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MINISPEED® DC SERVODRIVE

AXOR
INDUSTRIES
MOTORS SERVO DRIVES

MINISPEED® (MS)

Four quadrant bi-directional eurocard servodrives for controlling DC Servomotors up to 15 Nm (2142 oz.-in.)

Typical applications are: Robotics, X-Y Tables, Medical Equipment, Textile Equipment, Conveyors, Graphic Machinery, Packaging Machinery, Positioners, Converting Machinery, Feeders.

STANDARD FEATURES

- ✓ Eurocard format
- ✓ Single DC power supply
- ✓ Extremely high reliability (over 200 000 units produced)
- ✓ Tachogenerator feedback
- ✓ Armature feedback
- ✓ Torque mode feedback
- ✓ SMT technology
- ✓ IGBT or POWER MOSFET bridge
- ✓ Protected from: external short circuit motor polarity, over/under supply voltage, over temperature, absence or improper connection of speed feedback

OPTIONS

- ✓ Encoder feedback
- ✓ PWM + Dir. feedback

SPECIFICATIONS

- ✓ DC supply voltage range:
 - (MS60) 20÷82 Vdc
 - (MS140) 40÷182 Vdc
 - (MS200) 60÷275 Vdc
- ✓ Operating frequency: 20 KHz
- ✓ Operating temperature: 0÷ 40°C (32÷104°F)
- ✓ Analog input reference (differential): ±10 Vdc
- ✓ Humidity (without condensation): 10 ÷ 95%
- ✓ Enable signals: +10÷30 Vdc
- ✓ Out. voltage (for ext. use): +10/-10 Vdc@2.5 mA
- ✓ Motor current monitor: ±7.5 VDC (at peak current)
- ✓ Input/out. demand current: ±10 Vdc (at peak current)



DESCRIPTION

The **MINISPEED®** is a very complete line of euro-card formatted servodrives for DC servomotors. Ideal for incremental motion control, velocity loops and positioning systems, which require fast response, precision and smooth control.

Powering them requires only a single Vdc power supply which could even be provided with unbeatable multi-axis executions, when combined with the "RKM" rack system up to 11 axis, with internal power supply.

ACCESSORIES

(see specific data sheets for details)

- ✓ RACK MULTIAXIS (WITH INTERNAL POWER SUPPLY)
 - RKM: 2-10 axis + dumping slot
- ✓ DUMPING CARDS (FOR ALL RACK SYSTEMS)
 - SHR 60/140/200 - Braking power 50÷800 W
- ✓ TRANSFORMERS
 - TM/TT: single/3ph, 100÷8000 VA
- ✓ NET FILTERS (for CE compliance)
 - FRM/FRT: single/3ph, 2÷16 Arms

MODEL	MS 60							MS 140							MS 200							
SIZE	2/4	4/8	8/16	10/20	14/28	20/40	25/50	2/4	4/8	8/16	10/20	14/28	20/40	25/50	2/4	4/8	8/16	10/20	14/28	20/40	25/50	
Rated Current (A _{dc})	2	4	8	10	14	20	25	2	4	8	10	14	20	25	2	4	8	10	14	20	25	
Peak Current (A _{dc}) x 2 sec.	4	8	16	20	28	40*	50*	4	8	16	20	28	40*	50*	4	8	16	20	28	40*	50*	
Width (TE)	STANDARD	8	8	8	8	8 ^Δ	8 ^Δ	12 ^Δ	8	8	8	8	8 ^Δ	8 ^Δ	12 ^Δ	8	8	8	8 ^Δ	8 ^Δ	12 ^Δ	12 ^Δ
	OPTION					12						12							12			
FDC: Supply Line Fuse (type F, M or T)*	15 A / 250 V (5x20 mm)					25 A / 500 V (6.3x32 mm)		15 A / 250 V (5x20 mm)					25 A / 500 V (6.3x32 mm)		15 A / 250 V (5x20 mm)					25 A / 500 V (6.3x32 mm)		
Supply (V _{dc})	63 V _{dc} ^							140 V _{dc} ^							200 V _{dc} ^							

