



**STÖBER**

# **ECS 5000 and PN 5000**

## **Commissioning Instructions**

**Installation**

**Connecting**

**V 5.6-E or later**

**04/2012**

**en**

# Table of contents

Commissioning Instructions ECS 5000 and PN 5000



## Table of contents

<b>1 Overview</b>	3
<b>2 Notes on Safety</b>	4
2.1 Component part of the product	4
2.2 Operation in accordance with its intended use	4
2.3 Qualified personnel	4
2.4 Installation and connection	5
2.5 Commissioning, operation and service	6
2.6 Disposal	6
2.7 Presentation of notes on safety	7
<b>3 Installation</b>	8
3.1 Install in MDS 5000 or SDS 5000	8
3.2 Installation in the FDS 5000	10
<b>4 Connection</b>	13
4.1 ECS 5000	13
4.2 PN 5000	13



# 1 Overview

## Fieldbus module EtherCAT® ECS 5000

ID No. 49014

Description: Accessory part for coupling of EtherCAT®  
(CANopen® via EtherCAT®)



## EtherCAT® cable

Description: EtherNet patch cable, CAT5e, yellow

ID No. 49313: approx. 0.2 m

ID No. 49314: approx. 0.35 m



## Fieldbus module PROFINET

ID No. 53893

Description: Accessory part for coupling of PROFINET



## 2 Notes on Safety

The devices may cause risks. For these reasons, comply with the following:

- The safety notes listed in the following sections and points
- The technical rules and regulations.

In addition, always read the appropriate documentation. STÖBER ANTRIEBSTECHNIK GmbH + Co. KG accepts no liability for damages caused by non-adherence to the instructions or applicable regulations. Subject to technical changes to improve the devices without prior notice. This documentation is purely a product description. It does not represent promised properties in the sense of warranty law.

### 2.1 Component part of the product

The technical documentation is a component part of a product.

- Since the technical documentation contains important information, always keep it handy in the vicinity of the device until the machine is disposed of.
- If the product is sold, disposed of, or rented out, always include the technical documentation with the product.

### 2.2 Operation in accordance with its intended use

The PN 5000 accessory is only intended for establishing communication between devices from the 5th generation of STÖBER inverters and a PROFINET® network.

Improper use includes integration in other communication networks.

The ECS 5000 accessory is only intended for establishing communication between devices from the 5<sup>th</sup> generation of STÖBER inverters and a EtherCAT® network.

Improper use includes integration in other communication networks.

### 2.3 Qualified personnel

Since the devices may harbor residual risks, all configuration, transportation, installation and commissioning tasks including operation and disposal may only be performed by trained personnel who are aware of the possible risks.

Personnel must have the qualifications required for the job. The following table lists examples of occupational qualifications for the jobs:

Activity	Possible occupational qualifications
Transportation and storage	Worker skilled in storage logistics or comparable training
Configuration	<ul style="list-style-type: none"> <li>- Graduate engineer (electro-technology or electrical power technology)</li> <li>- Technician (m/f) (electro-technology)</li> </ul>



Activity	Possible occupational qualifications
Installation and connection	Electronics technician (m/f)
Commissioning (of a standard application)	- Technician (m/f) (electro-technology) - Master electro technician (m/f)
Programming	Graduate engineer (electro-technology or electrical power technology)
Operation	- Technician (m/f) (electro-technology) - Master electro technician (m/f)
Disposal	Electronics technician (m/f)

Tab. 2-1: examples of occupational qualifications

In addition, the valid regulations, the legal requirements, the reference books, this technical documentation and, in particular, the safety information contained therein must be carefully

- read
- understood and
- complied with

## 2.4 Installation and connection

Installation and connection work are only permitted after the device has been isolated from the power! The accessory installation instructions allow the following actions during the installation of accessories:

- The housing in the upper slot can be opened
- The housing in the bottom slot can be opened.

Opening the housing in another place or for other purposes is not permitted.

The accessory installation instructions allow the following actions during the installation of accessories:

- The housing in the upper slot can be opened.

Opening the housing in another place or for other purposes is not permitted.

Use only copper lines. For the line cross sections to be used, refer to DIN VDE 0298-4 or DIN EN 60204-1 Appendix D and Appendix G.

