Compax3M Short Description

Multi-axis devices

English.....Page 1...20
Deutsch...Seite 21...40
Français..Page 42...60

Release as from R09-63
Notes on the Documents Supplied

Non-warranty clause

We checked the contents of this publication for compliance with the associated hard and software. We can, however, not exclude discrepancies and do therefore not accept any liability for the exact compliance. The information in this publication is regularly checked, necessary corrections will be part of the subsequent publications.

German Master created.

Production site:

Parker Hannifin Manufacturing Germany GmbH & Co. KG
Electromechanical & Drives Division [EME]
Robert-Bosch-Strasse 22
77656 Offenburg (Germany)
Tel.: +49 (0781) 509-0
Fax: +49 (0781) 509-98176
E-mail: sales.automation@parker.com mailto:EM-Motion@parker.com

Parker Hannifin GmbH - registered office: Bielefeld HRB 35489
Management Board: Ellen Raahede Secher, Dr.-Ing. Hans-Jürgen Haas, Günter Schrank, Kees Venaert - Chairman of the board: Hansgeorg Greuner

Italy:
Parker Hannifin Manufacturing Srl
Electromechanical & Drives Division [EME]
Via C. Gounod, 1
20092 Cinisello Balsamo (Milano), Italy
Tel.: +39 (0)2 361081
Fax: +39 (0)2 36108400
E-mail: parker.italy@parker.com mailto:parker.italy@parker.com

Location USA:
Parker Hannifin Corporation • Electromechanical Automation
5500 Business Park Drive • Rohnert Park, CA 94928
Phone #: (800) 358-9068 • FAX #: (707) 584-3715
E-mail: CMR_help@parker.com mailto:emn_support@parker.com • Internet: www.parker.com/emn http://www.parker.com/emn
Unser Produkt im Internet: http://www.parker.com/eme/c3
Downloads http://solutions.parker.com/c3_support

EtherCAT® is a registered trademark and a patented technology of Beckhoff Automation GmbH, Germany.
CoDeSys® is a registered trademark of 3S-Smart Software Solutions GmbH.
PROFINET is a registered trademark of Profinbus and PROFINET International.
Ethernet/IP is a trademark of Open DeviceNet Vendor Association.
1. Notes on the Documents Supplied

Compax 3 - short reference guide

This short reference guide does contain only the basic information; for more detailed information please refer to the Help-files of the individual Compax3 device types.

Compax3 - Download page:
http://solutions.parker.com/c3_Support

Here you find the Compax3 ServoManager, Firmware, Field Bus Files, Targets and Application examples.

Online help system

After the installation of the ServoManager you can copy the desired Online help system with the "C3 ServoManager Help Installer" (you can select the C3 device type as well as the desired language) to your PC. The help system can be called up directly from the ServoManager. You will find the complete description of the selected device type in these online help files. Please note that the help files are associated with defined device and software versions.

NOTICE

Status of the Manuals:

Help and PDFs are updated simultaneously. In case of doubt the HTML help shows the actual state in comparison to PDF edition. For additional HTLM help please refer to our website.

1.1 C3 ServoManager

PC requirements

Minimum requirements:

- **Operating system:** MS Windows XP SP3 / MS Vista (32 Bit) / Windows 7 (32 Bit / 64 Bit)
- **Browser:** MS Internet Explorer 8.x or higher
- **Processor:** Intel / AMD Multi core processor >=2GHz
- **User:** >= 1024MB
- **Hard disk:** >= 20GB available memory
- **Monitor:** Resolution 1024x768 or higher
- **Graphics card:** on onboard graphics (for performance reasons)
- **Interface:** USB 2.0

Note:

- For the installation of the software you need administrator authorization on the target computer.
Notes on the Documents Supplied

Connection

PC-PSUP
Your PC is connected to the PSUP (mains module) connector X3 via an USB cable (SSK33/03).
Start the Compax3 servo manager and make the setting for the assigned interface in the menu "Options: Communication settings RS232/RS485...". The interface is marked as "USB Serial Port (COMx)" in the windows device manager. The no. of the COM port "x" may vary. You can find it in the PC under system control, system, hardware, device manager, connections.

Device Selection
In the menu tree under device selection you can read the device type of the connected device (Online Device Identification) or select a device type (Device Selection Wizard).

Configuration
Then you can double click on "Configuration" to start the configuration wizard. The wizard will lead you through all input windows of the configuration.

Content

1. Notes on the Documents Supplied ........................................................ 3
   1.1 C3 ServoManager ..................................................................................... 3

2. Introduction ............................................................................................. 5
   2.1 Device assignment .................................................................................. 5
   2.2 Scope of delivery ..................................................................................... 5
   2.3 Type specification plate .......................................................................... 5
   2.4 Packaging, transport, storage ................................................................ 7
   2.5 Safety instructions ................................................................................... 8
      2.5.1. General hazards ................................................................................. 8
      2.5.2. Working safely / qualification ................................................................. 8
      2.5.3. Special dangers ..................................................................................... 8
   2.6 Warranty conditions ................................................................................ 9
   2.7 Conditions of utilization ........................................................................ 9
      2.7.1. Conditions of utilization for CE-conform operation ......................... 9
      2.7.2. Conditions of utilization for UL approval Compax3M ..................... 11
      2.7.3. Conditions of utilization for UL approval PSUP .................................. 12
      2.7.4. Current on the mains PE (leakage current) ............................................. 13
      2.7.5. Supply networks .................................................................................. 13
   2.8 EC declaration of conformity Compax3M ............................................ 14
   2.9 EC declaration of conformity PSUP ..................................................... 15