*: FDC Fuse Type: F=Quick-acting
M= Medium time-lag
T=Time-lag

^Δ: Forced cooling required
*: Peak current= x 1 second

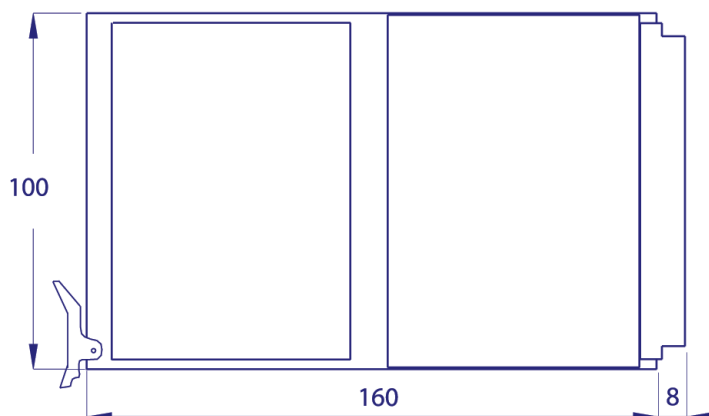
^Δ: Recommended voltage supply

★ **AXOR IND. A COMPLETE LINE OF MOTORS AND SERVODRIVES** ★

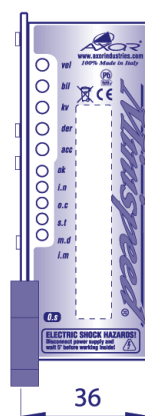
Drawings are not to scale (see quotations)

Quotes in mm

MECHANICAL DIMENSIONS

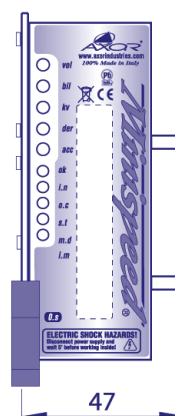


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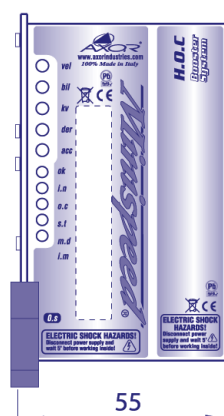
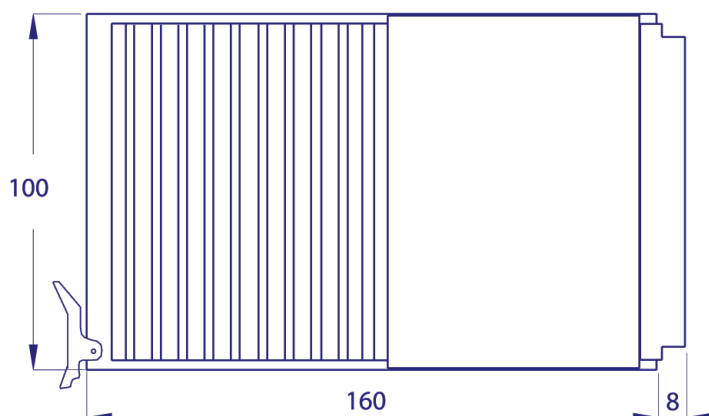
8 TE

Standard version



12 TE

Encoder Feedback version
(Optional)



12 TE

Booster version
(Heatsink powered)
(Optional)



ORDERING CODE

Example:

MS - 200 - 10 / 20 - B - S - 1000 / TO - RD

NAME: Line of DC Servodrives

AMPLIFIER TYPE: 060 - 140 - 200

SIZE: 02/04 - 04/08 - 08/16 - 10/20 - 14/28 - 20/40 - 25/50

HEATSINK VERSIONS:

