

# MULTI AXIS DRIVES

## DM2020



L-CAM2-E-171

COMPACT MULTI AXIS SERVO DRIVE

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## TABLE OF CONTENTS

INTRODUCTION.....	2
Characteristics of the axis module .....	4
Characteristics of the power supply module .....	4
GUI functions.....	5
AXIS MODULE .....	7
Interface.....	7
Technical data.....	8
Models .....	10
POWER SUPPLY MODULE .....	14
Interface.....	14
Technical data.....	15
Models .....	16
OPTIONS AND ACCESSORIES.....	17
Motor brake option .....	17
Feedback option.....	17
Brake resistor option .....	17
Connector kit option.....	17
Memory Card option.....	17
ABC module .....	17
Line filters.....	18
ENVIRONMENTAL DATA .....	19
CE MARKING .....	20
ORDERING .....	21

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## SYSTEM OVERVIEW

### Flexible, modular design for top productivity

- The DM2020 is a compact, digital servodrive for controlling top-performing multi-axis systems.
- The modular platform, high performance control card and advanced control software all help to improve performance levels in a wide range of industrial applications requiring optimum dynamics and precision, and where greater efficiency in terms of energy conversion and system integration means an essential plus factor for the new markets. These markets include electric and hybrid propulsion, wind generation, and the conversion of general mechanical energy into electrical energy.
- The flexible design (based on “functional blocks”) and the support of our engineers when it comes to machine design, means we can personalise the product to cater to our customers' needs, improving machine performance and reducing overall costs.

### A compact design, to reduce space and cut wiring costs

- The multi-axis architecture, with a shared power supply unit, reduces the dimensions of the axis module and the overall system dimensions by about 50% compared with a similar stand-alone configuration. The auxiliary power supplies between each axis are distributed by means of internal connections.
- The electrical connections in the system (via bus bar) reduce the wiring complexity and the number of components around the housing (switches, filters, counters and in-line inductors).

### Designed to work with different motor types and feedback devices

- The system manages a wide range of controlled motors (brushless and asynchronous) and accepted transducers - Resolver (any number of poles can be configured via the SW) or Encoder (incremental, sinusoidal, single and multi-turn or fully digital) - to meet all application requirements.

### Energy savings

- The configuration with shared DC BUS allows an exchange of energy between the axes, reducing both energy waste from the dynamic brake resistor and the system's total energy consumption.

### User-friendly graphic user interface (GUI)

- The new graphic user interface offers easy access to all the functions, simplifying the settings, initial start-up and system monitoring.
- The high frequency data registration and system identification functions, together with the assisted calibration function, make it easier to configure even the most complex systems.

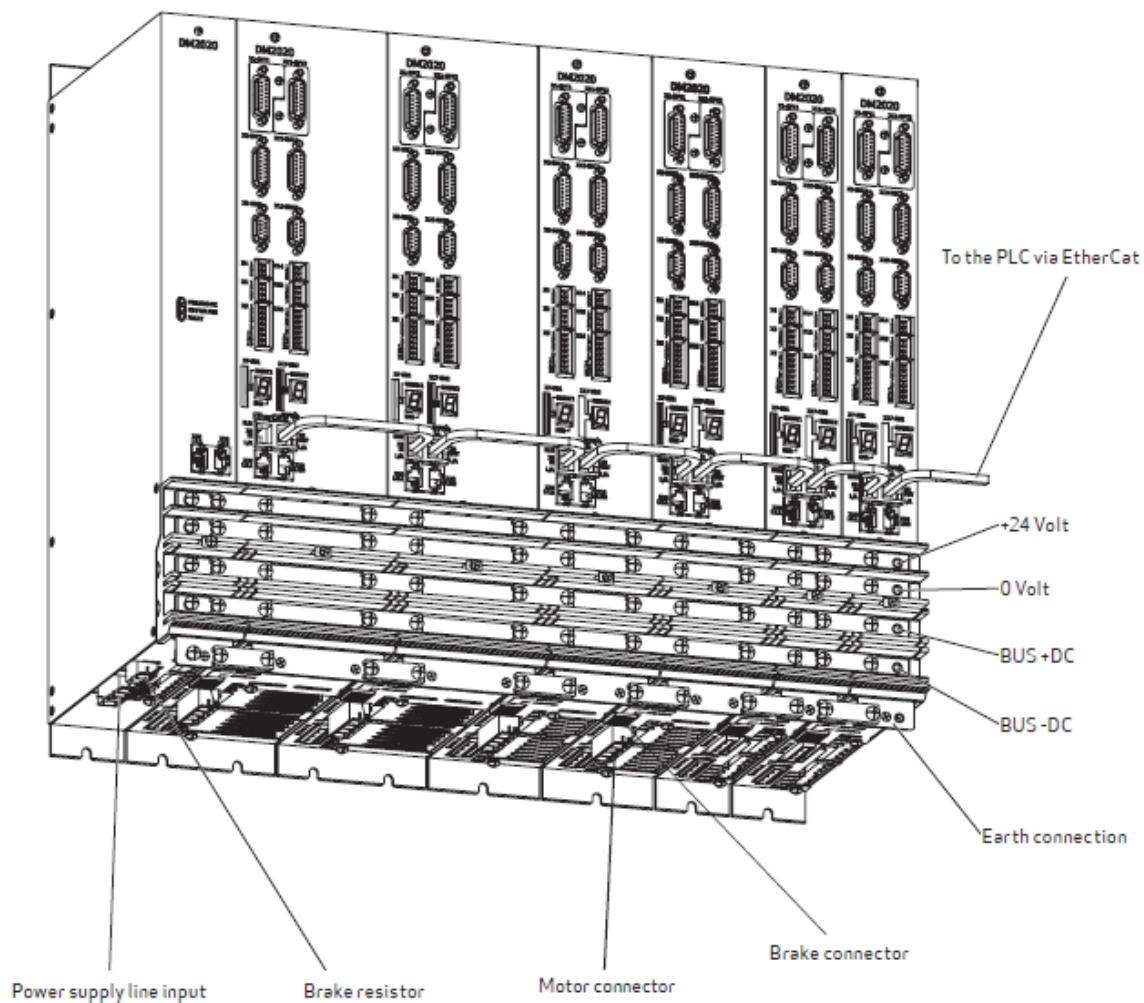
### Maximum synchronisation between the axes

- The dual-axis layout implemented in a single module, plus the connection between different modules (via CANopen), is essential to ensure synchronisation between high performance axes; this in turn is fundamental for improving configurations such as Master/Slave, bridge (gantry) crane, and electrical energy conversion lines.

### Customised applications

- Applications for controlling multi-axis systems in industrial automation.
- Applications with high precision and the maximum dynamics.
- Applications for energy savings.
- Applications with customised functions.
- Applications requiring quick, precise synchronisation between the axes.
- Energy conversion (from mechanical to electrical and vice versa), where performance, efficiency and excellent integration are needed.

**Note:** The DS2020 drives do not belong to the lists of "dual use" products, as defined in the framework regulation EC 428/2009, and are therefore not subject to its restrictions regarding sale and transportation.



**Configuration description:**

the figure shows an example of a 12-axis system consisting on the left of a 50mm power supply unit, followed by 2 size L100 modules, 2 size L75 modules, and 2 size L50 modules. All the modules are made up of 2 axes.