3. Device description .................................................................................... 16
   3.1 Installation instructions Compax3M .................................................... 16
   3.2 Mounting and dimensions .................................................................... 17
      3.2.1. Mounting and dimensions PSUP10/C3M050D6, C3M100D6, C3M150D6 ...... 17
      3.2.2. Mounting and dimensions PSUP20/PSUP30/C3M300D6 ......................... 18

4. Technical Data ....................................................................................... 19
2. Introduction

In this chapter you can read about:

Device assignment ................................................................. 5
Scope of delivery ........................................................................ 5
Type specification plate ............................................................. 5
Packaging, transport, storage .................................................. 7
Safety instructions ..................................................................... 8
Warranty conditions ................................................................ 9
Conditions of utilization ......................................................... 9
EC declaration of conformity Compax3M ............................... 14
EC declaration of conformity PSUP .......................................... 15

2.1 Device assignment

This manual is valid for the following devices:

- Compax3M050D6 + supplement
- Compax3M100D6 + supplement
- Compax3M150D6 + supplement
- Compax3M300D6 + supplement
- PSUP10D6 (mains module)
- PSUP20D6 (mains module)
- PSUP30D6 (mains module)

2.2 Scope of delivery

- Device accessories
  - Device accessories for Compax3M
  - Cable clamps in different sizes for large area shielding of the motor cable, the screw for the cable clamp as well as
  - the matching plug for the Compax3M connectors X14, X15, X43
  - a toroidal core ferrite for a cable of the motor holding brake
  - an interface cable (SSK28/23) for communication within the axis combination
  - With safety option S3: Mating plugs X28 and connection cable X26 / X27

2.3 Type specification plate

The present device type is defined by the type specification plate (on the housing):
## Introduction

### Compax3 - Type specification plate (example):

<table>
<thead>
<tr>
<th>1</th>
<th>Type designation: The complete order designation of the device (2 - 4).</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td><strong>PSUPx0</strong>: Mains module 3AC 230...480V, nominal power in 1kW (10=10kW)</td>
</tr>
<tr>
<td></td>
<td><strong>D6</strong>: Designation nominal supply</td>
</tr>
<tr>
<td>3</td>
<td>Configuration and parameterization interface: <strong>USB</strong>: USB connection</td>
</tr>
<tr>
<td>4</td>
<td>Options: <strong>Mxx</strong>: I/O extension</td>
</tr>
<tr>
<td>5</td>
<td>Unique number of the particular device</td>
</tr>
<tr>
<td>6</td>
<td>Date of factory test</td>
</tr>
<tr>
<td>7</td>
<td>Nominal supply voltage: Power Input: Input supply data / Power Output: Output data</td>
</tr>
<tr>
<td>8</td>
<td>CE compliance</td>
</tr>
<tr>
<td>9</td>
<td>UL certified (corresponding to the logo displayed on the device)</td>
</tr>
</tbody>
</table>

### Explanation:

1. Type designation: The complete order designation of the device (2 - 4).
2. **PSUPx0**: Mains module 3AC 230...480V, nominal power in 1kW (10=10kW).
   - **D6**: Designation nominal supply.
3. Configuration and parameterization interface: **USB**: USB connection.
4. Options: **Mxx**: I/O extension.
5. Unique number of the particular device.
6. Date of factory test.
8. CE compliance.
9. UL certified (corresponding to the logo displayed on the device).

---

### Compax3 - Type specification plate (example):

- **PN**: C3M100D6F10120T40M11S1
- **SN**: 2818200005
- **Tested**: 14.06.2010
- **Power Input**: 565VDC
- **Power Output**: 3AC 400V (0...500 Hz), 10A

---

### Explanation:

1. **Type designation**: The complete order designation of the device (2, 5, 6, 9, 8).
2. **C3**: Abbreviation for Compax3.
   - **S025**: Single axis device, nominal device current in 100mA (025=2.5A).
   - **M050**: Multi-axis device, nominal device current in 100mA (050=5A).
   - **H050**: High power device, nominal device current in 1A (050=50A).
   - **D6**: Designation nominal supply.
   - **V2**: Mains supply voltage (2=230VAC/240VAC, 4=400VAC/480VAC).
3. Unique number of the particular device.
4. Nominal supply voltage.
   - **Power Input**: Input supply data / **Power Output**: Output data.
5. Designation of the feedback system.
   - **F10**: Resolver / **F11**: SinCos© / Single- or Multiturn.
   - **F12**: Feedback module for direct drives.
6. Device interface.
   - **I10**: Analog, step/direction and encoder input.
   - **I20**: Profibus DP / **I21**: CANopen / **I22**: DeviceNet.
   - **I30**: Ethernet Powerlink / **I31**: EtherCAT / **I32**: Profinet.
   - **C20**: Integrated controller C3 powerPLmC, Linux & Web server.
7. Date of factory test.
8. Options: **Mxx**: I/O extension, HEDA / **Sx**: optional safety technology on C3M.
   - **T10**: Servo controller / **T11**: Positioning / **T20**: Pressure / Volume flow rate.
   - **T30**: Motion control in accordance with IEC61131-3 / **T40**: Electronic cam.
10. CE compliance.
11. Certified safety technology (corresponding to the logo displayed on the device).
12. UL certified (corresponding to the logo displayed on the device).
2.4 Packaging, transport, storage

Packaging material and transport

Caution!
The packaging material is inflammable, if it is disposed of improperly by burning, lethal fumes may develop.
The packaging material must be kept and reused in the case of a return shipment. Improper or faulty packaging may lead to transport damages.
Make sure to transport the drive always in a safe manner and with the aid of suitable lifting equipment (Weight (see on page 18)). Do never use the electric connections for lifting. Before the transport, a clean, level surface should be prepared to place the device on. The electric connections may not be damaged when placing the device.