N = Normal
B = Booster (optional)

PROTECTION:

S = Standard
T = Tropicalized

AXOR:

adjustment
identification
number

CONTROL MODE:

RD = Differential reference
IO = Demand Current
(torque mode)
PD = PWM+DIR (optional)

FEEDBACK:

TO = Tachogenerator (DC)
AO = Armature
EO = Encoder (optional)
00 = No feedback adjustment
(for **IO** and **PD** control modes)



MASTERSPEED®

DC SERVODRIVE



MASTERSPEED® (MTS)

Stand alone; four quadrant bidirectional servodrives for controlling DC Servomotors up to 15 Nm (2142.8 oz.-in.)

*Typical applications are :
Medical Equipment, Milling Machines, Conveyors,
Packaging Equipment, Storage Systems,
Printing Machines, Feeders, Textile Equipment.*

STANDARD FEATURES

- ✓ Internal power supply and dumping circuit
- ✓ Ventilation on board when required
- ✓ Surface Mount Tecnology
- ✓ IGBT or POWER MOSFET bridge
- ✓ Removable power module
- ✓ High industrialization
- ✓ Torque mode
- ✓ Tachogenerator feedback
- ✓ Armature feedback

OPTIONS

- ✓ Encoder feedback
- ✓ External dumping resistor (P=400, 800W)

SPECIFICATIONS

- ✓ Supply voltage range
 - (MTS60) 22÷44 VAc
 - (MTS140) 30÷95 VAc
 - (MTS200) 45÷145 VAc
- ✓ Output voltage 1.35xVAc Supply
- ✓ Input reference (differential) ±10Vdc
- ✓ Input-output demand current ±10Vdc
- ✓ Out. voltage for external use +10/-10Vdc@2.5 mA
- ✓ Enable signals +10÷30Vdc
- ✓ PWM frequency 20 KHz
- ✓ Motor current monitor ±7.5 Vdc (at peak current)
- ✓ Humidity (without condensation) 10÷95 (%)
- ✓ Operating temperature 0÷40°C (32÷104°F)



DESCRIPTION

The **Masterspeed®** Servodrive comes complete with its own power supply, regenerative circuit and with detachable plug-in terminals for easy installation.

The modular line makes the **Masterspeed®** the ideal solution for 1 to 3 axis applications. If required, fan cooling is incorporated into each amplifier module.

Usually, the external choke isn't required.

ACCESSORIES

(see specific data sheets for details)

- ✓ **TRANSFORMERS**
 - TM/TT: single/3ph, 100÷8000 VA
- ✓ **NET FILTERS (for CE compliance)**
 - FRM/FRT: single/3ph, 2÷16 Arms