## Characteristics of the axis module

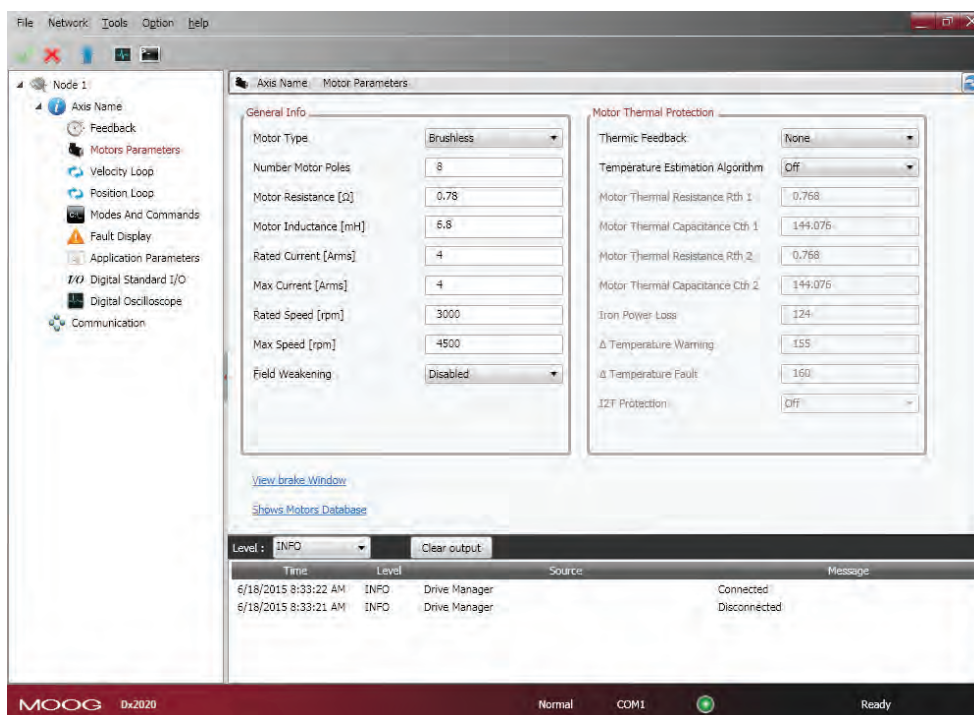
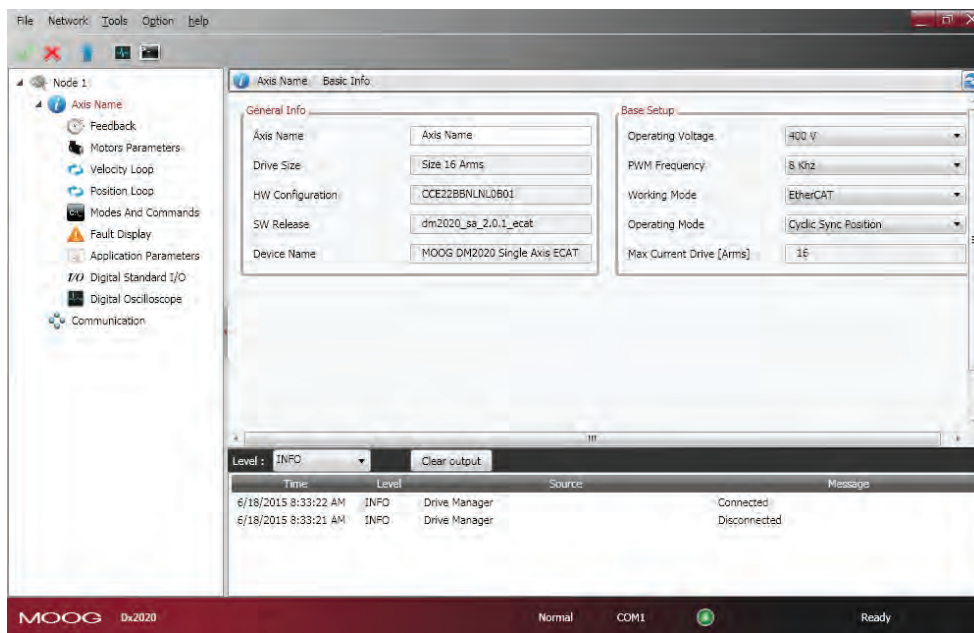
- The dimensions of the standard module, with a height and depth (455mm/10.04 inches and 249mm/9.80 inches) are the same for all modules; the width is variable and increases according to the rated current, starting from 50mm/1.97 inches for smaller modules.
- The main control interface is a real time, high performance EtherCat Fieldbus; the consolidated analogue/simulated encoder interface and CANOpen interface are also available as a standard configuration. CIA 402 control modules may be used.
- Different transducers are managed as feedback from the motor; each axis module has (as standard) a resolver interface and programmable encoder, and both can be configured as the main or secondary transducer.  
The resolver interface has attenuation correction, cable phase correction and amplitude gain, to improve precision in all conditions.  
The encoder interface can be configured via software to read the various sensor technologies, including:
  - Heidenhain EnDat 2.2 (single and absolute multi-turn) with SinCos or full digital signals
  - Stegman Hiperface Encoder (single and absolute multi-turn) with SinCos signals
  - SinCos encoder (with a power supply from 5 to 8 Volt)
 A second optional encoder interface is available, with the same characteristics as the main interface.
- The control software architecture is designed with high-performance flexible structures, with rapid, high precision analogue/digital conversion. It can easily be customised with the aid of high-level instruments (e.g. Simulink and MatLab) to improve motor control performance, optimise the accuracy of the control and positioning, and meet the needs and expectations of even the most demanding customer.
- Configuration of the control module with one or two axes. In the 2-axis configuration, the first can be the Master and the other one the Slave; alternatively, the two axes may be independent. From a practical viewpoint, the only difference between the Master and the Slave is that the HW for EtherCat and CANopen is only available in the Master axis. With this implementation, there is just one EtherCat and CANopen node for each module, thereby reducing the number of Fieldbus nodes in the system.
- The STO (Safe Torque Off) function is available on all axes with independent management for each module axis.
- The interface of the MMC card for memorising all the axis parameters is available for every axis, so the module can be replaced more easily and a new axis can be configured quickly. This memory support also offers considerable data storage space, and high speed data recording.
- The signal and power connections are separated in the internal drive layout. This improves EMC characteristics and the rejection of electrical noise generated by the wiring. The signals reach the upper part of the front drive panel, and the current is situated on the lower panel.
- The 24 Volt auxiliary connection and DC BUS use the same type of bus bar, to reduce the number of components and spare parts. The bus bar current may reach 250 Amps.
- The motor power connectors on the bottom have screws so that cables can be connected easily, without needing special crimping tools.
- On the bottom of the module, there is an interface for controlling the motor brake (2 Amp 24 Volt) - one for each axis.
- There is an optional slot for each axis on the front panel, for the customisable interface cards (unless it is occupied by the "second encoder" option).

## Characteristics of the power supply module

- Centralised power supply module of the system for AC/DC conversion and DC current sharing.
- CANopen connection for internal communications and parameter configuration with PC/GUI directly from the power supply unit.
- Monitoring (via a control card with CPU) of: DC BUS voltage, three input phases, power supply module temperature, and dynamic braking commands of the drive. The information is shared amongst the various modules via CANopen.

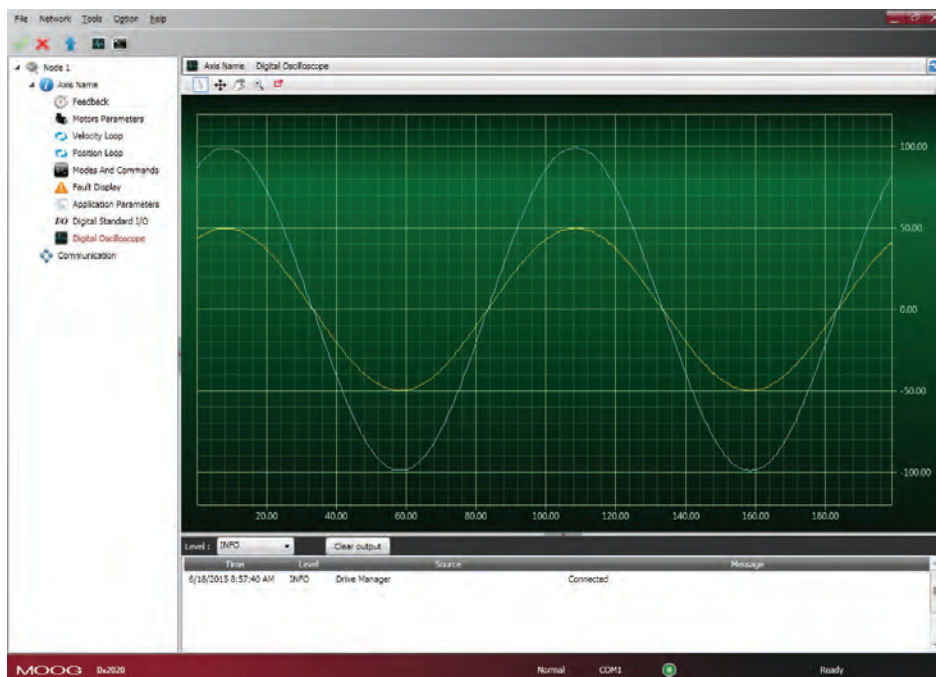
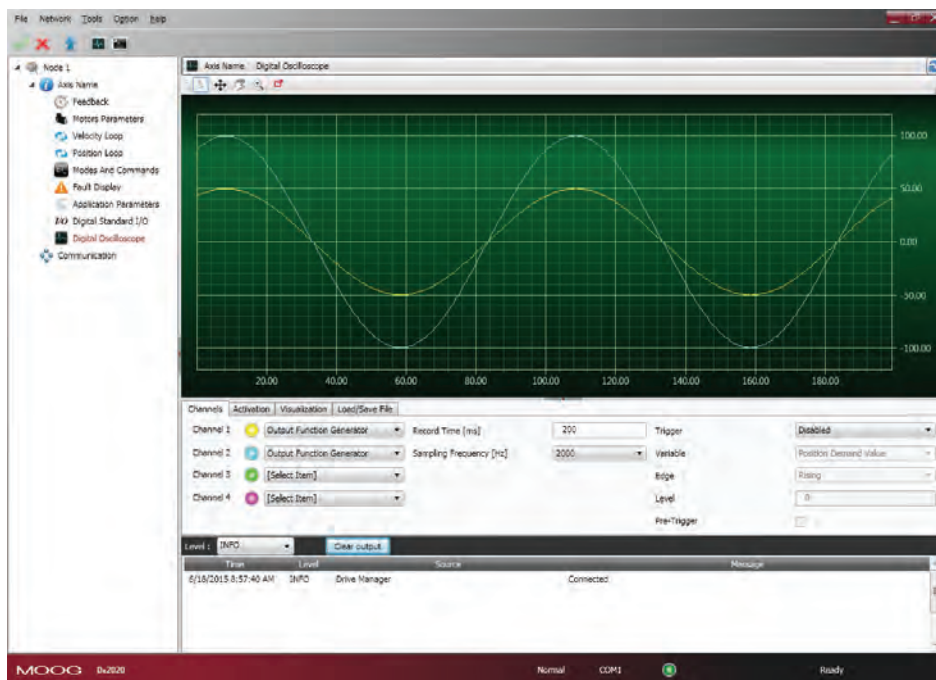
## GUI functions

