Drives for Hybrid and Electric Vehicles

24 to 800 VDC

ENGINEERING YOUR SUCCESS.

Tel: +45 63 12 83 00 | Email: ps@hymatik.com | www.hymatik.com | Hvidkaervej 27a, DK-5250 Odense SV, Denmark

WARNING — USER RESPONSIBILITY

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

- This document and other information from Parker-Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.
- The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.
- To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

Drives for Hybrid and Electric Vehicles

Low Voltage Mobile Drives - MC Drives

Full Voltage Range Mobile Drives - MD Drives

Related Products

Tel: +45 63 12 83 00 | Email: ps@hymatik.com | www.hymatik.com | Hvidkaervej 27a, DK-5250 Odense SV, Denmark

Parker Hannifin

The global leader in motion and control technologies

A world class player on a local stage

Global Product Design

Parker Hannifin has more than 40 years experience in the design and manufacturing of drives, controls, motors and mechanical products. With dedicated global product development teams, Parker draws on industry-leading technological leadership and experience from engineering teams in Europe, North America and Asia.

Local Application Expertise

Parker has local engineering resources committed to adapting and applying our current products and technologies to best fit our customers' needs.

Manufacturing to Meet Our Customers' Needs

Parker is committed to meeting the increasing service demands that our customers require to succeed in the global industrial market. Parker's manufacturing teams seek continuous improvement through the implementation of lean manufacturing methods throughout the process. We measure ourselves on meeting our customers' expectations of quality and delivery, not just our own. In order to meet these expectations, Parker operates and continues to invest in our manufacturing facilities in Europe, North America and Asia.

Electromechanical Worldwide Manufacturing Locations

Europe
Littlehampton, United Kingdom
Dijon, France
Offenburg, Germany
Filderstadt, Germany
Milan, Italy

Asia
Wuxi, China
Jangan, Korea
Chennai, India

North America
Rohnert Park, California
Irwin, Pennsylvania
Charlotte, North Carolina
New Ulm, Minnesota

Offenburg, Germany

Local Manufacturing and Support in Europe

Parker provides sales assistance and local technical support through a network of dedicated sales teams and authorized technical distributors throughout Europe.

For contact information, please refer to the Sales Offices on the back cover of this document or visit www.parker.com

Milan, Italy

Littlehampton, UK

Filderstadt, Germany

Dijon, France

Low Voltage Mobile Drives - MC Drives

Overview

Description

Parker MC series represents the latest design standards for compact and reliable controllers for mobile applications.
Providing a motor control solution for battery systems between 24 and 96 VDC, the MC motor controllers provide OEMs with a superb combination of power, performance and functionality.
The compact dimensions and high efficiency of this controller make integration into very tight spaces a reality without sacrificing output performance.
It's design has been optimized to produce the lowest possible installed cost, whilst still maintaining superior reliability even in the most demanding of applications.

Product Features

- Auto-tuning
- Possible customization (firmware)
- High efficiency cold plate heat sink design
- IP65 protection class
- Motor temperature sensor input
- Encoder supply output (5 V)
- Encoder input, A/B (ACIM) and Sin/Cos (PMAC)
- Dual, configurable throttle inputs
- Configurable CAN communication
- Parker IQAN compatible
- Ability to control vehicle control tasks separately from motor control
- 5 configurable coil drive outputs
- 2 configurable digital outputs
- 2 Analogue inputs / 6 Digital inputs
- Powerful MC configuration utility for system design and diagnostics
- Safety Interlock relay for battery connection

Applications

- Utility vehicles
- handling equipment, handling gantries
- Refuse Truck
- Bus and Coach
- City van
- Turf care
- Street sweepers
- Other hydraulic pump control

Technical characteristics - overview

Model	MC
Motor type	AC induction + PMAC
Nominal voltage	24/96 VDC
Max 2 min current	800 Arms
Max 2 min power	60.6 kVA
Switching freq.	10 kHz
Operating temperature	-40 °C to 50 °C
Storage temperature	-40 °C to 95 °C
Protection	IP65
Control type	Speed or Torque control
Feedback	Quadrature encoder (ACIM) Sin/Cos (PMAC)
Communications	CANopen, RS232/485 serial
Cooling	Air-cooled
Certifications	EMC: designed to EN12895, Safety: designed to EN1175, CE marked to EN 61800-5-1 (Safety, Low Voltage Directive)
Output Frequency	300 Hz (AC induction) 400 Hz (PMAC)

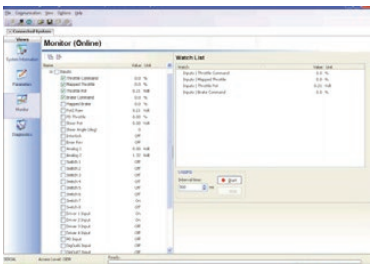
Product Details

Thanks to an IP65 protection class, the drive can be direct vehicle mounted without an enclosure.
(no direct high pressure spray)

