriental Motor PKP266 which can be operated in unipolar or bipolar mode. This well proven standard stepper motor is able to drive the ID-1200 up to 600 rpm in bipolar mode (dependent on variable capacitor).

For detailed technical information please refer to the supplier's website <http://www.orientalmotor.com/>

The EXPERT variant of the ID-1200 is equipped with a Lin-Engineering Motor, which can be operated bipolar mode only.

For detailed technical information please refer to the supplier's website <http://www.linengineering.com/>

### 3. Controller Board Connections for UNIVERSAL variant



**Fig. 2:** Connectors on PCB of UNIVERSAL motorized capacitor

#### 3.1 Connectors of UNIVERSAL variant

##### 3.1.1 Power supply & interface connector

There is no protection against over-voltage or reverse polarity. The power supply should be designed such that it supplies the nominal motor voltage at the desired maximum motor power. The supply voltage must never exceed the upper / lower voltage limits.

For further information regarding power ripples and EMC guidelines refer to chapter 4.1.

Either one of the interfaces (RS232 or RS485) can be used at a given time.

Pin	Function
1	GND
2	VCC: +24V DC nominal (10... 30V DC)
3	RS485 (A+)
4	RS485 (B-)
5	RS232 (TX)
6	RS232 (RX)

**Table 1:** pin layout of connector: VCC / Interfaces

### 3.1.2 Motor connector

Pin	Function
1	OA1 (stepper motor phase A)
2	OA2 (stepper motor phase A)
3	OB1 (stepper motor phase B)
4	OB2 (stepper motor phase B)

**Table 2:** pin layout of connector: motor

### 3.2 Operating ratings of UNIVERSAL variant

Sybol	Parameter	Min	Typ	Max	Unit
$V_s$	Power supply voltage for operation	12	24	30	V DC
$I_{COIL-PEAK}$	Motor coil current for sine wave peak (chopper regulated, adjustable via software)	0	0.4...4.0	4.0	A
$I_{COIL-RMS}$	Continuous motor current (RMS)	0	0.3...2.8	2.8	A
$I_s$	Max. power supply current (@ 24 V DC)		2	$1.4 * I_{COIL}$	A
$V_{GPO}$	Open collector output, max. 100mA, freewheeling diode included			$V_s$	V
$V_{STOPHI}$	StopL, StopR high level input (integrated 10k pullup to +5V)	1.9	5		V
$T_{ENV}$	Environment temperature at rated current (no forced cooling required)	-35		50	°C
$T_{ENV}$	Environment temperature at 80% of rated current or 50% duty cycle (no forced cooling required)	-35		60	°C

**Table 3:** Operation ratings for the ID-400

## 4. Mechanical installation

It is recommended to have conduction cooling for the motorized cap.

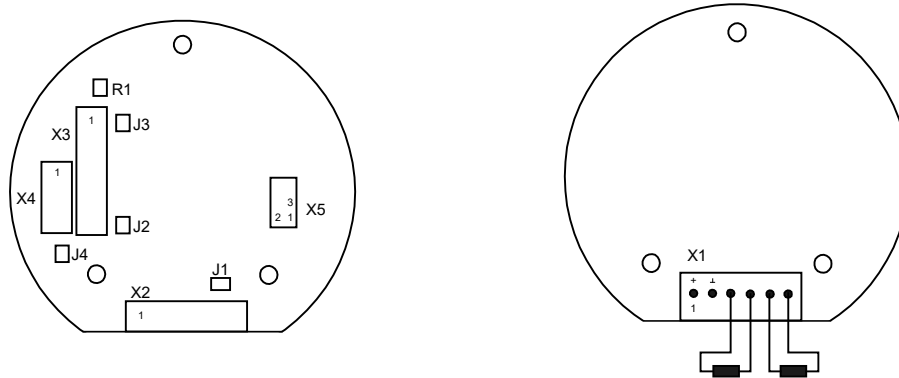
## 5. Stepping driver controller Interface

### 5.1 Communication Interfaces

The communication interface is the interface between the controller unit (e.g. PC) and the driver board.

Specifications of the Comet proprietary communication protocols are available for RS-232 (EXPERT and UNIVERSAL variant) and RS-485 interfaces (only UNIVERSAL variant).

## 6. Controller Board Connections for EXPERT variant



**Fig. 3:** Layout of the controller board ID – 1200

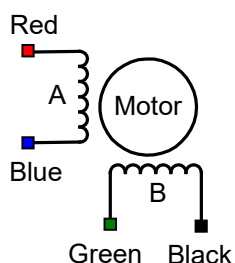
The left layout in Fig. 3 shows the top board, the right layout shows the bottom board.