First device checkup

• Check the device for signs of transport damages.
• Please verify, if the indications on the Type identification plate (see on page 5) correspond to your requirements.
• Check if the consignment is complete.

Disposal

This product contains materials that fall under the special disposal regulation from 2010, which corresponds to the EC directory 2008/98/EC for dangerous disposal material. We recommend to dispose of the respective materials in accordance with the respectively valid environmental laws. The following table states the materials suitable for recycling and the materials which have to be disposed of separately.

<table>
<thead>
<tr>
<th>Material</th>
<th>suitable for recycling</th>
<th>Disposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metal</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>Plastic materials</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>Circuit boards</td>
<td>no</td>
<td>yes</td>
</tr>
</tbody>
</table>

Please dispose of the circuit boards according to one of the following methods:
• Burning at high temperatures (at least 1200°C) in an incineration plant licensed in accordance with part A or B of the environmental protection act.
• Disposal via a technical waste dump which is allowed to take on electrolytic aluminum condensers. Do under no circumstances dump the circuit boards at a place near a normal waste dump.

Storage

If you do not wish to mount and install the device immediately, make sure to store it in a dry and clean environment. Make sure that the device is not stored near strong heat sources and that no metal chippings can get into the device.

Please note in the event of storage >1 year:

Forming the capacitors

Forming the capacitors only required with 400 VAC axis controllers and mains module PSUP

If the device was stored longer than one year, the intermediate capacitors must be re-formed!

Forming sequence:
• Remove all electric connections
• Supply the device with 230VAC single phase for 30 minutes
• via the L1 and L2 terminals on the device or
• with multi axis devices via L1 and L2 on the mains module PSUP.
2.5  Safety instructions

2.5.1.  General hazards

General Hazards on Non-Compliance with the Safety Instructions

The device described in this manual is designed in accordance with the latest technology and is safe in operation. Nevertheless, the device can entail certain hazards if used improperly or for purposes other than those explicitly intended. Electronic, moving and rotating components can

- cause danger for life and limb of the operator and
- material damage

Designated use

The device is designed for operation in electric power drive systems (VDE0160). Motion sequences can be automated with this device. Several motion sequences can be can combined by interconnecting several of these devices. Mutual interlocking functions must be incorporated for this purpose.

2.5.2.  Working safely / qualification

This device may be operated only by qualified personnel. Qualified personnel in the sense of these operating instructions consists of:

- Persons who, by virtue to their training, experience and instruction, and their knowledge of pertinent norms, specifications, accident prevention regulations and operational relationships, have been authorized by the officer responsible for the safety of the system to perform the required task and in the process are capable of recognizing potential hazards and avoiding them (definition of technical personnel according to VDE105 or IEC364),
- who have a knowledge of first-aid techniques and the local emergency rescue services,
- who have read and will observe the safety instructions,
- who have read and observe the manual or help (or the sections pertinent to the work to be carried out).

This applies to all work relating to setting up, commissioning, configuring, programming, modifying the conditions of utilization and operating modes, and to maintenance work. This manual and the help information must be available close to the device during the performance of all tasks.

2.5.3.  Special dangers

DANGER

Danger!
Due to movable machine parts and high voltages, the device can pose a lethal danger. Danger of electric shock in the case of non-respect of the following instructions. The device corresponds to DIN EN 61800-3, i.e. it is subject to limited sale. The device can emit disturbances in certain local environments. In this case, the user is liable to take suitable measures.

- Check that all live terminals are secured against contact. Perilous voltage levels of up to 850V occur.
- Do not bypass power direct current.

Caution - Risk of Electric Shock!
Always switch off devices before wiring them! Dangerous voltages are still present until 10 min. after switching off the power supply.

- The device must be permanently grounded due to high earth leakage currents.
- The drive motor must be grounded with a suitable protective lead.
- The devices are equipped with high voltage DC condensers. Before removing the protective cover, the discharging time must be awaited. After switching off the supply voltage, it may take up to 10 minutes (with additional capacity modules it may take up to 30 minutes) to discharge the capacitors. Danger of electric shock in case of non respect.
Before you can work on the device, the supply voltage must be switched off at the L1, L2 and L3 clamps. Wait at least 10 minutes so that the power direct current may sink to a secure value (<50V). Check with the aid of a voltmeter, if the voltage at the DC+ and DC- clamps has fallen to a value below 50V. Danger of electric shock in case of non respect.

Do never perform resistance tests with elevated voltages (over 690V) on the wiring without separating the circuit to be tested from the drive.

Please exchange devices only in currentless state and, in an axis system, only in a defined original state.

If the axis controller is replaced, it is absolutely necessary to transfer the configuration determining the correct operation of the drive to the device, before the device is put into operation. Depending on the operation mode, a machine zero run will be necessary.

The device contains electrostatically sensitive components. Please heed the electrostatic protection measures while working at/with the device as well as during installation and maintenance.

2.6 Warranty conditions

The device must not be opened.

Do not make any modifications to the device, except for those described in the manual.

Make connections to the inputs, outputs and interfaces only in the manner described in the manual.

Fix the devices according to the mounting instructions. (see on page 17)

We cannot provide any guarantee for other mounting methods.