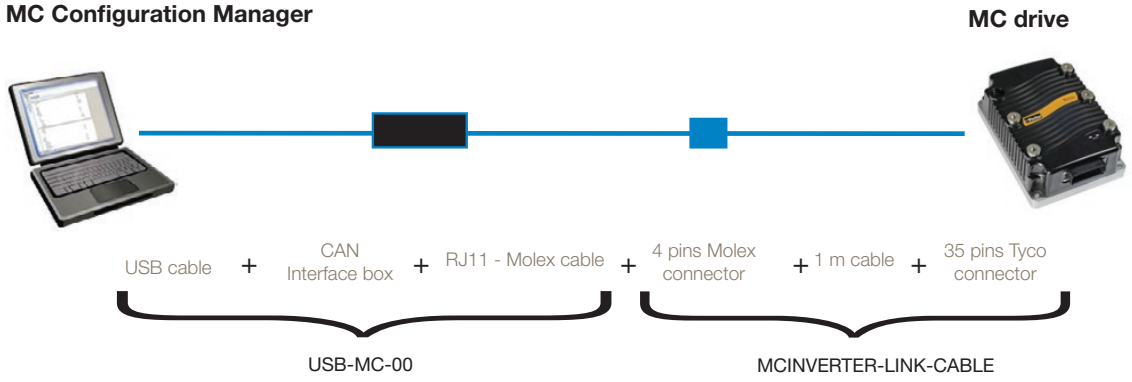
Software

MC Configuration Manager Software (free dowload on parker.com)

- The unique Auto-Tune function allows quick and easy characterization of the motor
- System monitoring
- System diagnostics
- Adjust system variables and programmable parameters
- Online or offline use



Software and connecting devices are required as shown here.



Order Code	Description
USB-MC-00	PC interface cable
MCINVERTER-LINK-CABLE	MC drive interface cable

Tel: +45 63 12 83 00 | Email: ps@hymatik.com | www.hymatik.com | Hvidkaervej 27a, DK-5250 Odense SV, Denmark

Technical Data

Part number	Switcing frequency	Max Output frequency	Rms output 1 hour Current A rms	Rms output 2 min current A rms	Nominal Input Voltage VDC	Weight [kg]
MCC-02-0180-01-00	10kHz	400Hz (PMAC)	90	180	24	1.7
MCC-02-0250-01-00			125	250	24	
MCC-02-0375-01-00			185	375	24	
MCC-04-0200-01-00			100	200	36-48	
MCC-04-0350-01-00			175	350	36-48	
MCC-08-0175-01-00			80	175	48-80	
MCC-08-0250-01-00			144	250	48-80	
MCD-03-0500-01-00			235	500	24-36	2.8
MCD-04-0450-01-00			215	450	36-48	
MCD-08-0350-01-00			149	350	48-80	
MCE-03-0650-01-00			285	650	24-36	4.1
MCE-04-0550-01-00			250	550	36-48	
MCE-04-0600-01-00			260	600	36-48	
MCE-08-0450-01-00			185	450	48-80	
MCF-03-0800-01-00			365	800	24-36	6.8
MCF-04-0650-01-00			325	650	36-48	
MCF-08-0550-01-00			190	550	48-80	
MCF-08-0650-01-00			195	650	48-80	
MCF-09-0550-01-00			200	550	72-96	
MCF-09-0650-01-00			200	650	72-96	

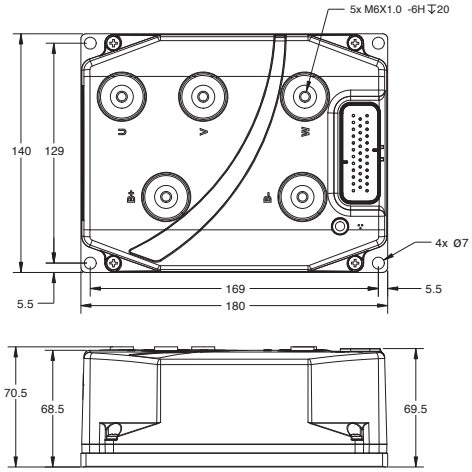
Notes: All current ratings are rms values per motor phase.
Continuous current for design life is the maximum long-term current, at an internal heatsink long-term temperature of 70 °C, at which the controller will achieve its design life (20,000 h for 24 ... 96 VDC). Note that much higher 1 h ratings can be achieved with additional heatsinking.

Tel: +45 63 12 83 00 | Email: ps@hymatik.com | www.hymatik.com | Hvidkaervej 27a, DK-5250 Odense SV, Denmark

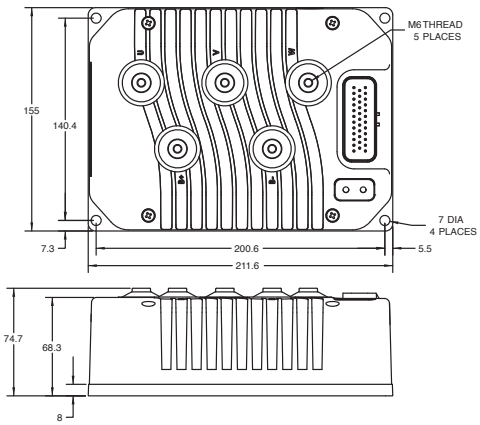
Dimensions

Dimensions [mm]