- SW based on the Windows™ operating system.
- RS232 or CANopen communication interface.
- Access to all the system variables for configuration, direct drive control, initial start-up, troubleshooting, drive monitoring, assisted axis calibration.
- The system configuration can be stored on File System and loaded in a simple, intuitive manner.



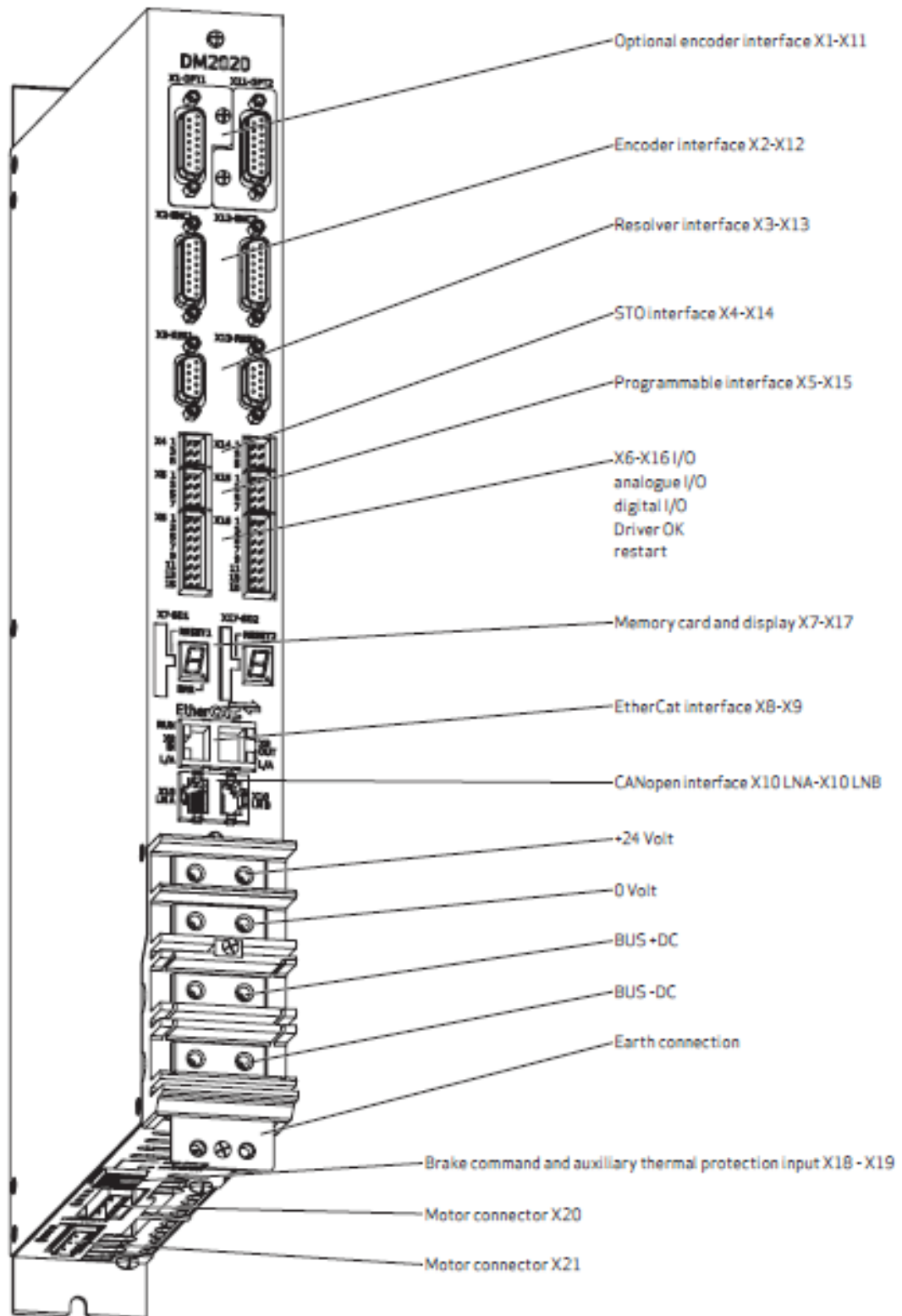


- A 4-trace oscilloscope is available for monitoring internal drive dimensions and checking performance levels. The high frequency (up to 16 KHz) data sampling method is supported by the MMC memory card.
- The oscilloscope function allows you to view analogue data from the drive in real time (e.g. resolver feedback amplitude, analogue input, output current); this is useful for the initial start-up and for troubleshooting.