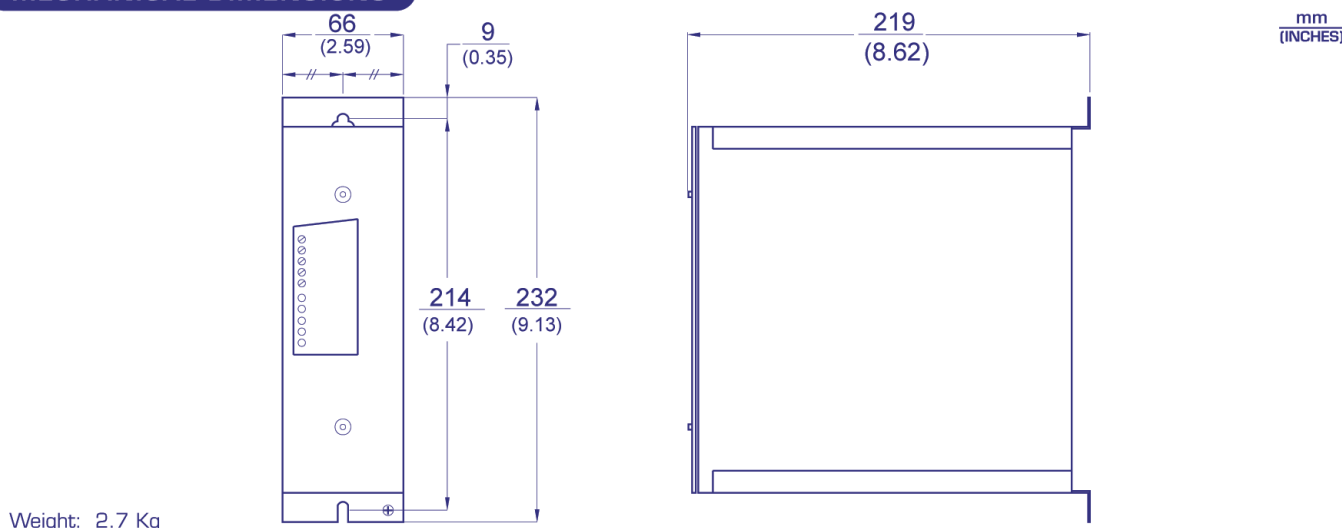
MODEL	MTS 60						MTS 140						MTS 200					
SIZE (A)	4/8	8/16	10/20	14/28	20/40	25/50	4/8	8/16	10/20	14/28	20/40	25/50	4/8	8/16	10/20	14/28	20/40	25/50
Rated Current (Arms)	4	8	10	14	20	25	4	8	10	14	20	25	4	8	10	14	20	25
Peak Current (Arms) x 2 sec.	8	16	20	28	40*	50*	8	16	20	28	40*	50*	8	16	20	28	40*	50*
F2: Supply Line Fuses (T-type = time-lag)	4 250 V	8 A 250 V	10 A 250 V	14 A 250 V	20 A 250 V	25 A 250 V	4 A 250 V	8 A 250 V	10 A 250 V	14 A 250 V	20 A 250 V	25 A 250 V	4 A 250 V	8 A 250 V	10 A 250 V	14 A 250 V	20 A 250 V	25 A 250 V
Supply (VAc) (3PH)	44 VAc ▲						95 VAc ▲						145 VAc ▲					