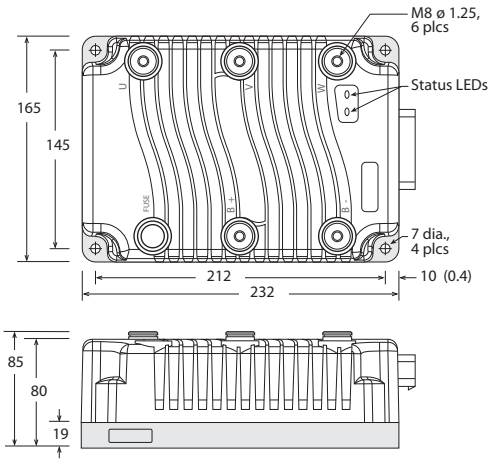
MC C



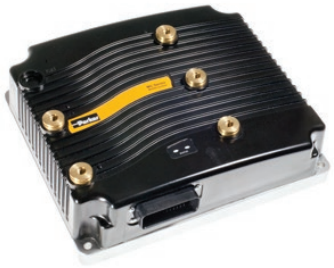
MC D

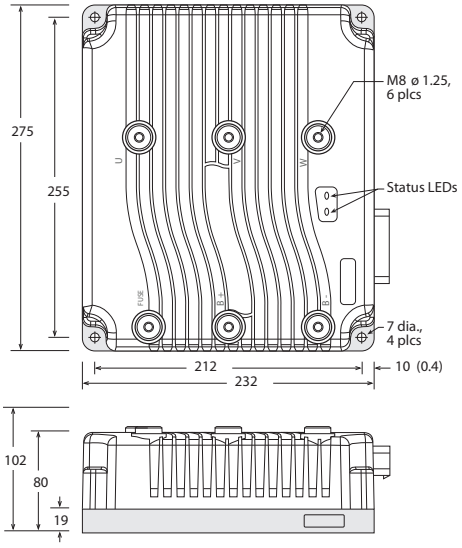


MC E



MC F





Tel: +45 63 12 83 00 | Email: ps@hymatik.com | www.hymatik.com | Hvidkaervej 27a, DK-5250 Odense SV, Denmark

Order Code

	1	2	3		4		5		6		7
Order example	**M**	**C**	**C**	**-**	**04**	**-**	**0450**	**-**	**01**	**-**	**00**

1	**Inverter family**	
	M	Mobile Inverter
2	**Control module build**	
	C	Low Voltage - 24 to 96 VDC
3	**Frame size**	
	C	MC Series
	D	
	E	
	F	
4	**Operating voltage**	
	Low Voltage MC Series Inverter	
	02	24 VDC
	03	36 VDC
	04	48 VDC
	08	80 VDC
	09	96 VDC
5	**Peak current ratings (2 min)**	
	24 VDC Nominal Voltage	
	0180	180 A - MC Series Frame C
	0250	250 A - MC Series Frame C
	0375	375 A - MC Series Frame C
	36 VDC Nominal Voltage	
	0500	500 A - MC Series Frame D
	0650	650 A - MC Series Frame E
	0800	800 A - MC Series Frame F
	48 VDC Nominal Voltage	
	0200	200 A - MC Series Frame C
	0350	350 A - MC Series Frame C
	0450	450 A - MC Series Frame D
	0550	550 A - MC Series Frame E
	0600	600 A - MC Series Frame E
	0650	650 A - MC Series Frame F
	80 VDC Nominal Voltage	
	0175	175 A - MC Series Frame C
	0250	250 A - MC Series Frame C
	0350	350 A - MC Series Frame D
	0450	450 A - MC Series Frame E
	0550	550 A - MC Series Frame F
	0650	650 A - MC Series Frame F
	96 VDC Nominal Voltage	
	0550	550 A - MC Series Frame F
	0650	650 A - MC Series Frame F

6	**Branding**	
	01	Parker branded
7	**Special options**	
	00	Version for PMAC and induction motors

Tel: +45 63 12 83 00 | Email: ps@hymatik.com | www.hymatik.com | Hvidkaervej 27a, DK-5250 Odense SV, Denmark

Tel: +45 63 12 83 00 | Email: ps@hymatik.com | www.hymatik.com | Hvidkaervej 27a, DK-5250 Odense SV, Denmark

Full Voltage Range Mobile Drives - MD Drives

Overview

Description

Parker MD Series represents the latest design in compact motor controllers. With a compact, rugged and cost effective design these reliable controllers are intended to meet the high performance requirements of on-road and off-road electric vehicles (EV) and Hybrid Electric Vehicles (HEV)
Thanks to the high efficiency it is possible to integrate these controllers into very tight spaces without sacrificing performance.
Its high voltage range, up to 800VDC, is well matched to the needs of the automotive and commercial transport markets. The same hardware platform handles both AC Induction and Permanent Magnet AC motor technologies.