# AXIS MODULE

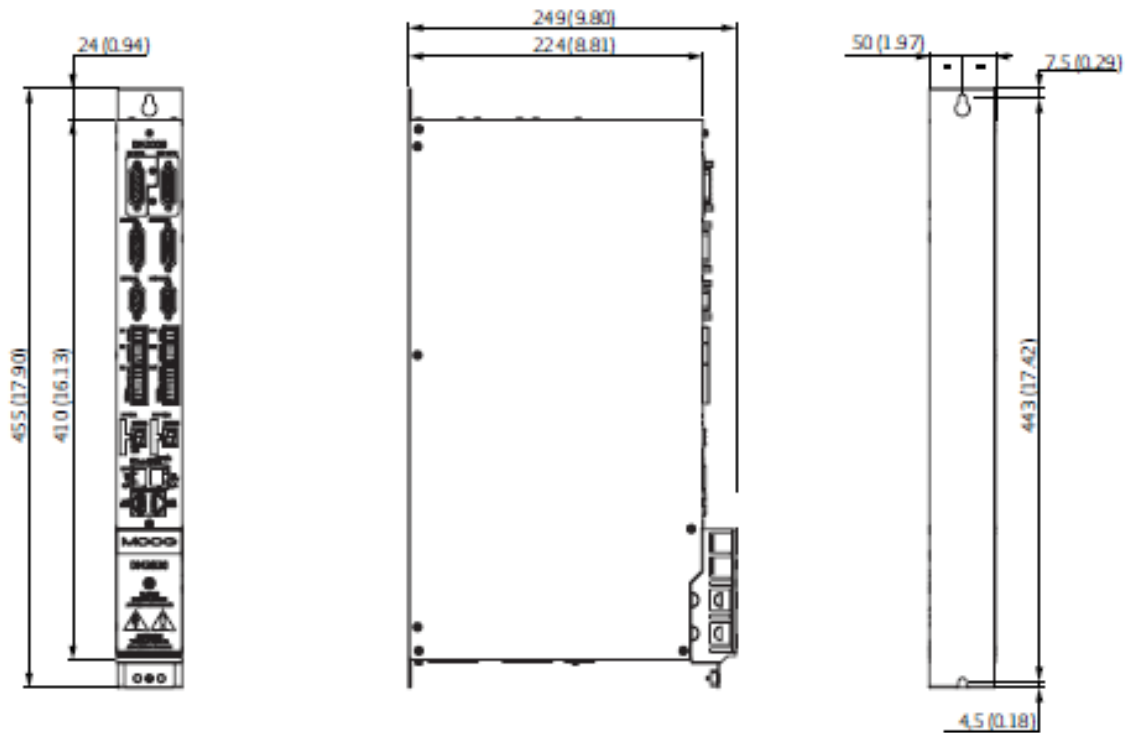
## Interface



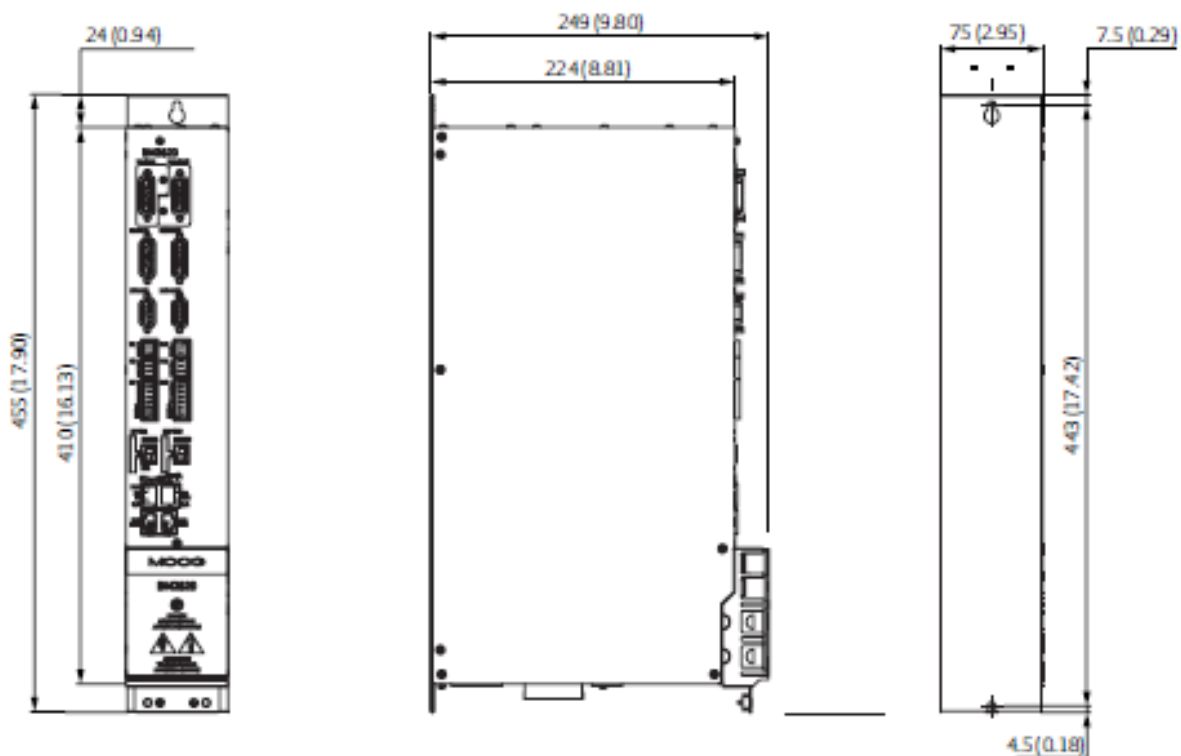


### Technical data

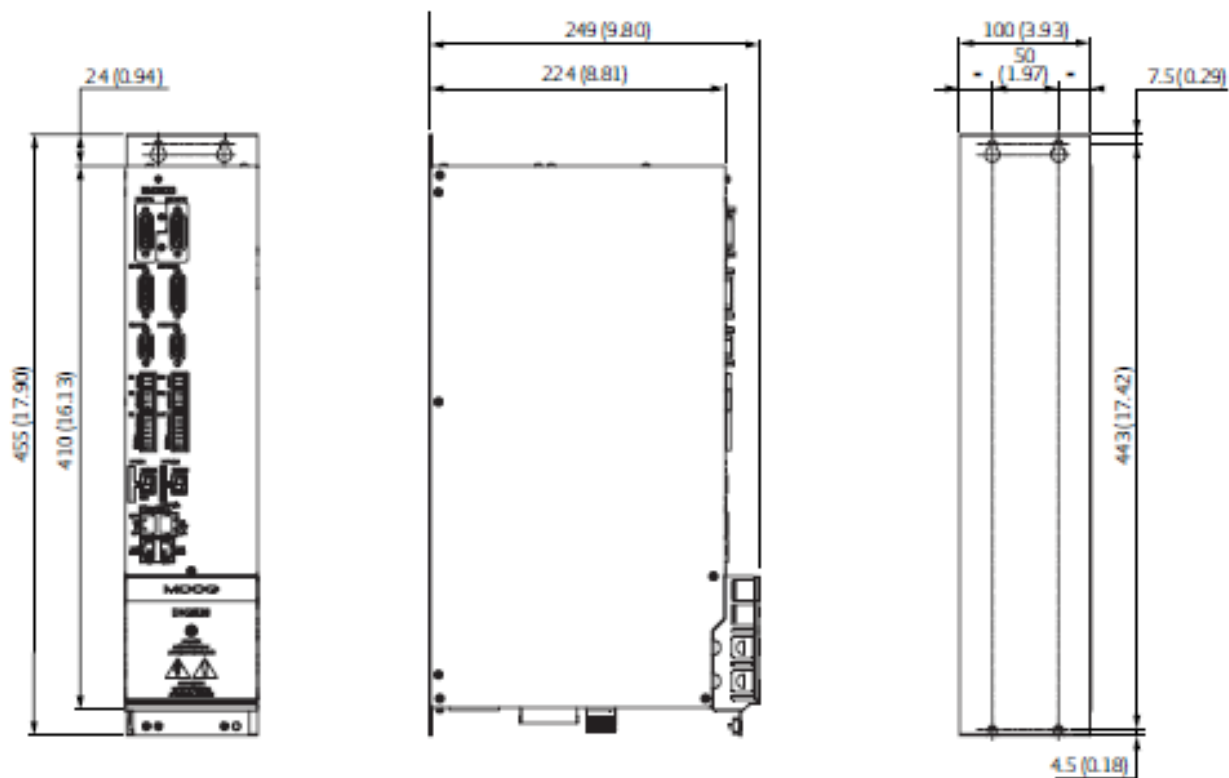
Single and double axis module - 50mm/1.97 inches



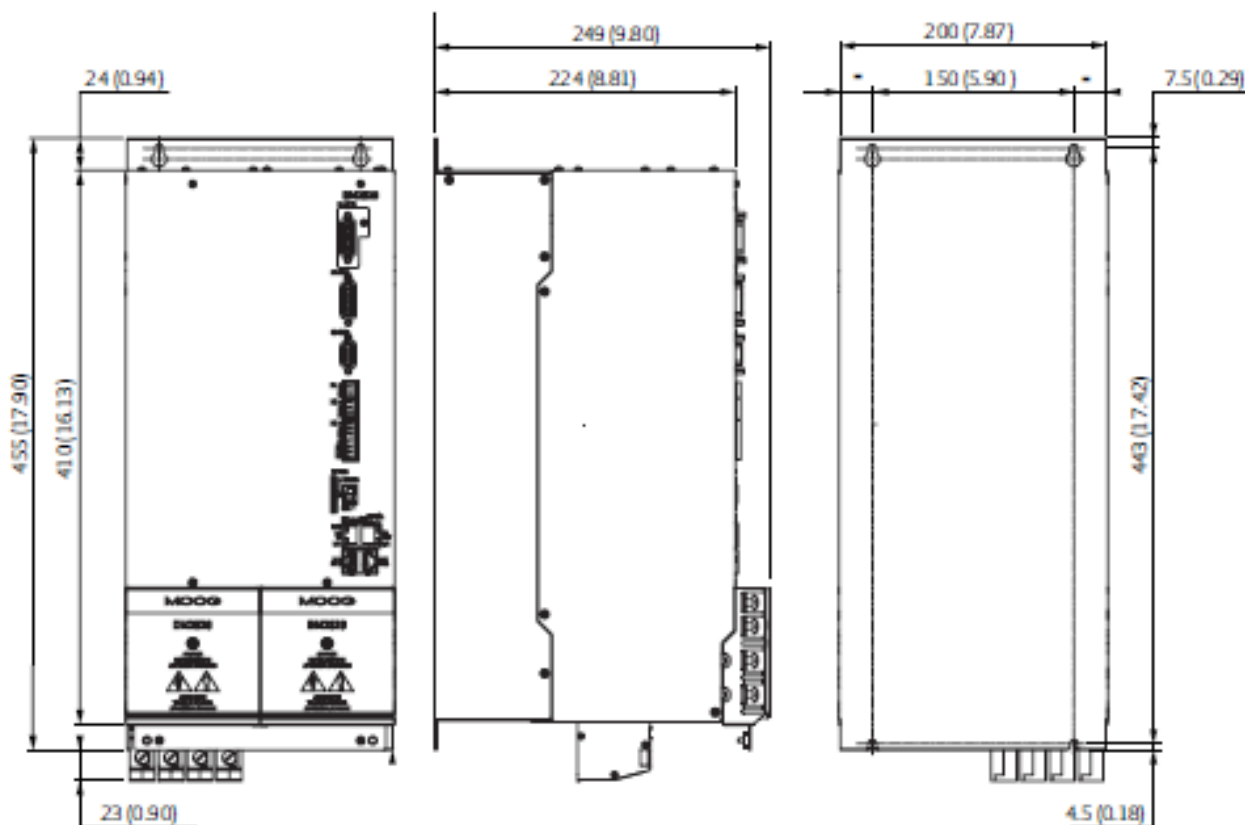
Single and double axis module - 75mm/2.95 inches