▲: Recommended AC power supply

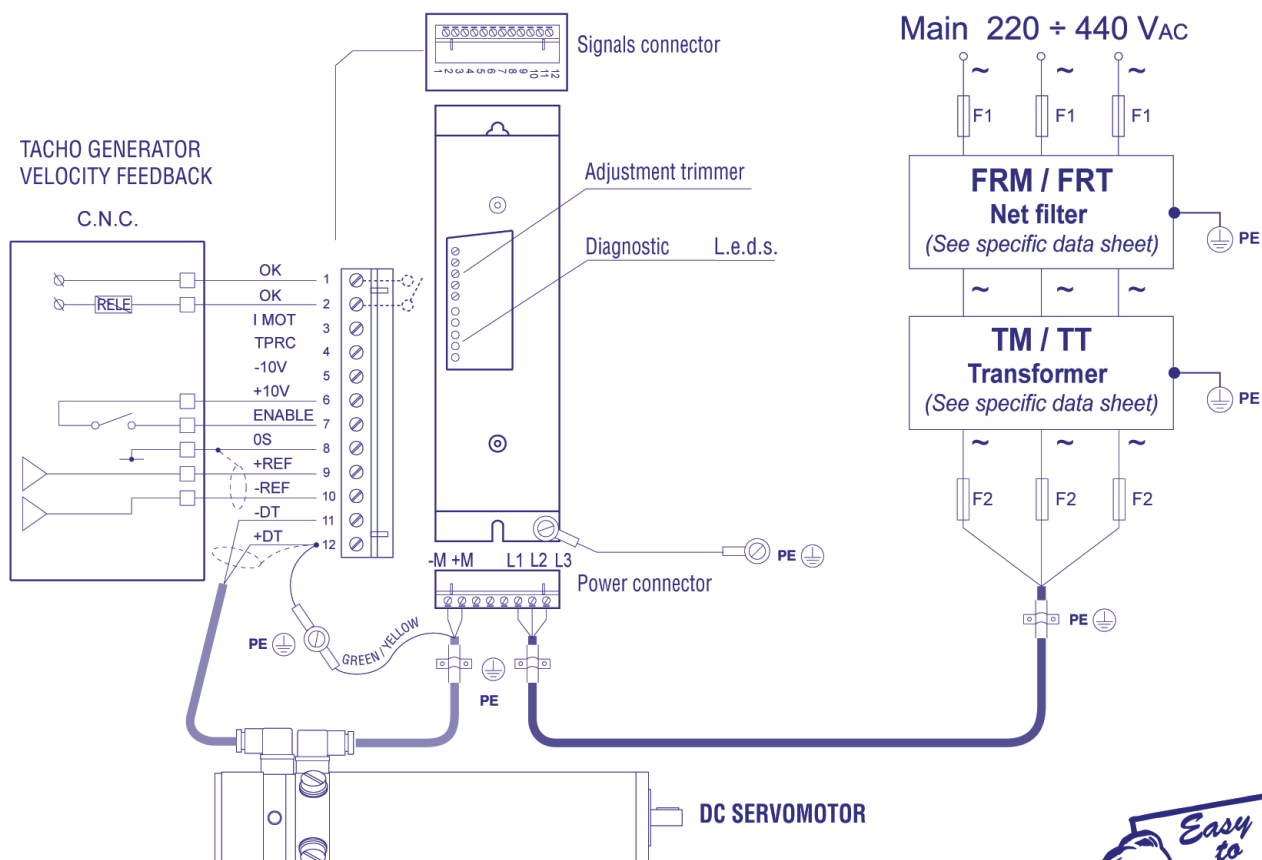
*: Peak current= x 1 second

Drawings are not to scale (see quotations)

MECHANICAL DIMENSIONS



CONNECTION DIAGRAM



ORDERING CODE

Example:

NAME: Dc Servodrive

AMPLIFIER TYPE: 060 - 140 - 200

SIZE: 04/08 - 08/16 - 10/20 - 14/28 - 20/40 - 25/50

DUMPING SIZE:

RX = internal standard resistors

R4 = 400W external resistors (optional)

R8 = 800W external resistors (optional)

PROTECTION:
S = Standard
T = Tropicalized

AXOR:
adjustment
identification
number

CONTROL MODE:

RD = Differential reference
IO = Demand Current
(torque mode)
PD = PWM+DIR (optional)

FEEDBACK:

TO = Tachogenerator (DC)
AO = Armature
EO = Encoder (optional)
OO = No feedback adjustment
(for **IO** and **PD** control modes)

MTS - 200 - 10 / 20 - RX - S - 1000 / TO - RD



CD 180[®]

DC SERVODRIVE



CD 180[®]

Stand alone, four quadrant bidirectional servodrives for controlling DC servomotors up to 30 Nm (4285,6 oz-in).

Typical applications are: Axis translation, packaging equipment, storage system lathes, welding robots and machining centers.

STANDARD FEATURES

- ✓ Internal power supply and dumping circuit
- ✓ Ventilation on board when required
- ✓ Power block transistor bridge
- ✓ Power stage and optocoupled enable inputs
- ✓ Dynamic braking for blackout conditions
- ✓ Relay contacts for output signals
- ✓ Removable personality setting card
- ✓ Completely protected from:
 - over/under supply voltage
 - over temperature
 - external short circuit motor polarity
 - max dynamic braking cycle
 - broken or inverted tachometer

OPTIONS

- ✓ Synoptic: remote check status panel
- ✓ Boosted dumping (with external resistors)