Note on exchange of options

Device options must be exchanged in the factory to ensure hardware and software compatibility.

When installing the device, make sure the heat dissipators of the device receive sufficient air and respect the recommended mounting distances of the devices with integrated ventilator fans in order to ensure free circulation of the cooling air.

Make sure that the mounting plate is not exposed to external temperature influences.

2.7 Conditions of utilization

2.7.1. Conditions of utilization for CE-conform operation

- Industry and trade -

The EC guidelines for electromagnetic compatibility 2014/30/EU and for electrical operating devices for utilization within certain voltage limits 2014/35/EU are fulfilled when the following boundary conditions are observed:

In order to ensure contact protection, all mating plugs must be present on the device connections even if they are not wired.

Please respect the specifications of the manual resp. of the help function, especially the technical characteristics (mains connection, circuit breakers, output data, ambient conditions,...).

2.7.1.1 Conditions of utilization mains filter

Mains filter: A mains filter is required in the mains input line if the motor cable exceeds a certain length. Filtering can be provided centrally at the system mains input or separately for jeden Achsverbund.

Use of the devices in a commercial and residential area (limit value class in accordance with EN 61800-3)

The following mains filters are available for independent utilization:
Use of the devices in the industrial area (limit values class C3 in accordance with EN 61800-3)

The following mains filters are available for independent utilization:

<table>
<thead>
<tr>
<th>Device: PSU</th>
<th>Limit value class</th>
<th>Reference: Axis system with motor cable</th>
<th>Mains filter Order No.:</th>
</tr>
</thead>
<tbody>
<tr>
<td>P10</td>
<td>C3</td>
<td>&lt; 6 x 10 m</td>
<td>NFI03/01</td>
</tr>
<tr>
<td>P10</td>
<td>C3</td>
<td>&lt; 6 x 50 m</td>
<td>NFI03/02</td>
</tr>
<tr>
<td>P20</td>
<td>C3</td>
<td>&lt; 6 x 50 m</td>
<td>NFI03/03</td>
</tr>
<tr>
<td>P30</td>
<td>C3</td>
<td>&lt; 6 x 50 m</td>
<td>NFI03/03</td>
</tr>
</tbody>
</table>

Connection length: Connection between mains filter and device:
- unshielded: < 0.5 m
- shielded: < 5 (fully shielded on ground - e.g. ground of control cabinet)

2.7.1.2 Conditions of utilization for cables / motor filter

Motor and Feedback cable: Operation of the devices only with motor and feedback cables whose plugs contain a special full surface area screening.

- Compax3M motor cable: <80m per axis (the cable must not be rolled up!)
  - The entire length of the motor cable per axis combination may not exceed 300m.
  - A motor output filter is required for motor cables >20 m:
    - ECM-0001-04 (max. 6.3 A nominal motor current)
    - ECM-0001-01 (max. 16 A nominal motor current)

Shielding connection of the motor cable:
- The cable must be fully-screened and connected to the device housing. Use the cable clamps/shield connecting terminals furnished with the device.
- The shield of the cable must also be connected with the motor housing. The fixing (via plug or screw in the terminal box) depends on the motor type.

Compax3M encoder cable:
- < 80m

Cable:
- Corresponding to the specifications of the terminal clamp with a temperature range of up to 60°C.

Cable installation:
- Signal lines and power lines should be installed as far apart as possible.
- Signal lines should never pass close to excessive sources of interference (motors, transformers, contactors etc.).
- Do not place mains filter output cable parallel to the load cable.

2.7.1.3 Additional conditions of utilization

Motors:
- Operation with standard motors.

Control:
- Use only with aligned controller (to avoid control loop oscillation).

Grounding:
- Connect the filter housing and the device to the cabinet frame, making sure that the contact area is adequate and that the connection has low resistance and low inductance.
- Never mount the filter housing and the device on paint-coated surfaces!

Accessories:
- Make sure to use only the accessories recommended by Parker.

**NOTICE**

This is restricted operation category product according to EN 61800-3. This product can cause high-frequency disturbance in domestic areas. Users are asked to take suitable action if this proves to be the case.
### Conditions of utilization for UL approval Compax3M

#### UL approval for Compax3M

<table>
<thead>
<tr>
<th>Conform to UL:</th>
<th>in accordance with UL508C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certified</td>
<td>E-File No.: E235342</td>
</tr>
</tbody>
</table>

The UL approval is documented by a "UL" logo on the device (type specification plate).

#### Conditions of utilization

- The devices are only to be installed in a degree of contamination 2 environment (maximum).
- The devices must be appropriately protected (e.g. by a switching cabinet).
- Tightening torque of the field wiring terminals (green Phoenix plugs):
  - Device X43: Motor connector
    - C3M050-150: 0.5Nm (4.43Lb.in)
    - C3M300: 1.2Nm (10.62Lb.in)
  - Device X15: Temperature monitoring
    - C3M050-150: 0.22Nm (1.95Lb.in)
    - C3M300: 0.22Nm (1.95Lb.in)

- Temperature rating of field installed conductors shall be at least 60°C. Use copper lines only.
  - Please use the cables described in the accessories chapter, they feature a temperature rating of at least 60°C.
- Maximum Surrounding Air Temperature: 40°C.
- Control voltage supply (24VDC) only permissible with "class 2" power supply.
- Compax3M may only be operated with a mains module of the PSUP series.
- Motor Over Temperature sensing is not provided by the drive unless the external temperature sensor is connected.