Single and double axis module - 100mm/3.93 inches



Single and double axis module - 200mm/7.87 inches



## Models

Model/Code	CC111SNLNNxxxx	CC111ANLNNxxxx	CC121SSLNxxxx	CC112BNLNNxxxx	CC122ASNLNxxxx					
<b>Mechanical dimensions</b>	50mm/1.97 inches									
<b>Configuration</b>	Single	Single	Double	Single	Double					
<b>Type</b>	L50A	L50A	L50A	L50B	L50B					
<b>Module current @ 8kHz</b>	2	4	4	8	6					
<b>Arms rated current</b>	2	-	4	-	2	2	8	-	4	2
<b>Arms peak current</b>	4	-	8	-	4	4	16	-	8	4
<b>Cooling</b>	Natural			Incorporated ventilation						
<b>Weight [kg]</b>	4,4	4,4	5,0	5,2	5,8					
<b>Total uF capacity</b>	135	135	135	135	135					
<b>Connector code</b>	BC7111R	BC7111R	BC7221R	BC7111R	BC7221R					

Model/Code	CC122AANLNxxxx	CC122BSNLNxxxx	CC122BANLNxxxx	CC114CNLNNxxxx	CC124BBLNxxxx					
<b>Mechanical dimensions</b>	50mm/1.97 inches									
<b>Configuration</b>	Double	Double	Double	Single	Double					
<b>Type</b>	L50B	L50B	L50B	L50C	L50C					
<b>Module current @ 8kHz</b>	8	10	12	16	16					
<b>Arms rated current</b>	4	4	8	2	8	4	16	-	8	8
<b>Arms peak current</b>	8	8	16	4	16	8	32	-	16	16
<b>Cooling</b>	Incorporated ventilation									
<b>Weight [kg]</b>	5,8	5,8	5,8	5,8	5,8					
<b>Total uF capacity</b>	135	135	135	135	135					
<b>Connector code</b>	BC7221R	BC7221R	BC7221R	BC7113R	BC7221R					

Model/Code	CC116DNNLNNxxxx	CC116ENNLNNxxxx	CC126CSNLNxxxxx	CC126CANLNxxxxx	CC126CBNLNxxxxx					
<b>Mechanical dimensions</b>	75mm/2.52 inches									
<b>Configuration</b>	Single	Single	Double	Double	Double					
<b>Type</b>	L75	L75	L75	L75	L75					
<b>Module current @ 8kHz</b>	24	32	18	20	24					
<b>Arms rated current</b>	24	-	32	-	16	2	16	4	16	8
<b>Arms peak current</b>	48	-	64	-	32	4	32	8	32	16
<b>Cooling</b>	Incorporated ventilation									
<b>Weight [kg]</b>	6,6	6,6	7,2	7,2	7,2					
<b>Total uF capacity</b>	340	340	340	340	340					
<b>Connector code</b>	BC7113R	BC7113R	BC7225R	BC7225R	BC7225R					

Model/Code	CC126CCNLNxxxxx	CC126DSNLNxxxxx	CC126DANLNxxxxx	CC126DBNLNxxxxx				
<b>Mechanical dimensions</b>	75mm/2.52 inches							
<b>Configuration</b>	Double	Double	Double	Double				
<b>Type</b>	L75	L75	L75	L75				
<b>Module current @ 8kHz</b>	32	26	28	32				
<b>Arms rated current</b>	16	16	24	2	24	4	24	8
<b>Arms peak current</b>	32	32	48	4	48	8	48	16
<b>Cooling</b>	Incorporated ventilation							
<b>Weight [kg]</b>	7,2	7,2	7,2	7,2				
<b>Total uF capacity</b>	340	340	340	340				
<b>Connector code</b>	BC7225R	BC7225R	BC7225R	BC7225R				

<b>Model/Code</b>	<b>CC118FNLNxxxxx</b>	<b>CC118GNLNxxxxx</b>	<b>CC128DCNLNxxxxx</b>	<b>CC128DDNLNxxxxx</b>	<b>CC128ESNLNxxxxx</b>					
<b>Mechanical dimensions</b>	100mm/3.94 inches									
<b>Configuration</b>	Single	Single	Double	Double	Double					
<b>Type</b>	L100	L100	L100	L100	L100					
<b>Module current @ 8kHz</b>	48	64	40	48	34					
<b>Arms rated current</b>	48	-	64	-	24	16	24	24	32	2
<b>Arms peak current</b>	96	-	128	-	48	32	48	48	64	4
<b>Cooling</b>	Incorporated ventilation									
<b>Weight [kg]</b>	8,0	8,0	8,6	8,6	8,6					
<b>Total uF capacity</b>	340	340	340	340	340					
<b>Connector code</b>	BC7113R	BC7114R	BC7225R	BC7225R	BC7225R					

<b>Model/Code</b>	<b>CC128EANLNxxxxx</b>	<b>CC128EBNLNxxxxx</b>	<b>CC128ECNLNxxxxx</b>	<b>CC128EDNLNxxxxx</b>	<b>CC128EENLNxxxxx</b>					
<b>Mechanical dimensions</b>	100mm/3.94 inches									
<b>Configuration</b>	Double	Double	Double	Double	Double					
<b>Type</b>	L100	L100	L100	L100	L100					
<b>Module current @ 8kHz</b>	36	40	48	56	64					
<b>Arms rated current</b>	32	4	32	8	32	16	32	24	32	32
<b>Arms peak current</b>	64	8	64	16	64	32	64	48	64	64
<b>Cooling</b>	Incorporated ventilation									
<b>Weight [kg]</b>	8,6	8,6	8,6	8,6	8,6					
<b>Total uF capacity</b>	340	340	340	340	340					
<b>Connector code</b>	BC7225R	BC7225R	BC7225R	BC7225R	BC7225R					

<b>Model/Code</b>	<b>CC128FSNLNxxxxx</b>	<b>CC128FANLNxxxxx</b>	<b>CC128FBNLNxxxxx</b>	<b>CC128FCNLNxxxxx</b>				
<b>Mechanical dimensions</b>	100mm/3.94 inches							
<b>Configuration</b>	Double	Double	Double	Double				
<b>Type</b>	L100	L100	L100	L100				
<b>Module current @ 8kHz</b>	50	52	56	64				
<b>Arms rated current</b>	48	2	48	4	48	8	48	16
<b>Arms peak current</b>	96	4	96	8	96	16	96	32
<b>Cooling</b>	Incorporated ventilation							
<b>Weight [kg]</b>	8,6	8,6	8,6	8,6				
<b>Total uF capacity</b>	340	340	340	340				
<b>Connector code</b>	BC7225R	BC7225R	BC7225R	BC7225R				

Model/Code	CC130HNNLNxxxxx	CC130JNNLNxxxxx	CC140FDNLNxxxxx	CC140FENLNxxxxx	CC140FFNLNxxxxx					
<b>Mechanical dimensions</b>	200mm/7.87 inches									
<b>Configuration</b>	Single	Single	Double	Double	Double					
<b>Type</b>	L200	L200	L200	L200	L200					
<b>Module current @ 8kHz</b>	96	128	72	80	96					
<b>Arms rated current</b>	96	-	128	-	48	24	48	32	48	48
<b>Arms peak current</b>	192	-	256	-	96	48	96	64	96	96
<b>Cooling</b>	Incorporated ventilation									
<b>Weight [kg]</b>	17,5	17,5	17,5	17,5	17,5					
<b>Total uF capacity</b>	2720	2720	2720	2720	2720					
<b>Connector code</b>	BC7115R	BC7115R	BC7225R	BC7225R	BC7225R					