SPECIFICATIONS

- ✓ Supply voltage range: 110÷170 VAC (50/60 Hz±10%)
- ✓ Output voltage: 1.35x VAC supply
- ✓ Operating frequency: 5 KHz
- ✓ Operating temperature: 0÷40°C (32÷104°F)
- ✓ Humidity (without condensation): 10÷95%
- ✓ Enable signals: +10÷30 Vdc (optocoupled)
- ✓ Analog input reference (differential): ±10 Vdc (24 KOhm)
- ✓ Peak current limitation with speed function



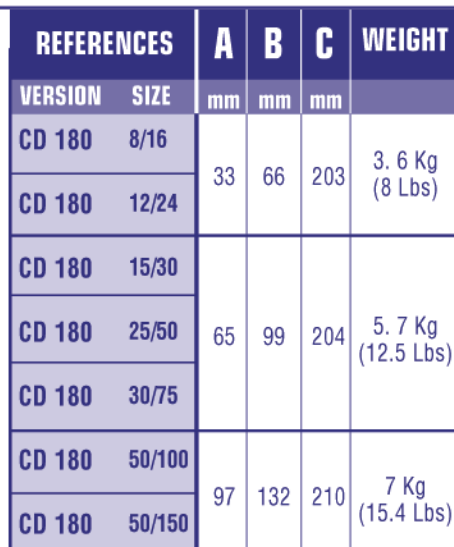
DESCRIPTION

The **CD 180[®]** Servodrive is a traditional transistor converter for DC servomotors. Easy-to-use and extremely trustworthy, it is an ideal solution for retro fitting applications. Every servodrive comes complete with its own power supply, regenerative circuit and internal fan cooling.

Because of the autogeneration of the internal auxiliary voltages, a three phase transformer with only one secondary is enough for their supply. Auto transformers are also allowed. Usually the **CD 180[®]** Servodrive doesn't require external choke before the motor, thanks to its 5 KHz special frequency "cross-modulation".

MODEL	CD 180	CD 180	CD 180	CD 180	CD 180	CD 180	CD 180
SIZE (A)	8/16	12/24	15/30	25/50	30/75	50/100	50/150
Rated Current (A _{dc})	8	12	15	25	30	50	50
Peak Current (A _{dc}) x 5 sec.	16	24	30	50	75	100	150
F2: Supply Line Fuses (T-type = time-lag)	12 A 250 V		16 A 250 V	25 A 250 V	35 A 250 V	50 A 250 V	80 A 250 V
Supply (V _{ac}) (3PH-50/60 Hz)	110÷170 Vac						

Drawings are not to scale (see quotations)



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Main 220 ÷ 440 VAC

FRM / FRT
Net filter
(See specific data sheet)

TM / TT
Transformer
(See specific data sheet)

Test point connector

*** Signal Connector**

Signal leds

Calibration trimmers (removable setting card)

*** SIGNAL CONNECTOR**

MAX.REC.	1
R.M.V.	2
OK.	3
COMMON	4
REF. ON	5
PWM ON	6
ACC./DEC. ON	7
ØP	8
LIM.I.EST.	9
+10 V	10
-10 V	11
TACHO [-D.T.]	12
[+D.T.]	13
ØS	14
+REF.	15
-REF.	16

110 VAC

DC Servomotors
SAX 100-350-500 SERIES

Easy to install

ADDITIONAL FEATURES:
XX = None



MICROSPEED®

DC SERVO AMPLIFIERS



MICROSPEED® (MCS)

Complete line of DC Servo Amplifiers for use in three velocity modes: with tachogenerator feedback, armature feedback and encoder feedback.

Typical applications are :

Robotics, X-Y Tables, Medical Equipment, Textile Equipment
Conveyors, Graphic Machinery, Packaging Machinery,
Positioners, Converting Machinery, Feeders.