#### Caution!

Risk of electric shock.
Discharge time of the bus capacitor is 10 minutes.
The drive provides internal motor overload protection.
This must be set so that 200% of the motor nominal current are not exceeded.

- Cable cross-sections:
  - Mains input: corresponding to the recommended fuses.
  - Motor cable: corresponding to the Nominal output currents
  - Maximum cross-section limited by the terminals mm² / AWG

#### Line cross-sections of the power connections (on the device bottoms)

<table>
<thead>
<tr>
<th>Compax3 device:</th>
<th>Cross-section: Minimum... Maximum [with conductor sleeve]</th>
</tr>
</thead>
<tbody>
<tr>
<td>M050, M100, M150</td>
<td>0.25 ... 4 mm² (AWG: 23 ... 11)</td>
</tr>
<tr>
<td>M300</td>
<td>0.5 ... 6 mm² (AWG: 20 ... 10)</td>
</tr>
</tbody>
</table>
2.7.3. Conditions of utilization for UL approval PSUP

UL approval for mains modules PSUP

<table>
<thead>
<tr>
<th>Conform to UL:</th>
<th>● in accordance with UL508C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certified</td>
<td>● E-File No.: E235342</td>
</tr>
</tbody>
</table>

The UL approval is documented by a “UL” logo on the device (type specification plate).

UL approval PSUP30 in preparation!

Conditions of utilization

● The devices are only to be installed in a degree of contamination 2 environment (maximum).
● The devices must be appropriately protected (e.g. by a switching cabinet).
● Tightening torque of the field wiring terminals (green Phoenix plugs)

<table>
<thead>
<tr>
<th>Device</th>
<th>X40: Ballast resistor</th>
<th>X41: Mains connector</th>
<th>X9: 24VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSUP10</td>
<td>0.5 Nm (4.43lb.in)</td>
<td>1.2 Nm (10.62lb.in)</td>
<td>1.2 Nm (10.62lb.in)</td>
</tr>
<tr>
<td>PSUP20</td>
<td>0.5 Nm (4.43lb.in)</td>
<td>1.7 Nm (15lb.in)</td>
<td>1.2 Nm (10.62lb.in)</td>
</tr>
<tr>
<td>PSUP30</td>
<td>UL approval in preparation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

● Temperature rating of field installed conductors shall be at least 60°C. Use copper lines only.
● Please use the cables described in the accessories chapter, they feature a temperature rating of at least 60°C.
● Maximum Surrounding Air Temperature: 40°C.
● Control voltage supply (24VDC) only permissible with "class 2" power supply.
● Suitable for use on a circuit capable of delivering not more than 5000 rms symmetrical amperes and 480 volts maximum and protected by (see below).
● The devices need a "branch circuit protection".

PSUP10D6

<table>
<thead>
<tr>
<th>Maximum fuse rating per device</th>
<th>Measure for line and device protection:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MCB miniature circuit breaker (K characteristic) 25A in accordance with UL category DIVQ</td>
</tr>
<tr>
<td></td>
<td>(ABB) S203UP-K25 (480VAC)</td>
</tr>
</tbody>
</table>

PSUP20D6

<table>
<thead>
<tr>
<th>Maximum fuse rating per device</th>
<th>Cable protection measure:</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 special purpose fuses in line</td>
<td>MCB (K characteristic) with a rating of 50A / 4xxVAC (depending on the input voltage).</td>
</tr>
<tr>
<td>are required</td>
<td>(ABB) S203U-K50 (440VAC)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Device protection measure:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuses 80A / 700VAC per supply leg in accordance with UL category JFHR2:</td>
</tr>
<tr>
<td>Bussmann 170M1366 or 170M1566D</td>
</tr>
</tbody>
</table>

Caution!

Risk of electric shock.
Discharge time of the bus capacitor is 10 minutes.
2.7.4. Current on the mains PE (leakage current)

**WARNING** This product can cause a direct current in the protective lead. If a residual current device (RCD) is used for protection in the event of direct or indirect contact, only a type B (all current sensitive) RCD is permitted on the current supply side of this product. Otherwise, a different protective measure must be taken, such as separation from the environment by doubled or enforced insulation or separation from the mains power supply by means of a transformer. Respect the supplier's instructions.

Mains filters do have high leakage currents due to their internal capacity. An internal mains filter is usually integrated into the servo controllers. Additional discharge currents are caused by the capacities of the motor cable and the motor winding. Due to the high clock frequency of the power output stage, the leakage currents do have high-frequency components. Please check if the FI protection switch is suitable for the individual application. If an external mains filter is used, an additional leakage current will be produced. The figure of the leakage current depends on the following factors:

- Length and properties of the motor cable
- Switching frequency
- Operation with or without external mains filter
- Motor cable with or without shield network
- Motor housing grounding (how and where)

**Remark:**

- The leakage current is important with respect to the handling and usage safety of the device.
- A pulsing leakage current occurs if the supply voltage is switched on.

**Please note:** The device must be operated with effective grounding connection, which must comply with the local regulations for high leakage currents (>3.5 mA). Due to the high leakage currents it is not advisable to operate the servo drive with an earth leakage circuit breaker.

2.7.5. Supply networks

This product is designed for fixed connection to TN networks (TN-C, TN-C-S or TN-S). Please note that the line-earth voltage may not exceed 300VAC.

- When grounding the neutral conductor, mains voltages of up to 480VAC are permitted.

- When grounding an external conductor (delta mains, two-phase mains), mains voltages (external conductor voltages) of up to 240VAC are permitted.