Model/Code	CC140GSNLNxxxxx	CC140GANLNxxxxx	CC140GBNLNxxxxx	CC140GCNLNxxxxx				
<b>Mechanical dimensions</b>	200mm/7.87 inches							
<b>Configuration</b>	Double	Double	Double	Double				
<b>Type</b>	L200	L200	L200	L200				
<b>Module current @ 8kHz</b>	66	68	72	80				
<b>Arms rated current</b>	64	2	64	4	64	8	64	16
<b>Arms peak current</b>	128	4	128	8	128	16	128	32
<b>Cooling</b>	Incorporated ventilation							
<b>Weight [kg]</b>	17,5	17,5	17,5	17,5				
<b>Total uF capacity</b>	2720	2720	2720	2720				
<b>Connector code</b>	BC7226R	BC7226R	BC7226R	BC7226R				

Model/Code	CC140GDNLNxxxxx	CC140GENLNxxxxx	CC140GFNLNxxxxx	CC140GGNLNxxxxx				
<b>Mechanical dimensions</b>	200mm/7.87 inches							
<b>Configuration</b>	Double	Double	Double	Double				
<b>Type</b>	L200	L200	L200	L200				
<b>Module current @ 8kHz</b>	88	96	112	128				
<b>Arms rated current</b>	64	24	64	32	64	48	64	64
<b>Arms peak current</b>	128	48	128	64	128	96	128	128
<b>Cooling</b>	Incorporated ventilation							
<b>Weight [kg]</b>	17,5	17,5	17,5	17,5				
<b>Total uF capacity</b>	2720	2720	2720	2720				
<b>Connector code</b>	BC7226R	BC7226R	BC7226R	BC7226R				

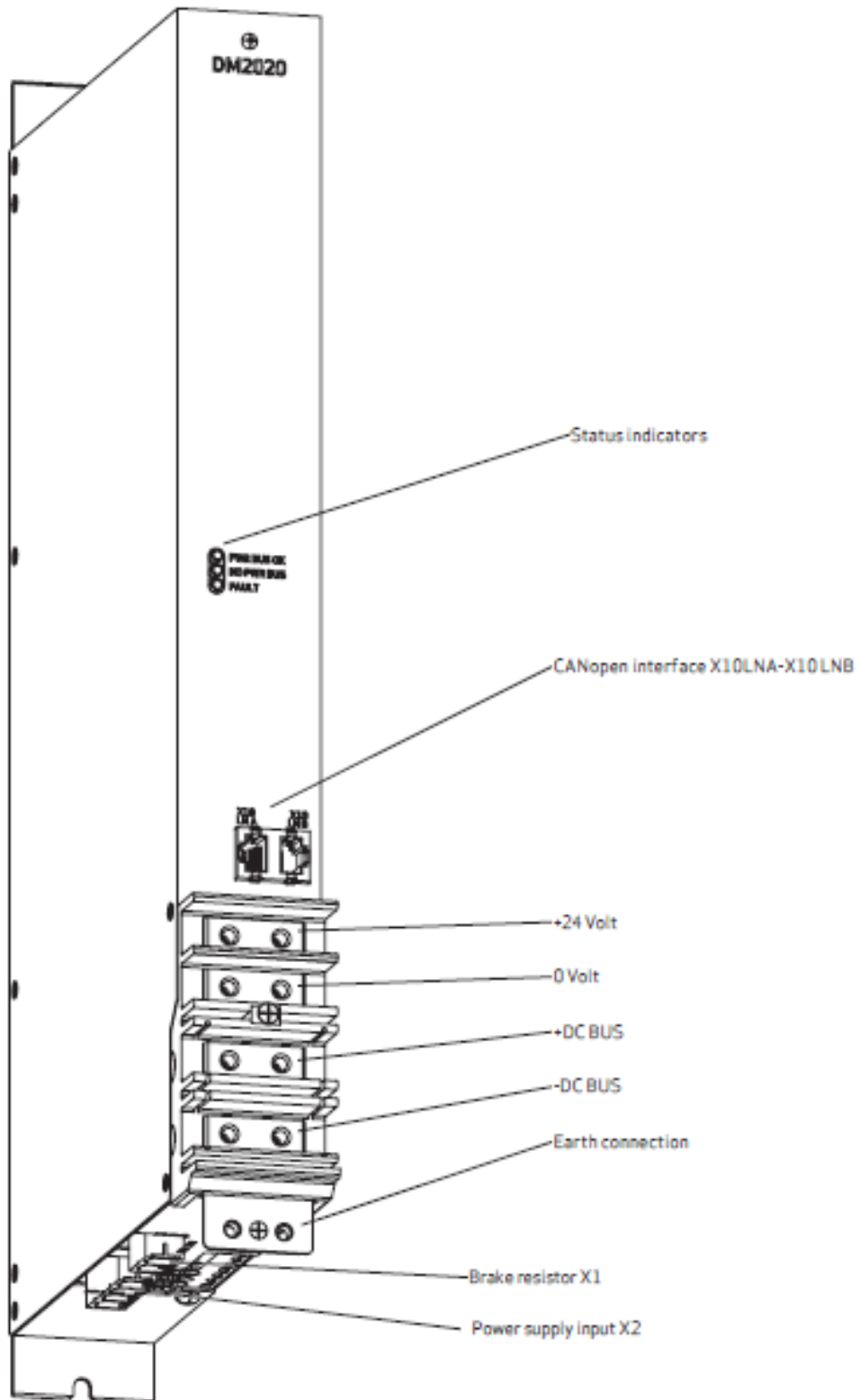
Further information on the drives is provided in the user manual

NB: in some modules, the current of the main axis is limited (reduced) in order to maintain the availability of the peak output current and, at the same time, to use all the rms current of the module.