Product Features

- Supports both PMAC and AC motors
- Up to 800 VDC peak supply voltage
- Up to 225 kW peak power output *
- Up to 90 kW continuous power output *
- Advanced flux vector control
- Integrated logic circuit
- Includes an additional dedicated safety supervisory processor (sizes MD-4A, 4B, 4C)
- Safety interlock pulsed enable signal (sizes MD-4A, 4B, 4C)
- Autocheck system diagnostic
- Hardware & software failsafe watchdog operation
- Integrated fuse holder (sizes MD-42, 44, 46)

Applications

- Utility vehicles
- Handling equipment, handling gantries
- Refuse Truck
- Bus and Coach
- City van
- Turf care
- Street sweepers
- Agricultural implements, tractors
- Other hydraulic pump control

Technical characteristics - overview

Model		MD
Motor type		AC induction + PMAC
Nominal voltage		24-800 VDC
Max 10 sec current		780 Arms
Switching freq.		8 kHz
Protection		IP66 (sizes MD-42, 44, 46) IP6k9k and IP67 protection (sizes MD-4A, 4B, 4C)
Environment, Sizes MD-4B, 4C		ISO 16750
Safety	Sizes MD-4B, 4C	Electrical safety to ISO 6494, IEC 60664 and UL840 Functional safety to ISO26262 Pulsed safety enable input Pulsed status output
	Sizes MD-4A	HVIL (High Voltage Interlock H/W & S/W) Designed to meet the electrical isolation of electrically propelled vehicles ISO 6469
Cooling		Cold plate cooling (low voltage sizes MD-42, 44, 46)
		Water Glycol cooling Oil cooling on request (high voltage sizes MD-4A, 4B, 4C)

* with a cooling liquid temperature of 65°C

Tel: +45 63 12 83 00 | Email: ps@hymatik.com | www.hymatik.com | Hvidkaervej 27a, DK-5250 Odense SV, Denmark

Technical Data

Part number	Nominal Battery Voltage	Max Operating Voltage	Min Operating voltage	Continuous Current (60 min)	Peak Current (2 min)	Peak Current (10 sec)	Weight
	[VDC]	[VDC]	[VDC]	[Arms]	[Arms]	[Arms]	[kg]
MD-42-02-300-00	24-36	52.2	12.7	120	300	360	1.3
MD-44-02-450-00				180	450	540	2.7
MD-46-02-650-00				260	650	780	4.6
MD-42-04-275-00	36-48	69.6	19.3	110	275	330	1.3
MD-44-04-450-00				180	450	540	2.7
MD-46-04-650-00				260	650	780	4.6
MD-42-08-180-00	72-80	116	39.1	75	180	215	1.3
MD-44-08-350-00				140	350	420	2.7
MD-46-08-550-00				220	550	660	4.6
MD-44-12-300-00	96-120	150	48	120	300	360	2.7
MD-4A-80-024-00	200-800	-	-	19	24 (1 min)	-	3.7
MD-4A-80-053-00	200-800	-	-	33	53 (1 min)	-	2.3
MD-4B-40-300-00	128-400	-	-	120	250	300	10
MD-4C-80-400-00	50-800	-	-	120	300	450	10.7

Note: Switching Frequency = 16 kHz

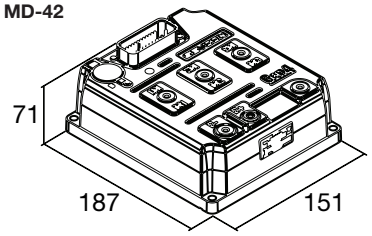
Operating temperature

	Temperature range (without derating)
Sizes MD-42, 44, 46	-40°C to +85°C
Size MD-4A-80-024	Air Cooled - Ambient -40°C up to +45°C full operation
Size MD-4A-80-053, 4B, 4C	Water/Glycol coolant - Full operation up to 65°C

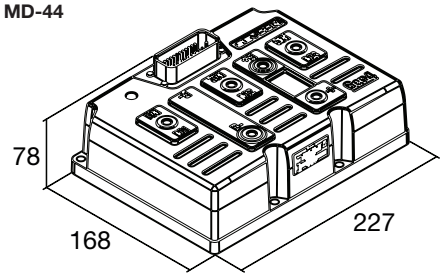
Tel: +45 63 12 83 00 | Email: ps@hymatik.com | www.hymatik.com | Hvidkaervej 27a, DK-5250 Odense SV, Denmark