Devices which are to be connected to an IT network must be provided with a separating transformer. Then the devices are operated locally as in a TN network. The secondary sided center of the separating transformer must be grounded and connected to the PE connector of the device.
2.8 EC declaration of conformity Compax3M

<table>
<thead>
<tr>
<th>Dokumenten Nr. Declaration No.</th>
<th>DoC003-R 6.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Der Hersteller The Manufacturer</td>
<td>Parker Hannifin Manufacturing Germany GmbH &amp; Co. KG</td>
</tr>
<tr>
<td>Anschrift Address</td>
<td>Robert-Bosch-Straße 22 77656 Offenburg Deutschland</td>
</tr>
</tbody>
</table>

erklärt in alleiniger Verantwortung die Konformität der folgenden Produktrühe declares under sole responsibility the conformity of the following product series

<table>
<thead>
<tr>
<th>Produkt Product</th>
<th>Antrieb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Produktname Product name</td>
<td>Compax3 Serie – C3M (Mehrfachfamilie)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Norm / Standard</th>
<th>Titel / Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN 61800-5-1:2007</td>
<td>Elektrische Leistungsantriebsysteme mit einstellbarer Drehzahl Teil 5-1: Anforderungen an die Sicherheit – Elektrische, thermische und energetische Anforderungen Adjustable speed electrical power drive systems Part 5-1: Safety requirements - Electrical, thermal and energy</td>
</tr>
<tr>
<td>EN50581:2012</td>
<td>Technische Dokumentation zur Beurteilung von Elektro- und Elektronikgeräten hinsichtlich der Beschränkung gefährlicher Stoffe Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances</td>
</tr>
</tbody>
</table>


*gilt nicht für C3MoxxD6FxocksTxoxMoxsS3; not valid for C3MoxxD6FxocksTxoxMoxsS3

Bemerkungen / Notes:
Den im Produkthandbuch beschriebenen Sicherheits-, Installations- und Bedienungshinweisen muss Folge geleistet werden. These products must be installed and operated with reference to the instructions in the product manual. All instructions, warnings and safety information of the product manual must be adhered to.

Die Produkte sind für den Einbau in eine Maschine bestimmt. Die Inbetriebnahme ist solange untersagt, bis die Konformität des Endproduktes gemäß der Maschinen-Richtlinie 2006/42/EG festgestellt ist. The products are components to be incorporated into machinery and may not be operated alone. The complete machinery or installation may only be put into service when the safety considerations of the Machinery Directive 2006/42/EC are fully adhered to.

Offenburg, 2017-07-21
Jürgen Küllüs, Operations Manager

---

<p>| Parken Hannifin Manufacturing Germany GmbH &amp; Co. KG |
| Sitz: Bielefeld Hessen 35489 |
| USt.-Reg.: DE 122 802 922 |</p>
<table>
<thead>
<tr>
<th>Steuernummer: 5349 5747 1543</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commerzbank Offenburg</td>
</tr>
<tr>
<td>BLZ 646 400 84</td>
</tr>
<tr>
<td>Konto-Nr. 45 9 19 12 00</td>
</tr>
<tr>
<td>IBAN DE55 6644 0084 0456 1912 00</td>
</tr>
</tbody>
</table>

---

| Geschäftsführung: |
| Dr.-Ing. Hans-Jürgen Hass, Ellen Raschke Secher, Günter Schmidt, Kurt Vernet |
| Vorsitzender des Aufsichtsrates: Hansgeorg Greiner |
2.9 EC declaration of conformity PSUP

Parker Hannifin Manufacturing Germany GmbH & Co. KG
Automation Group, Electromechanical & Drives Division Europe
Robert-Bosch-Straße 22
D-77656 Offenburg
Tel.: +49 (0) 781-409-0
Fax.: +49 (0) 781-509-98
www.parker.com/eme

EU KONFORMITÄTserklärung
EU declaration of conformity

Dokumenten Nr.
Declaration No.
DoC004-R 7.0

Der Hersteller
The Manufacturer
Parker Hannifin Manufacturing Germany GmbH & Co. KG

Anschrift
Address
Robert-Bosch-Straße 22
77656 Offenburg
Deutschland

erklärt in alleiniger Verantwortung die Konformität der folgenden Produktreihe
declares under sole responsibility the conformity of the following product series

Produkt
Product
Netzversorgungs-Einheit
PSU – Power Supply Unit

Produktname
Product name
Mehrfachfamilien
Multi axis families

Angewandte harmonisierte Normen / Applied harmonized standards:

<table>
<thead>
<tr>
<th>Norm / Standard</th>
<th>Titel / Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN 61800-5-1:2007</td>
<td>Elektrische Leistungsantriebssysteme mit einstellbarer Drehzahl</td>
</tr>
</tbody>
</table>
| EN 61800-5-1:2007 Teil 5-1: Anforderungen an die Sicherheit – Elektrische, thermische und energetische Anforderungen
| EN50581:2012 | Technische Dokumentation für die Beurteilung von Elektro- und Elektronikgeräten hinsichtlich der Beschränkung gefährlicher Stoffe
| EN50581:2012 | Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

Die Produkte entsprechen den Anforderungen der Niederspannungs-Richtlinie 2014/35/EU, der EMV-Richtlinie 2014/30/EU und der RoHS Richtlinie 2011/65/EU
The products are in accordance with the Low Voltage Directive 2014/35/EU, EMC Directive 2014/30/EU and the RoHS directive 2011/65/EU

Bemerkungen / Notes:
Den im Produkthandbuch beschriebenen Sicherheits-, Installations- und Bedienungshinweisen muss Folge geleistet werden.
These products must be installed and operated with reference to the instructions in the product manual. All instructions, warnings and safety information of the product manual must be adhered to.