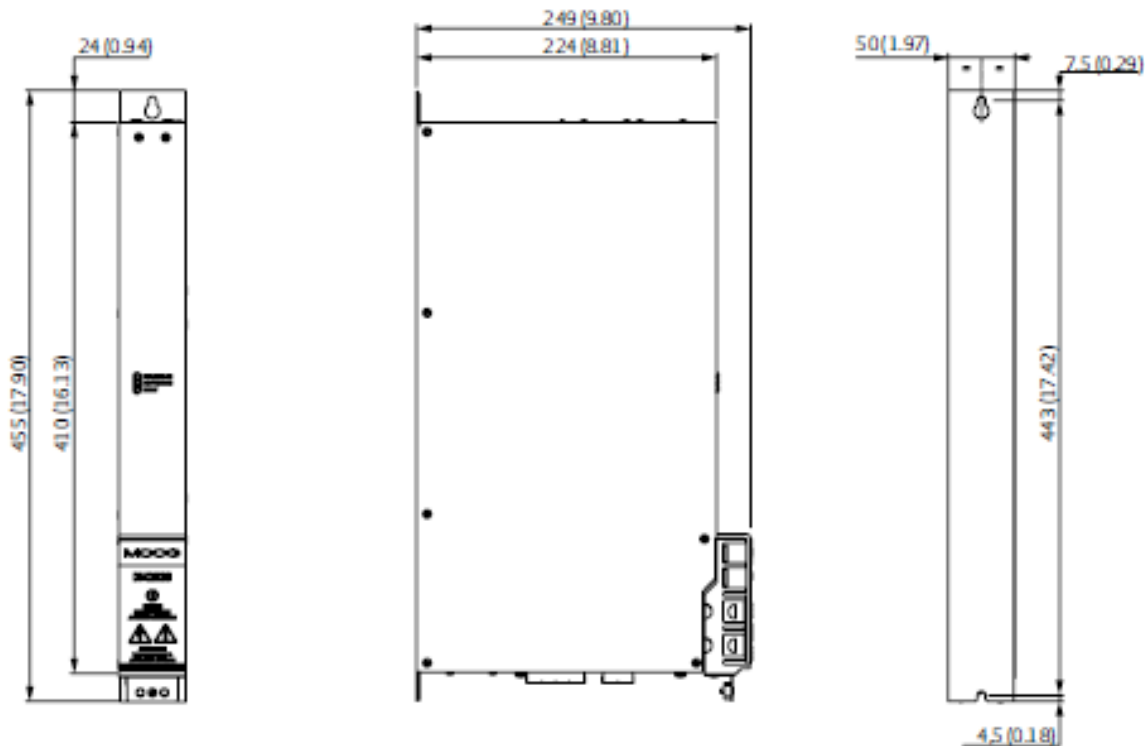
# POWER SUPPLY MODULE

## Interface

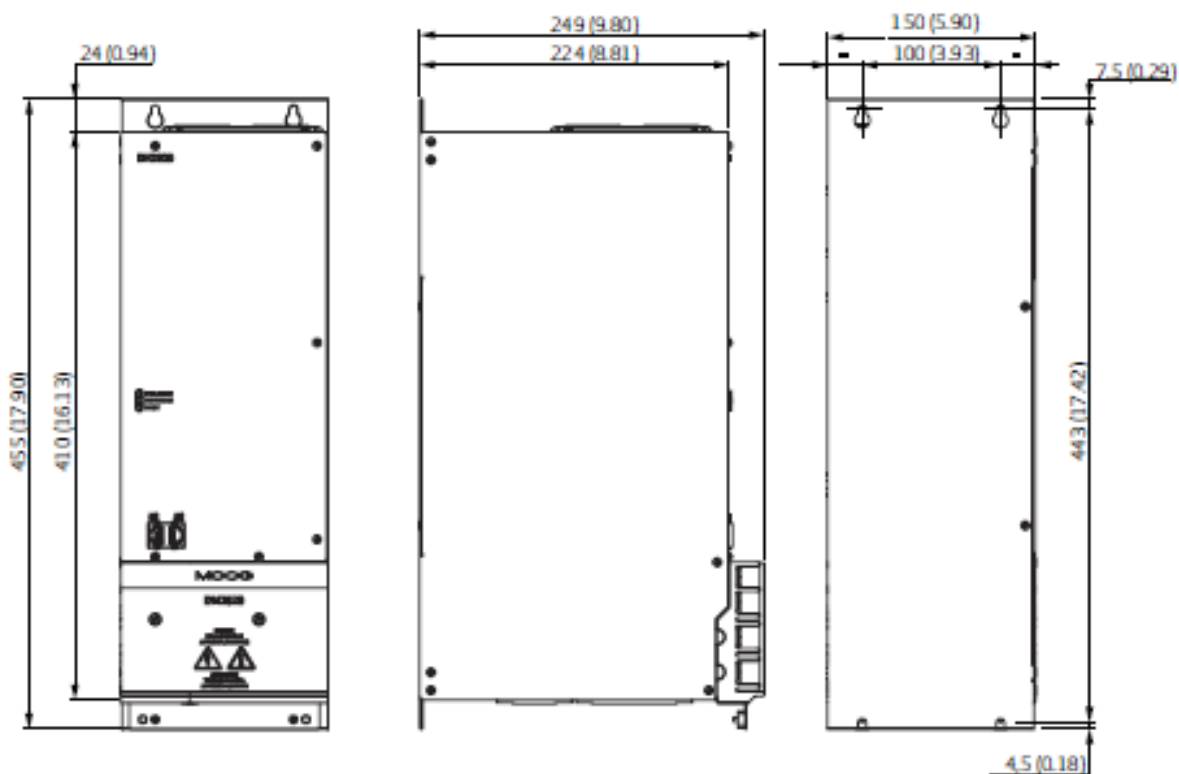


### Technical data

Power supply module - 50mm/1.97 inches



Power supply module 150mm/5.90 inches



## Models

Model/Code	CC201xxxxx	CC202xxxxx
<b>Mechanical dimensions</b>	50mm/1.97 inches	150mm/5.90 inches
<b>Type</b>	L50	L150
<b>Electrical line power supply</b>	3 phases, from 65 to 528V AC, 50/60 Hz	
<b>Auxiliary bus bar power supply</b>	24V DC +/- 10%, 1 A (external supply)	
<b>Arms rated current</b>	54	128
<b>Arms peak current</b>	130	256
<b>Protection</b>	Thermal protection on the heatsink +71°C Detection of loss during input phase Detection of insufficient voltage or overvoltage	
<b>Communication</b>	CANopen for sharing data amongst the drives	
<b>Cooling</b>	Incorporated ventilation	
<b>Weight (kg)</b>	5,1	13,5
<b>Total uF capacity</b>	1800	4500
<b>Connector code</b>	BC0004R	BC0006R

## OPTIONS AND ACCESSORIES

### Motor brake options

Each axis can be fitted with an optional internal module for controlling the motor brake, 2 Arms @ 24V DC; its connector is located in the lower part of the drive, in front of the motor connector.

### Feedback option

Each axis can be fitted with an optional feedback module so that a second encoder channel can be used to control the machine (refer to the user manual for the configuration details); the possible modes are the same as those of the incorporated encoder, available as standard in the drive:

- SinCos, power supply from 5 to 8 Volt
- Hiperface

### Brake resistor option

For the 50mm power supply, there are two different brake resistors:

- DBR S standard, 15 Ohm 370 Watt (supplied)
- DBR C insulated, 16 Ohm 500 Watt, available as an optional extra (to be ordered separately with code AR5974)

For the 150mm power supply, the standard brake resistor is not supplied. The recommended resistor is 4.7 Ohm/1000 Watt (to be ordered separately with code AR5988).

In the case of application conditions with dissipated power levels higher than 1000 Watt, contact the Application department to ensure the component is correctly sized.

### Connector kit option

All the connectors can be ordered with a separate code. These kits are necessary for wiring the module and power supply unit, and as a spare part when repairing the wiring.

For the correct coupling of the connector kit (supplied) and module, refer to the tables showing the models (on the previous pages).

Each connector kit contains:

- for the axis module: all the signal and power connector kits
- for the power supply module: the power supply connectors and brake resistor connectors (DBR)

### Memory Card option

A memory card (MMC) is available for recording, in real time, the data acquired during measurement operations.

The MMC is necessary for filing the data that may later be viewed via the GUI.

Download is via the PC-drive connection, or by removing the card and inserting it in the appropriate drive on the PC.

Thanks to storage on the MMC, you will always have a copy of the parameters if the data are repeated on a new drive.

### ABC module

#### Auxiliary capacitor module

In the same 50mm/1.97 inch module structure, there is a capacitor module for increased braking energy.

The following table sums up the total capacity of each module.

Module ID	Total cap. uF
Auxiliary capacitor module ABC1	1800
Auxiliary capacitor module ABC2	2700
Auxiliary capacitor module ABC3	3600
Auxiliary capacitor module ABC4	4500
Auxiliary capacitor module ABC5	5400

For machines with a fast cycle and movement, the amount of energy dispersed by the brake resistor can be reduced.

At 200 cycles/min, the addition of an ABC module can save up to 3 kW in braking energy; an application note will help the machine designer to decide whether to add ABCs in the DM2020 configuration (and if so, how many).

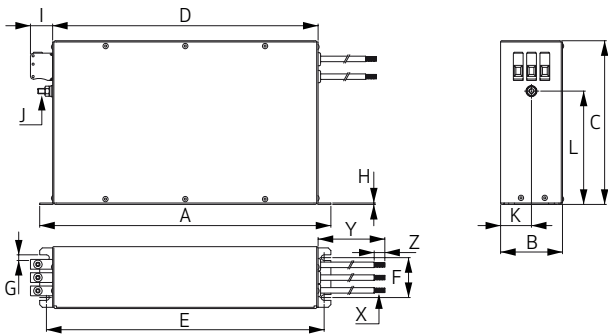
## Line filters



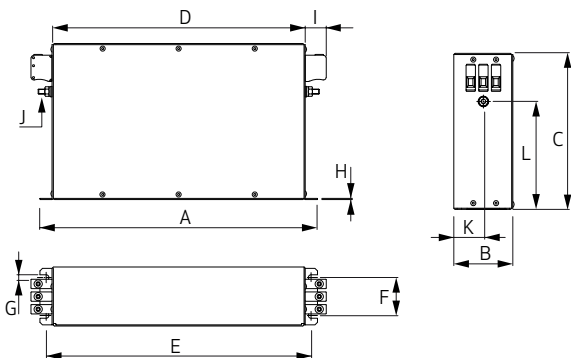
<b>Filter code</b>	<b>AT6013 - AT6015</b>
<b>Rated voltage</b>	3 x 480V, +10%, 50/60 Hz, at 50°C
<b>Overload</b>	1.5x for 60s, repeatable every 60 min.
<b>Ambient temperature</b>	From -25°C to +100°C, with current reduction starting from 60°C (1.3%/°C)
<b>Assembly height</b>	1000m, with current reduction up to 4000m (6% / 1000m)
<b>Relative air humidity</b>	15 - 85% (condensate not permitted)
<b>Storage temperature</b>	From -25°C to +70°C
<b>IP protection rating</b>	IP20
<b>Acceptance test</b>	Complies with CE
<b>Industrial environment - EN61800-3 complies with radio screening</b>	Permitted drive cable length - up to 100m