Dimensions

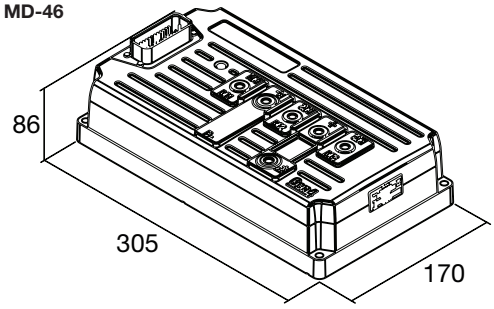
MD-42



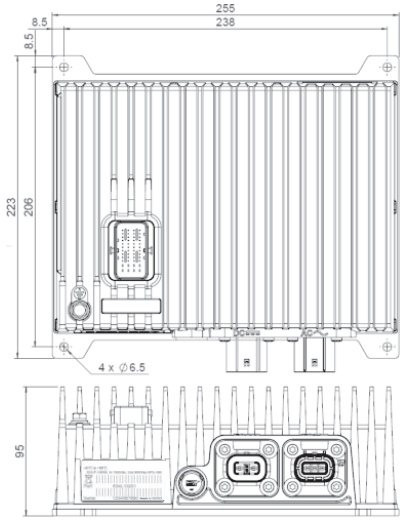
MD-44



MD-46

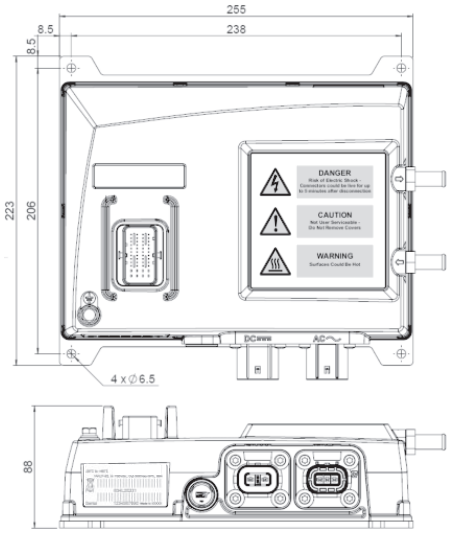


MD-4A-80-024

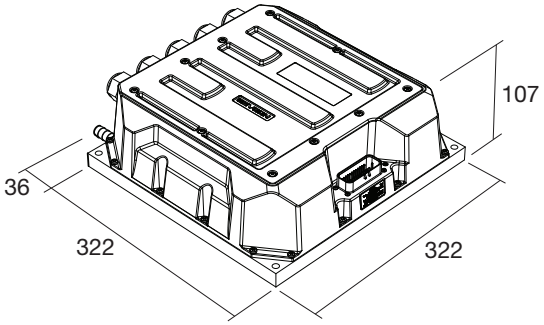


Tel: +45 63 12 83 00 | Email: ps@hymatik.com | www.hymatik.com | Hvidkaervej 27a, DK-5250 Odense SV, Denmark

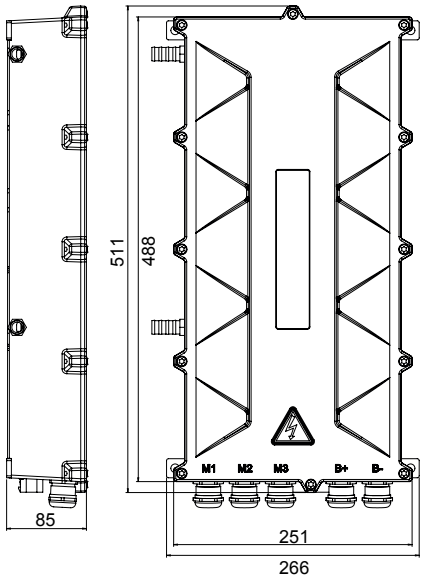
MD-4A-80-053



MD-4B



MD-4C



Tel: +45 63 12 83 00 | Email: ps@hymatik.com | www.hymatik.com | Hvidkaervej 27a, DK-5250 Odense SV, Denmark

Product Details

MULTIPLE MOTOR FEEDBACK OPTIONS

MD drive provides a number of motor feedback possibilities from a range of hardware inputs and software control, allowing a great deal of flexibility.

- Absolute UVW encoder input (ACIM)
- Absolute Sin/Cos encoder input (MD-42, 44, 46)
- Incremental AB encoder input (ACIM)
- Resolver input (MD-4A, 4B, 4C)
- Programmable 5V to 10V encoder power supply

INTEGRATED I/O

MD drive includes a fully-integrated set of inputs and outputs (I/0) designed to handle a wide range of vehicle requirements. This eliminated the need for additional external I/O modules or vehicle controllers and connectors.

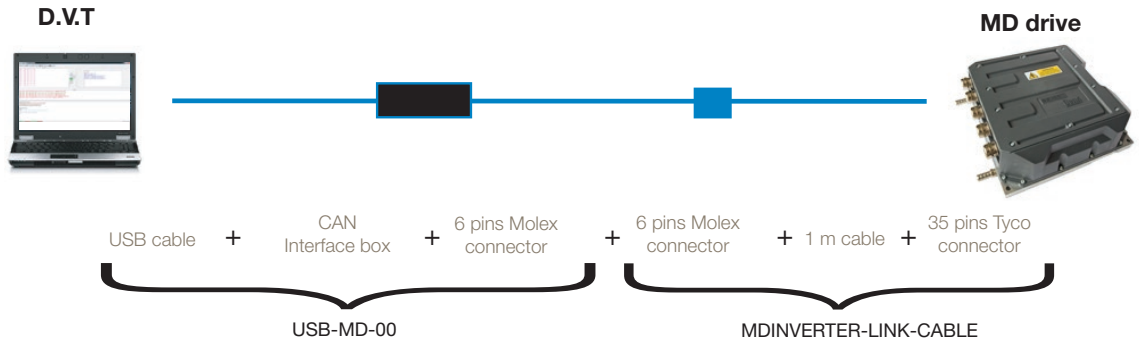
Low voltage frame sizes MD-42, 44, 46	High voltage frame sizes MD-4A, 4B, 4C
• 8 digital inputs • 2 analogue inputs (can be configured as digital) • 3 contactor/solenoid outputs	• 12V or 24V nominal supply • All I/O protected to 40V (size 8,10,hvlp)) • 4 analogue inputs 0-10V • 4 digital inputs • 3 power supplies 0-10V 100mA (2 for size A) • 3 digital outputs PWM max 2A (2 for size A)

OTHER FEATURES

- A CANopen bus allows easy interconnection of drives and devices such as displays and driver controls.
- The CANbus allows the user to wire the vehicle to best suit vehicle layout since inputs and outputs can be connected to any of the controllers on the vehicle and the desired status is passed over the CAN network to the relevant motor controller.
- The MD drive can dynamically change the allowed battery current by exchanging CAN messages with a compatible Battery Management System.
- Configurable as vehicle control master or motor slave.