Die Produkte sind für den Einbau in eine andere Maschine bestimmt. Die Inbetriebnahme ist solange untersagt, bis die Konformität des Endproduktes gemäß der Maschinen-Richtlinie 2006/42/EG festgestellt ist.
The products are components to be incorporated into machinery and may not be operated alone. The complete machinery or installation may only be put into service when the safety considerations of the Machinery Directive 2006/42/EC are fully adhered to.

Offenburg, 2017-07-21
Jürgen Killius, Operations Manager

Parker Hannifin Manufacturing Germany GmbH & Co. KG
Sitz: Bielefeld HRB 35489
USt.-IdNr.: DE 137 807 925
Steuernummer: 5549 2747 1543

Commerzbank Offenburg
IBAN DE95 6644 0844 0455 1912 00

Geschäftsführung:
Dr.-Ing. Hans-Ulrich Haas, Elisa Rauhade Secher, Günter Schmidt, Ken Verhart
Vorsitzender des Aufsichtsrates: Hansgeorg Greiner
3. Device description

3.1 Installation instructions Compax3M

General introductory notes

- Operation of the Compax3M multi-axis combination is only possible in connection with a PSUP (mains module).
- Axis controllers are aligned at the right of the mains module.
- Arrangement within the multi-axis combination sorted by power (with the same device types according to device utilization), the axis controller with the highest power is placed directly at the right of the mains module.
  - e.g. first the device type with high utilization, at the right of this, the same device type with a lower utilization.
- Max. 15 Compax3M (axis controllers) per PSUP (mains module) are permitted (please respect the total capacity of max. 2400µF for PSUP10, max. 5000µF for PSUP20).
- The continuation of the current rail connection outside the axis combination is not permitted and will lead to a loss of the CE and UL approbation.
- External components may not be connected to the rail system.

Required tools:

- Allen key M5 for fixing the devices in the control cabinet.
- Crosstip screwdriver M4 for connection rails of the DC rail modules.
- Crosstip screwdriver M5 for grounding screw of the device.
- Flat-bladed screwdriver 0.4x2.5 / 0.6x3.5 / 1.0x4.0 for wiring and mounting of the phoenix clamps.

Order of installation

- Fixing the devices in the control cabinet.
  - Predrilling the mounting plate in the control cabinet according to the specifications. Dimensions (see on page 17). Fit M5 screws loosely in the bores.
  - Fit device on the upper screws and place on lower screw. Tighten screws of all devices. The tightening torque depends on the screw type (e.g. 5.9Nm for M5 screw DIN 912 8.8).
- Connection of the internal supply voltage.
  - The Compax3M axis controllers are connected to the supply voltages via the rail modules. Details.
  - Debloking the yellow protective cover with a flat-bladed screwdriver on the upper surface (click mechanism). Remove the closing devices (contact protection) that are not required from between the devices.
  - Connecting the rail modules, beginning with the mains module.
    - For this, loosen crosshead screws (5 screws at the right in the mains module, all 10 screws in the next axis controller), push the rails one after the other against to the left and tighten screws. Proceed accordingly for all adjacent axis controllers in the combination.
    - Max. tightening torque: 1.5Nm.
  - Close all protective covers. The protective covers must latch audibly.

Please note:
Insufficiently fixed screw connections of the DC power voltage rails may lead to the destruction of the devices.

Protective seals

Caution - Risk of Electric Shock!
In order to secure the contact protection against the alive rails, it is absolutely necessary to respect the following:

- Insert the yellow plastic comb at the left or right of the rails.
  - Make sure that the yellow plastic combs are placed at the left of the first device and at the right of the last device in the system and have not been removed.
- Setup of the devices only with closed protective covers.

- Connect protective earth to mains module (M5 crosshead screw on front of device bottom).
- Connecting the internal communication. Details.
- Connecting the signal and fieldbus connectors. Details.
- Connection of mains power supply Details ballast resistor details and motor details.
- Connecting the configuration interface to the PC. Details.
3.2 Mounting and dimensions

**CAUTION**  Ventilation:
- During operation, the device radiates heat (heat dissipation). Please provide for a sufficient mounting distance below and above the device in order to ensure free circulation of the cooling air.
- Please do also respect the recommended distances of other devices.
- Make sure that the mounting plate is not exhibited to other temperature influences than that of the devices mounted on this very plate.
- The devices must be mounted vertically on a level surface. Make sure that all devices are sufficiently fixed.

3.2.1. Mounting and dimensions PSUP10/C3M050D6, C3M100D6, C3M150D6

*The devices are force-ventilated via a ventilator fan fixed to the lower part of the heat dissipator!*