STANDARD FEATURES

- ✓ Ultra compact design
- ✓ Extremely favorable cost to performance ratio
- ✓ Extremely suitable for personalization
- ✓ Extremely simple installation and use
- ✓ Surface Mount Technology
- ✓ Panel mount
- ✓ Motor driving range from 0.045 to 2.7 Nm (6.4 - 386 oz.-in.)
- ✓ Single DC power supply
- ✓ Armature feedback
- ✓ Tachogenerator feedback
- ✓ Torque mode

OPTIONS

- ✓ Encoder Feedback
- ✓ PWM + DIR mode
- ✓ Positive / Negative Limit Switches

SPECIFICATIONS

- ✓ Supply voltage range: (MCS 60) 20÷82 Vdc
(MCS 110) 35÷130 Vdc
- ✓ Operating frequency: 22KHz
- ✓ Operating temperature: 0 ÷ 40 °C
(32 ÷ 104°F)
- ✓ Input reference (differential): ±10Vdc
- ✓ Motor current monitor: ±7,5V (Peak current)
- ✓ Auxiliary output supply for encoder: +12V/+5V@130mA (optional)
- ✓ Enable signals: +10V÷30Vdc
- ✓ Output voltage supply: +10V/-10V@4mA



DESCRIPTION

The **MICROSPEED®** DC amplifiers are ultra compact modules, ideal solution for incremental motion control, velocity loop and positioning systems which require fast response, high torque at low speed, smooth speed control and high reliability. There are many different velocity modes: tachogenerator feedback, armature feedback, encoder feedback, torque mode and PWM+DIR.

ACCESSORIES

(see specific data sheets for details)

- ✓ TRANSFORMERS
 - TM/TT: single/3ph 100÷8000 Va
- ✓ NET FILTERS (for CE compliance)
 - FRM/FRT: single/3ph, 2÷16 Arms

MODEL	MCS 60				MCS 110			
SIZE (A)	1/2	2.5/5	6/12	10/20	1/2	2.5/5	6/12	10/20
CASE	PM1	PM1	PM1	PM1	PM1	PM1	PM1	PM1
Rated Current (Adc)	1	2.5	6	10	1	2.5	6	10
Peak Current (Adc) x 2 sec.	2	5	12	20	2	5	12	20
FDC: Supply Line Fuse (type F, M or T)•	15 A / 250 V				15 A / 250 V			
Supply (Vdc)	63 Vdc ▲				100 Vdc ▲			

•: FDC Fuse Type: F=Quick-acting

M= Medium time-lag

T=Time-lag

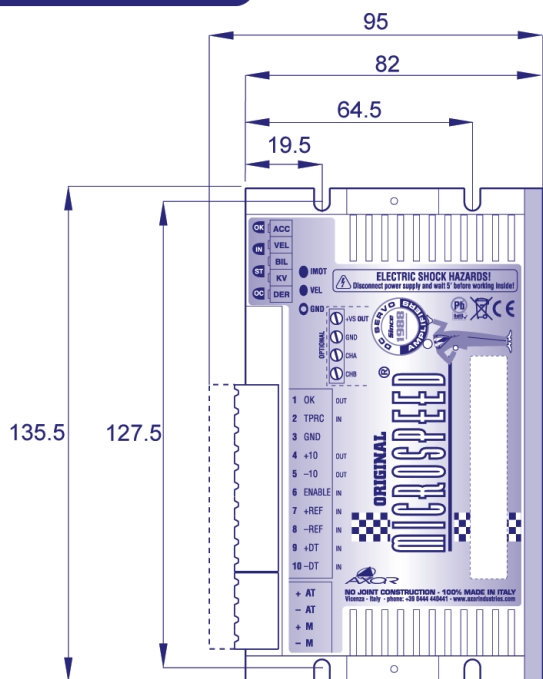
▲: Recommended DC power supply

★ **AXOR IND. A COMPLETE LINE OF MOTORS AND SERVODRIVES** ★

MECHANICAL DIMENSIONS

Drawings are not to scale [see quotations]