### 6.1 Connectors of EXPERT variant

#### 6.1.1 X1 Connector - Power supply for the ID - 1200

Power is provided to the PCB through this connector. The product will be shipped with a female connector that is compatible with the X1 connector on the board and with the required wires.

Pin	Function	Color
1	+ 14 ... 37 V DC	red
2	GND	black
3	OA1 (motor)	red
4	OA2 (motor)	blue
5	OB1 (motor)	green
6	OB2 (motor)	black



**Fig. 2:** Pin layout of connector X1 for the ID-1200

**Warning: The motor must never be unplugged during operation!!!**

The ID-1200 incorporates a linear voltage regulator to generate the 5V supply voltage for the digital components of the module. Therefore, only one supply voltage is needed for the module.

The power supply voltage can be +7...+37 V DC. A higher voltage gives higher motor dynamics. Please note that there is no protection against reverse polarity or over voltage. The power supply should be designed so that it supplies the nominal motor voltage at the desired maximum motor power. In no case shall the supply value exceed the upper / lower voltage limit.

To ensure reliable operation of the unit, the power supply has to have a sufficient output capacitor and the supply cables should be of low resistance so that the chopper operation does not lead to an increase in power supply ripple. Power supply ripple due to the chopper operation should be kept to a maximum of 200-300mV. This also is important in order to make the user's application compatible to any applicable EMC guidelines.

Therefore, it's recommended that:

- Power supply cables be kept as short as possible
- Large diameter power supply cables be used
- If the distance to the power supply is more than 2 - 6m) a robust 470µF or larger additional filtering capacitor be located near to the motor driver unit.

### 6.1.2 X2 Connector - Additional I/O

Currently all pins have no functionality:

Pin	Function
1	Left limit switch
2	Right limit switch
3	GND
4	General purpose output
5	VDD (same as connector X1, pin1)
6	GND
7	General purpose input
8	+ 5 V DC output (max. 20 mA)

Fig. 3: Pin layout of connector X2

### 6.1.3 X3 Connector - Serial interface

This connector provides access to and from the PCB via serial interfaces, i.e. RS-232. Jumper J1 is used to select the proper serial interface port.

Pin	EXPERT-1
	RS-232
1	TxD
2	RxD
3 to 8	+0V (GND)

Table 4: Pin layout of connector X3



#### 6.1.4 X4 and X5 connector

Connectors X4 and X5 are not used and have to be unplugged.

### 6.2 Jumpers J1, J2, J3 and J4

These jumpers have the following functionality:

- **J1**: Interface selection. This jumper selects which interface is to be used when the module starts up. When this jumper is open it will be RS232, and when it is closed it will be RS485.
- **J2**: CAN/RS485 termination. Close this jumper to terminate the CAN/RS485 bus with a 120 Ohms resistor.
- **J3**: Step/Direction termination. Close jumper to terminate the step-signal with a 120 Ohms resistor.
- **J4**: Step/Direction termination. Close jumper to terminate the direction-signal with a 120 Ohms resistor.

Jumper	RS-232
J1	Open
J2	Open
J3	Close
J4	Close

Fig. 4: Jumper position

### 6.3 Operating ratings for ID-1200

Symbol	Parameter	Min	Type	Max	Unit
V <sub>S</sub>	Power supply voltage für operation	14	15...36	37	V
I <sub>COIL</sub>	Motor coil current for sine wave peak (chopper regulated, adjustable via software)	0	2.8...7	7.1	A
I <sub>MC</sub>	Continuous motor current (RMS)	0	2...5	5.0	A
I <sub>S</sub>	Power supply current		2...3	7.1	A
U <sub>+5V</sub>	+5V output (max. 20mA)	4.8	5.0	5.2	V
V <sub>INPROT</sub>	Input voltage for StopL, StopR, GPI (internal protection, DC)	-24	0 .. 5	24	V
V <sub>ANA</sub>	GPI analog measurement range (range switchable)		0 ... 5 0 ... 10		V
V <sub>STOPLO</sub>	StopL, StopR low level input		0	0.9	V
V <sub>STOPHI</sub>	StopL, StopR high level input (integrated 10k pullup to +5V)	1.9	5		V
T <sub>ENV</sub>	Environment temperature at rated current (no forced cooling required)	-40		45	°C
T <sub>ENV</sub>	Environment temperature at 80% of rated current or 50% duty cycle (no forced cooling required)	-40		60	°C

Fig. 5: Operation ratings for the ID - 1200

## 7. Revision history

Changes from document SB-64 V.1.1 to SB-64 Rev. 02:

Section	Description of change
General	Updated document to cover firmware version V.2.X in addition to V.1.X
3.3	Updated Operating conditions for ID-1200

Changes from document SB-64 V.02 to SB-63 Rev. 03:

Section	Description of change
Chapter 5	Added UNIVERSAL variant

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