CONFIGURATION TOOLS - D.V.T

Parker offers a range of configuration tools for the MD drive range with options for Windows based PC or calibrator handset unit. These tools provide a simple yet powerful means of accessing the CANopen bus for diagnostics or parameter adjustment. The handset unit features password protected access levels and a customized logo start-up screen.



Order Code	Description
USB-MD-00	Dongle + PC interface cable
MDINVERTER-LINK-CABLE (except MD-4A)	MD drive interface cable

Tel: +45 63 12 83 00 | Email: ps@hymatik.com | www.hymatik.com | Hvidkaervej 27a, DK-5250 Odense SV, Denmark

Order Code

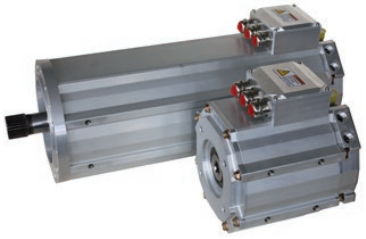
	1	2		3	4		5		6		7
Order example	**M**	**D**	**-**	**4**	**2**	**-**	**04**	**-**	**200**	**-**	**00**

1	**Drive family**	
	M	Mobile
2	**Drive**	
	D	Drive
3	**Series**	
	4	Gen4
	5	Gen5
4	**Frame Size**	
	2	
	4	Low voltage sizes (24-120 VDC)
	6	
	A	
	B	High voltage sizes (up to 800 VDC)
	C	
5	**Max. Operating Voltage**	
	02	24 VDC
	04	48 VDC
	08	80 VDC
	12	120 VDC
	40	400 VDC
	80	800 VDC
6	**Peak Current Rating (2 min)**	
	024	24 Arms (1 min)
	053	53 Arms (1 min)
	180	180 Arms
	275	275 Arms
	300	300 Arms
	350	350 Arms
	400	400 Arms
	450	450 Arms
	550	550 Arms
	650	650 Arms
7	**Special options**	
	00	Standard

Tel: +45 63 12 83 00 | Email: ps@hymatik.com | www.hymatik.com | Hvidkaervej 27a, DK-5250 Odense SV, Denmark

Related Products

Global Vehicle Motor (GVM)



Description

PMAC servomotors offer the best solution to meet the requirements of vehicle duty performance. The torque density and speed capabilities of Parker Permanent Magnet AC motors (PMAC) provide the speed and torque required to achieve breakthrough performance in a variety of vehicle platforms.

Product Features

- High efficiency
- Compactness (High power density)
- Can be used either as motor or generator
- Operating voltages available from 24 to 800 VDC

Electro-Hydraulic Pumps (EHP)

Description

The Electro-Hydraulic Pump (EHP) kits are designed for hybrid electric and all electric mobile applications. EHP systems consist of an electric motor directly coupled to an hydraulic pump controlled by a high performance mobile hardened drive.
Parker's global expertise in hydraulic, electric motor, and drive technologies is brought together in the EHP to create a system that has been optimally adapted to the customer requirements.

Product Features

- Complete Electro-Hydraulic Pump solutions
- Pre engineered system with fully validated pressure, flow and voltage data
- Wide range of motor/pump combinations to adapt to every battery pack

CFR - Low voltage induction motors

Description

This low cost air-cooled induction motors (ACIM) range has been specifically developed for battery-operated vehicles. Typically adapted for Electro-Hydraulic Pumps (EHP), the Parker's product support team will work with pump division to coordinate mechanical solution.

Product Features

- Ruggedised low voltage induction motor
- Speed up to 3500 rpm
- Power up to 40 kW
- IP rating: IP20 to IP65
- Built-in thermal sensor for monitoring motor temperature

Tel: +45 63 12 83 00 | Email: ps@hymatik.com | www.hymatik.com | Hvidkaervej 27a, DK-5250 Odense SV, Denmark

Tel: +45 63 12 83 00 | Email: ps@hymatik.com | www.hymatik.com | Hvidkaervej 27a, DK-5250 Odense SV, Denmark

Parker's Motion & Control Technologies

At Parker, we're guided by a relentless drive to help our customers become more productive and achieve higher levels of profitability by engineering the best systems for their requirements. It means looking at customer applications from many angles to find new ways to create value. Whatever the motion and control technology need, Parker has the experience, breadth of product and global reach to consistently deliver. No company knows more about motion and control technology than Parker. For further info call 00800 27 27 5374