Mounting spacing: At the top and below: at least 100mm

Information on PSUP10D6/C3M050D6, C3M100D6, C3M150D6

**Mounting:**
2 socket head screws M5

Tolerances: DIN ISO 2768-f
3.2.2. Mounting and dimensions PSUP20/PSUP30/C3M300D6

Information on PSUP20/PSUP30/C3M300D6

Mounting:
4 socket head screws M5

Tolerances: DIN ISO 2768-f
## 4. Technical Data

### Mains connection PSUP10D6

<table>
<thead>
<tr>
<th>Device type PSUP10</th>
<th>230V</th>
<th>400V</th>
<th>480V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply voltage</td>
<td>230VAC ±10% 50-60Hz</td>
<td>400VAC ±10% 50-60Hz</td>
<td>480VAC ±10% 50-60Hz</td>
</tr>
<tr>
<td>Rated voltage</td>
<td>3AC 230V</td>
<td>3AC 400V</td>
<td>3AC 480V</td>
</tr>
<tr>
<td>Input current</td>
<td>22Arms</td>
<td>22Arms</td>
<td>18Arms</td>
</tr>
<tr>
<td>Output Voltage</td>
<td>325VDC ±10%</td>
<td>565VDC ±10%</td>
<td>680VDC ±10%</td>
</tr>
<tr>
<td>Output power</td>
<td>6kW</td>
<td>10 kW</td>
<td>10 kW</td>
</tr>
<tr>
<td>Pulse power (&lt;5s)</td>
<td>12kW</td>
<td>20kW</td>
<td>20kW</td>
</tr>
<tr>
<td>Heat dissipation</td>
<td>60W</td>
<td>60W</td>
<td>60W</td>
</tr>
<tr>
<td>Maximum fuse rating per device</td>
<td>Measure for line and device protection: MCB miniature circuit breaker (K characteristic) 25A in accordance with UL category DIVQ</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Mains connection PSUP20D6

<table>
<thead>
<tr>
<th>Device type PSUP20</th>
<th>230V</th>
<th>400V</th>
<th>480V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply voltage</td>
<td>230VAC ±10% 50-60Hz</td>
<td>400VAC ±10% 50-60Hz</td>
<td>480VAC ±10% 50-60Hz</td>
</tr>
<tr>
<td>Rated voltage</td>
<td>3AC 230V</td>
<td>3AC 400V</td>
<td>3AC 480V</td>
</tr>
<tr>
<td>Input current</td>
<td>44Arms</td>
<td>44Arms</td>
<td>35Arms</td>
</tr>
<tr>
<td>Output Voltage</td>
<td>325VDC ±10%</td>
<td>565VDC ±10%</td>
<td>680VDC ±10%</td>
</tr>
<tr>
<td>Output power</td>
<td>12kW</td>
<td>20kW</td>
<td>20kW</td>
</tr>
<tr>
<td>Pulse power (&lt;5s)</td>
<td>24kW</td>
<td>40kW</td>
<td>40kW</td>
</tr>
<tr>
<td>Heat dissipation</td>
<td>120W</td>
<td>120W</td>
<td>120W</td>
</tr>
<tr>
<td>Maximum fuse rating per device</td>
<td>Cable protection measure: MCB (K characteristic) with a rating of 50A / 4xxVAC (depending on the input voltage)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### PSUP30D6 Mains connection

<table>
<thead>
<tr>
<th>Device type PSUP30</th>
<th>230V</th>
<th>400V</th>
<th>480V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply voltage</td>
<td>230VAC ±10% 50-60Hz</td>
<td>400VAC ±10% 50-60Hz</td>
<td>480VAC ±10% 50-60Hz</td>
</tr>
<tr>
<td>Rated voltage</td>
<td>3AC 230V</td>
<td>3AC 400V</td>
<td>3AC 480V</td>
</tr>
<tr>
<td>Input current</td>
<td>50Arms</td>
<td>50Arms</td>
<td>42Arms</td>
</tr>
<tr>
<td>Output Voltage</td>
<td>325VDC ±10%</td>
<td>565VDC ±10%</td>
<td>680VDC ±10%</td>
</tr>
<tr>
<td>Output power</td>
<td>17kW</td>
<td>30kW</td>
<td>30kW</td>
</tr>
<tr>
<td>Pulse power (&lt;5s)</td>
<td>34kW</td>
<td>60kW</td>
<td>60kW</td>
</tr>
<tr>
<td>Heat dissipation</td>
<td>140W</td>
<td>140W</td>
<td>140W</td>
</tr>
<tr>
<td>Maximum fuse rating per device</td>
<td>Cable protection measure: MCB (K characteristic) with a rating of 63A / 4xxVAC (depending on the input voltage)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

192-120148N13 2019-06
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)477 280 900
parker.belgium@parker.com

BG – Bulgaria, Sofia
Tel: +359 2 960 1344
parker.bulgaria@parker.com

BY – Belarus, Minsk
Tel: +37 0222 231 940
parker.belgium@parker.com

CH – Switzerland, Etoy
Tel: +41 (0)21 621 87 00
parker.switzerland@parker.com

CZ – Czech Republic, Klicany
Tel: +420 284 081 111
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 59 26 30 40
parker.france@parker.com

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

HU – Hungary, Budáss
Tel: +36 20 885 470
parker.hu@parker.com

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

IT – Italy, Corsico (MI)
Tel: +39 02 35 19 31
parker.italy@parker.com

KZ – Kazakhstan, Almaty
Tel: +7 7273 756 000
parker.astana@parker.com

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

NO – Norway, Askar
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, Leça da Palmeira
Tel: +351 21 399 3760
parker.portugal@parker.com

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

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

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

SK – Slovakia, Banska 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: +90 216 499 7081
parker.turkey@parker.com

UA – Ukraine, Kiev
Tel: +380 (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 9028 0037

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

HK – Hong Kong
Tel: +852 2424 8008

IN – India, Mumbai
Tel: +91 22 6513 7091-85

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 9867

South America
AR – Argentina, Buenos Aires
Tel: +54 3327 44 1429

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

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

We reserve the right to make technical changes. The data correspond to the technical state at the time of printing.
© 2015 Parker Hannifin Corporation
All rights reserved.