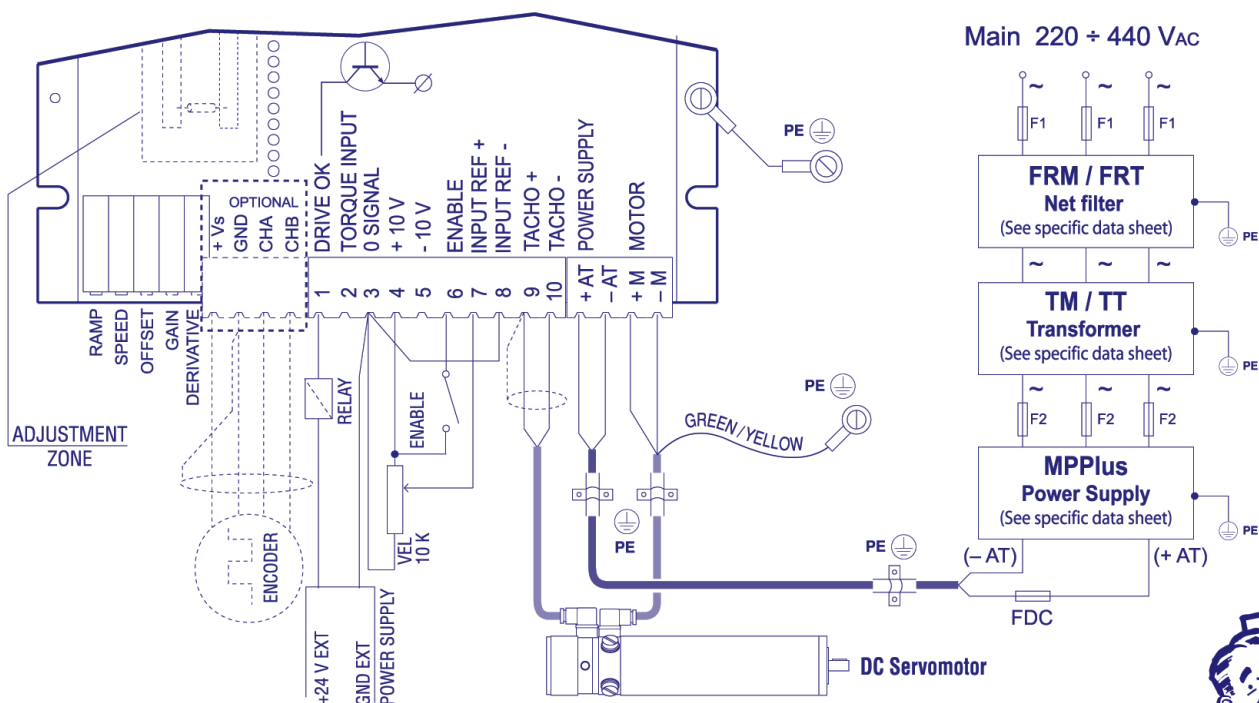
Quotes in mm



Weight: 0.35 Kg

CASE PM1 (Panel Mount "1")

ELECTRICAL CONNECTIONS



ORDERING CODE

Example:

MCS - 060 - 10 / 20 - N - S - 1000 / TO - RD - LS

NAME: Line of DC Servodrives

AMPLIFIER TYPE: 060 - 110

SIZE: 01/02 - 2.5/05 - 06/12 - 10/20

HEATSINK VERSIONS: N = Normal

PROTECTION: S = Standard
T = Tropicalized

AXOR:
adjustment
identification
number

ADDITIONAL FEATURES:
LS= +/-Limit switches (optional)

CONTROL MODE:
RD= Differential reference
IO = Demand current (torque mode)
PD= PWM+Direct (optional)

FEEDBACK:
TO = Tachogenerator (DC)
AO = Armature
EO = Encoder (optional)
OO = No feedback adjustment
(for IO and PD control modes)



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