Aerospace

Key Markets

Aftermarket services
Commercial transports
Engines
General & business aviation
Helicopters
Launch vehicles
Military aircraft
Missiles
Power generation
Regional transports
Unmanned aerial vehicles

Key Products

Control systems & actuation products
Engine systems & components
Fluid conveyance systems & components
Fluid metering, delivery & atomization devices
Fuel systems & components
Fuel tank inerting systems
Hydraulic systems & components
Thermal management
Wheels & brakes

Climate Control

Key Markets

Agriculture
Air conditioning
Construction Machinery
Food & beverage
Industrial machinery
Life sciences
Oil & gas
Precision cooling
Process
Refrigeration
Transportation

Key Products

Accumulators
Advanced actuators
CO_2 controls
Electronic controllers
Filter driers
Hand shut-off valves
Heat exchangers
Hose & fittings
Pressure regulating valves
Refrigerant distributors
Safety relief valves
Smart pumps
Solenoid valves
Thermostatic expansion valves

Electromechanical

Key Markets

Aerospace
Factory automation
Life science & medical
Machine tools
Packaging machinery
Paper machinery
Plastics machinery & converting
Primary metals
Semiconductor & electronics
Textile
Wire & cable

Key Products

AC/DC drives & systems
Electric actuators, gantry robots & slides
Electrohydrostatic actuation systems
Electromechanical actuation systems
Human machine interface
Linear motors
Stepper motors, servo motors, drives & controls
Structural extrusions

Filtration

Key Markets

Aerospace
Food & beverage
Industrial plant & equipment
Life sciences
Marine
Mobile equipment
Oil & gas
Power generation & renewable energy
Process
Transportation
Water Purification

Key Products

Analytical gas generators
Compressed air filters & dryers
Engine air, coolant, fuel & oil filtration systems
Fluid condition monitoring systems
Hydraulic & lubrication filters
Hydrogen, nitrogen & zero air generators
Instrumentation filters
Membrane & fiber filters
Microfiltration
Sterile air filtration
Water desalination & purification filters & systems

Fluid & Gas Handling

Key Markets

Aerial lift
Agriculture
Bulk chemical handling
Construction machinery
Food & beverage
Fuel & gas delivery
Industrial machinery
Life sciences
Marine
Mining
Mobile
Oil & gas
Renewable energy
Transportation

Key Products

Check valves
Connectors for low pressure fluid conveyance
Deep sea umbilicals
Diagnostic equipment
Hose couplings
Industrial hose
Mooring systems & power cables
PTFE hose & tubing
Quick couplings
Rubber & thermoplastic hose
Tube fittings & adapters
Tubing & plastic fittings

Hydraulics

Key Markets

Aerial lift
Agriculture
Alternative energy
Construction machinery
Forestry
Industrial machinery
Machine tools
Marine
Material handling
Mining
Oil & gas
Power generation
Refuse vehicles
Renewable energy
Truck hydraulics
Turf equipment

Key Products

Accumulators
Cartridge valves
Electrohydraulic actuators
Human machine interfaces
Hybrid drives
Hydraulic cylinders
Hydraulic motors & pumps
Hydraulic systems
Hydraulic valves & controls
Hydrostatic steering
Integrated hydraulic circuits
Power take-offs
Power units
Rotary actuators
Sensors

Pneumatics

Key Markets

Aerospace
Conveyor & material handling
Factory automation
Life science & medical
Machine tools
Packaging machinery
Transportation & automotive

Key Products

Air preparation
Brass fittings & valves
Manifolds
Pneumatic accessories
Pneumatic actuators & grippers
Pneumatic valves & controls
Quick disconnects
Rotary actuators
Rubber & thermoplastic hose & couplings
Structural extrusions
Thermoplastic tubing & fittings
Vacuum generators, cups & sensors

Process Control

Key Markets

Alternative fuels
Biopharmaceuticals
Chemical & refining
Food & beverage
Marine & shipbuilding
Medical & dental
Microelectronics
Nuclear Power
Offshore oil exploration
Oil & gas
Pharmaceuticals
Power generation
Pulp & paper
Steel
Water/wastewater

Key Products

Analytical Instruments
Analytical sample conditioning products & systems
Chemical injection fittings & valves
Fluoropolymer chemical delivery fittings, valves & pumps
High purity gas delivery fittings, valves, regulators & digital flow controllers
Industrial mass flow meters/controllers
Permanent no-weld tube fittings
Precision industrial regulators & flow controllers
Process control double block & bleeds
Process control fittings, valves, regulators & manifold valves

Sealing & Shielding

Key Markets

Aerospace
Chemical processing
Consumer
Fluid power
General industrial
Information technology
Life sciences
Microelectronics
Military
Oil & gas
Power generation
Renewable energy
Telecommunications
Transportation

Key Products

Dynamic seals
Elastomeric o-rings
Electro-medical instrument design & assembly
EMI shielding
Extruded & precision-cut, fabricated elastomeric seals
High temperature metal seals
Homogeneous & inserted elastomeric shapes
Medical device fabrication & assembly
Metal & plastic retained composite seals
Shielded optical windows
Silicone tubing & extrusions
Thermal management
Vibration dampening