Code	Suitable for power supply:	Type	Rated current [A]	Total current loss [W]	Current on contact [mA]	Weight [kg]	Connection [mm <sup>2</sup> ]
AT6013	A	A 1	55	26	33,4	1,8	16mm <sup>2</sup> flex. PE M6 bolt
AT6015	L	L 1	100 (110)	51	21,6	5,6	50mm <sup>2</sup> flex. PE M10 bolt

### Dimensions



AT6013		
A = 255mm/10.04 inches	I = 10.9mm/0.43 inches	
B = 50mm/1.97 inches	J = M5	
C = 126mm/4.96 inches	K = 25mm/0.98 inches	
D = 225mm/8.86 inches	L = 85mm/3.35 inches	
E = 240mm/9.45 inches	X = AWG 16	
F = 25mm/0.98 inches	Y = 300 ± 10mm (11.81 ± 0.39 inches)	
G = 6.5mm/0.26 inches	Z = 9mm/0.35 inches	
H = 1mm/0.04 inches		



AT6015		
A = 379mm/14.92 inches	H = 1,5mm/0.06 inches	
B = 90mm/3.54 inches	I = 45mm/1.77 inches	
C = 220mm/8.66 inches	J = M10	
D = 350mm/13.78 inches	K = 45mm/1.77 inches	
E = 364mm/14.33 inches	L = 130mm/5.11 inches	
F = 65mm/2.56 inches	X = AWG 1/0	
G = 6.5mm/0.26 inches		

## ENVIRONMENTAL DATA

<b>Ambient operating temperature</b>	from 0°C to 40°C up to 55°C with output current reduction (-2% / °C)
<b>Storage temperature</b>	from -25°C to 55°C
<b>Transport temperature</b>	from -25°C to 70°C
<b>Relative humidity</b>	15...85% (condensate not permitted)
<b>Assembly height</b>	Up to 1000m AMSL (over 1000m AMSL with reduced current) max. 2000m AMSL (-2% / 100m)
<b>Certification</b>	CE, UL (ID code E194181)
<b>IP protection rating</b>	IP20
<b>Mechanical resistance in compliance with EN 60721-3-3</b>	Vibration: 3mm in a 2-9 Hz frequency field Vibration: 9.8m/s <sup>2</sup> (1g) in a 9-200 Hz frequency field Shock: 98m/s <sup>2</sup> (10g) at 11ms
<b>Machine safety</b>	STO (Safe Torque Off) SILCL3 PL"e"



## CE MARKING

The DM2020 servodrives comply with the Low Voltage Directive (2006/95/CE) and EMC Directive (2004/108/CE).

The “Safe Torque Off” (STO) safety function built into the drive complies with the Machinery Directive (2006/42/CE).

To comply with European Directives, the drive meets the requisites of the relevant harmonised installation standards EN50178 (LVD), EN61800-3 (EMC) and EN 61800-5-2 (Machine Safety). The servodrives are CE-certified.

# MODULE CODIFICATION

## Axis module coding



Version	
1	Standard model
E	Special model

Mechanical hardware configuration		
Value	Width	Rated current (Axis 1 + Axis 2)
11	Single 50mm	4 Arms
21	Double 50mm	L50A
12	Single 50mm	12 Arms
22	Double 50mm	L50B
14	Single 50mm	16 Arms
24	Double 50mm	L50C
16	Single 75mm	32 Arms
26	Double 75mm	L75
18	Single 100mm	64 Arms
28	Double 100mm	L100
30	Single 200mm	128 Arms
40	Double 200mm	L200

Axis 1 - Currents <sup>(1)</sup>		
Value	Rated current	Peak current
S	2 Arms	4 Arms
A	4 Arms	8 Arms
B	8 Arms	16 Arms
C	16 Arms	32 Arms
D	24 Arms	48 Arms
E	32 Arms	64 Arms
F	48 Arms	96 Arms
G	64 Arms	128 Arms
H	96 Arms	192 Arms
J	128 Arms	256 Arms

Axis 2 - Currents <sup>(1)</sup>		
Value	Rated current	Peak current
N	<sup>(2)</sup>	<sup>(2)</sup>
S	2 Arms	4 Arms
A	4 Arms	8 Arms
B	8 Arms	16 Arms
C	16 Arms	32 Arms
D	24 Arms	48 Arms
E	32 Arms	64 Arms
F	48 Arms	96 Arms
G	64 Arms	128 Arms

Special variations	
Value	Internal coding <sup>(4)</sup>

Special configurations	
Value	Description
00	Standard configuration
01	Brake option

Hardware revision	
Value	Internal coding <sup>(4)</sup>

Fieldbus configuration	
Value	Version
0	Configuration with EtherCat
1	Configuration with analogue references
2	CANopen configuration

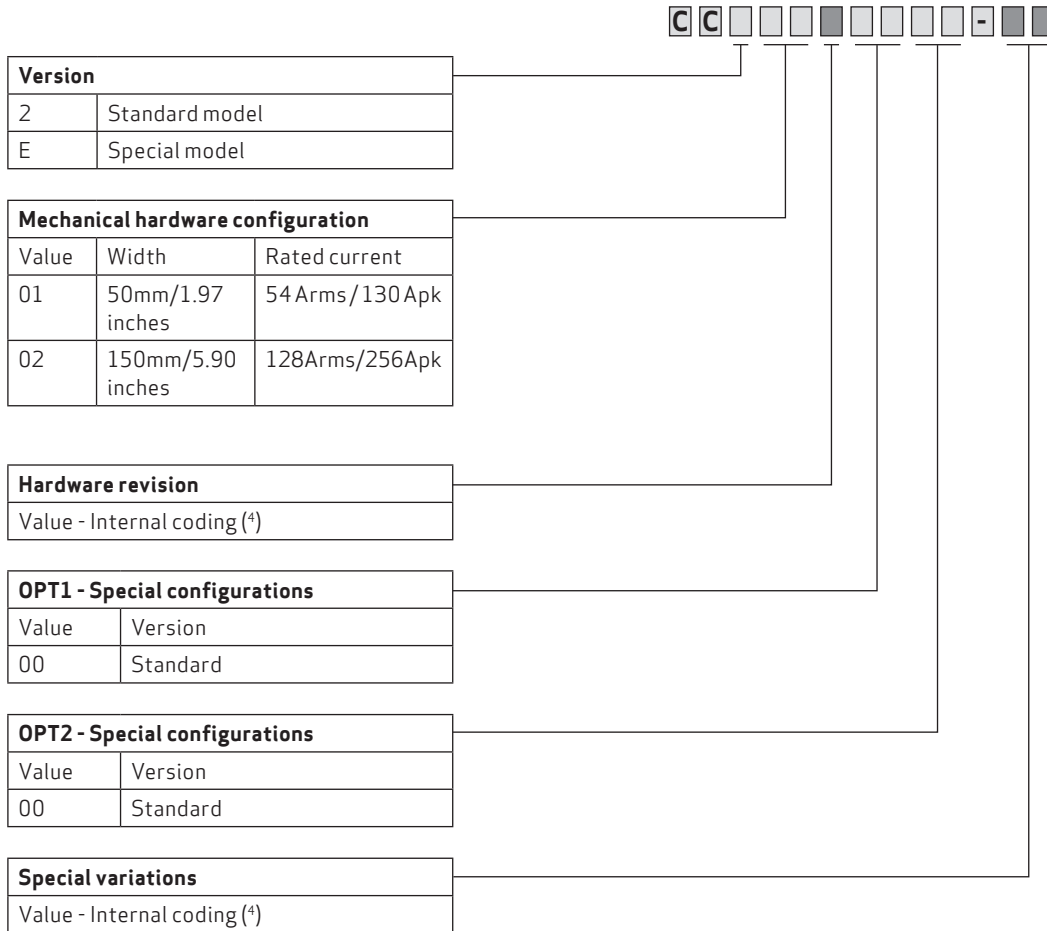
X15 - Slave Board Option (Axis 2)	
Value	Version
N	Not equipped <sup>(2)</sup>
L	Equipped

OPT2-SlaveBoard(Axis2-SecondTransducer Optional)	
Value	Version
N	Not equipped <sup>(2 3)</sup>
E	Encoder
I	Incremental encoder
R	Resolver

OPT1 - Master board (Axis 1 - Second Transducer Optional)	
Value	Version
N	Not equipped <sup>(3)</sup>
E	Encoder
I	Incremental encoder
R	Resolver

- (1) With a double axis configuration, the most powerful axis is indicated first
- (2) Not equipped - Single-axis version
- (3) Standard version
- (4) Values assigned by Moog

**Coding of the power supply module**



<sup>(4)</sup> Values assigned by Moog

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