Parker Worldwide

Europe, Middle East, Africa

AE – United Arab Emirates, Dubai
Tel: +971 4 8127100
parker.me@parker.com

AT – Austria, Wiener Neustadt
Tel: +43 (0)2622 23501-0
parker.austria@parker.com

AT – Eastern Europe, Wiener Neustadt
Tel: +43 (0)2622 23501 900
parker.easteurope@parker.com

AZ – Azerbaijan, Baku
Tel: +994 50 2233 458
parker.azerbaijan@parker.com

BE/LU – Belgium, Nivelles
Tel: +32 (0)67 280 900
parker.belgium@parker.com

BG – Bulgaria, Sofia
Tel: +359 2 980 1344
parker.bulgaria@parker.com

BY – Belarus, Minsk
Tel: +48 (0)22 573 24 00
parker.poland@parker.com

CH – Switzerland, Etoy
Tel: +41 (0)21 821 87 00
parker.switzerland@parker.com

CZ – Czech Republic, Klecany
Tel: +420 284 083 111
parker.czechrepublic@parker.com

DE – Germany, Kaarst
Tel: +49 (0)2131 4016 0
parker.germany@parker.com

DK – Denmark, Ballerup
Tel: +45 43 56 04 00
parker.denmark@parker.com

ES – Spain, Madrid
Tel: +34 902 330 001
parker.spain@parker.com

FI – Finland, Vantaa
Tel: +358 (0)20 753 2500
parker.finland@parker.com

FR – France, Contamine s/Arve
Tel: +33 (0)4 50 25 80 25
parker.france@parker.com

GR – Greece, Athens
Tel: +30 210 933 6450
parker.greece@parker.com

HU – Hungary, Budaörs
Tel: +36 23 885 470
parker.hungary@parker.com

IE – Ireland, Dublin
Tel: +353 (0)1 466 6370
parker.ireland@parker.com

IL – Israel
Tel: +39 02 45 19 21
parker.israel@parker.com

IT – Italy, Corsico (MI)
Tel: +39 02 45 19 21
parker.italy@parker.com

KZ – Kazakhstan, Almaty
Tel: +7 7273 561 000
parker.easteurope@parker.com

NL – The Netherlands, Oldenzaal
Tel: +31 (0)541 585 000
parker.nl@parker.com

NO – Norway, Asker
Tel: +47 66 75 34 00
parker.norway@parker.com

PL – Poland, Warsaw
Tel: +48 (0)22 573 24 00
parker.poland@parker.com

PT – Portugal
Tel: +351 22 999 7360
parker.portugal@parker.com

RO – Romania, Bucharest
Tel: +40 21 252 1382
parker.romania@parker.com

RU – Russia, Moscow
Tel: +7 495 645-2156
parker.russia@parker.com

SE – Sweden, Spånga
Tel: +46 (0)8 59 79 50 00
parker.sweden@parker.com

SK – Slovakia, Banská Bystrica
Tel: +421 484 162 252
parker.slovakia@parker.com

SL – Slovenia, Novo Mesto
Tel: +386 7 337 6650
parker.slovenia@parker.com

TR – Turkey, Istanbul
Tel: +90 216 4997081
parker.turkey@parker.com

UA – Ukraine, Kiev
Tel: +48 (0)22 573 24 00
parker.poland@parker.com

UK – United Kingdom, Warwick
Tel: +44 (0)1926 317 878
parker.uk@parker.com

ZA – South Africa, Kempton Park
Tel: +27 (0)11 961 0700
parker.southafrica@parker.com

North America

CA – Canada, Milton, Ontario
Tel: +1 905 693 3000

US – USA, Cleveland
Tel: +1 216 896 3000

Asia Pacific

AU – Australia, Castle Hill
Tel: +61 (0)2-9634 7777

CN – China, Shanghai
Tel: +86 21 2899 5000

HK – Hong Kong
Tel: +852 2428 8008

IN – India, Mumbai
Tel: +91 22 6513 7081-85

JP – Japan, Tokyo
Tel: +81 (0)3 6408 3901

KR – South Korea, Seoul
Tel: +82 2 559 0400

MY – Malaysia, Shah Alam
Tel: +60 3 7849 0800

NZ – New Zealand, Mt Wellington
Tel: +64 9 574 1744

SG – Singapore
Tel: +65 6887 6300

TH – Thailand, Bangkok
Tel: +662 186 7000

TW – Taiwan, Taipei
Tel: +886 2 2298 8987

South America

AR – Argentina, Buenos Aires
Tel: +54 3327 44 4129

BR – Brazil, Sao Jose dos Campos
Tel: +55 800 727 5374

CL – Chile, Santiago
Tel: +56 2 623 1216

MX – Mexico, Toluca
Tel: +52 72 2275 4200

192-300107N5 07/2017

EMEA Product Information Centre
Free phone: 00 800 27 27 5374
(from AT, BE, CH, CZ, DE, DK, EE, ES, FI, FR, IE, IL, IS, IT, LU, MT, NL, NO, PL, PT, RU, SE, SK, UK, ZA)
US Product Information Centre
Toll-free number: 1-800-27 27 537
www.parker.com

Your local authorized Parker distributor