Protect the device from falling parts (pieces of wire, leads, metal parts, and so on) during installation or other tasks in the switching cabinet. Parts with conductive properties inside the inverter can cause short circuits or device failure.

The motor must have an integrated temperature monitor with basic isolation in acc. with EN 61800-5-1 or external motor overload protection must be used.

The permissible protection class is protective ground. Operation is not permitted unless the protective conductor is connected in accordance with the regulations.

Comply with the applicable instructions for installation and commissioning of motor and brakes.

## 2.5 Commissioning, operation and service

Remove additional coverings before commissioning so that the device cannot overheat. During installation, provide the free spaces specified in the projecting manuals to prevent the inverter from overheating. The housing of the drive controller must be closed before you turn on the supply voltage. When the supply voltage is on, dangerous voltages can be present on the connection terminals and the cables and motor terminals connected to them. Remember that the device is not necessarily de-energized after all indicators have gone off.

When network voltage is applied, the following are prohibited:

- Opening the housing
- Connecting or disconnecting the connection terminals
- Installing accessories

Before carrying out any work on the machine, observe all the following five safety regulations in the above-mentioned sequence:

1. Enable. Ensure that you also activate the auxiliary circuits.
2. Secure against switching on.
3. Ensure that the parts are de-energized.
4. Earth and short-circuit.
5. Cover or isolate any live neighboring parts.



### Information

Please note that the discharge time for the intermediate circuit capacitors is 5 min. You can only ensure that the parts are de-energized after this time.

You can then start your work on the drive controller. Repairs may only be performed by STÖBER ANTRIEBSTECHNIK GmbH + Co. KG.

Send defective devices together with a fault description to:

STÖBER ANTRIEBSTECHNIK GmbH + Co. KG

Department VS-EL

Kieselbronner Str.12

75177 Pforzheim

GERMANY

## 2.6 Disposal

Please comply with the latest national and regional regulations! Dispose of the individual parts separately depending on their nature and currently valid regulations such as, for example:

- Electronic scrap (PCBs)
- Plastic
- Sheet metal
- Copper
- Aluminum



## 2.7 Presentation of notes on safety

### NOTICE

#### Notice

means that property damage may occur

- ▶ if the stated precautionary measures are not taken.

### CAUTION!

#### Caution

with warning triangle means that minor injury may occur

- ▶ if the stated precautionary measures are not taken.

### WARNING!

#### Warning

means that there may be a serious danger of death

- ▶ if the stated precautionary measures are not taken.

### DANGER!

#### Danger

means that serious danger of death exists

- ▶ if the stated precautionary measures are not taken.



#### Information

indicates important information about the product or a highlighted portion of the documentation which requires special attention.

## 3 Installation

### 3.1 Install in MDS 5000 or SDS 5000



#### WARNING!

**Danger of injury/death and property damage due to electric shock!**

- ▶ Before installing accessories, turn off all voltage supplies! Then wait 5 minutes for the DC link capacitors to discharge. Never begin with accessory installation until after this!

#### NOTICE

**Danger of property damage from incorrect installation of the devices!**

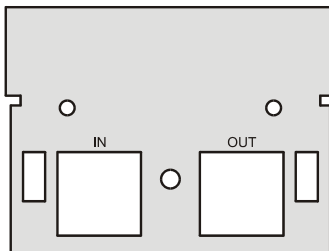
- ▶ It is essential to comply with the following installation instructions to avoid damage to the devices.

You will need the following accessories for the connection of EtherCAT® or PROFINET®. The accessory part is installed above the inverter's display.

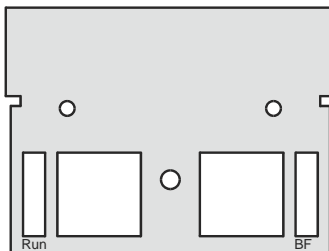
- EtherCAT®: ECS 5000
- PROFINET®: PN 5000

You will require the following for installation:

- A TX10 Torx screwdriver
- A Phillips screwdriver
- the following cover plate, which is included in the accessories, is required for installing the ECS 5000:



- the following cover plate, which is included in the accessories, is required for installing the PN 5000:



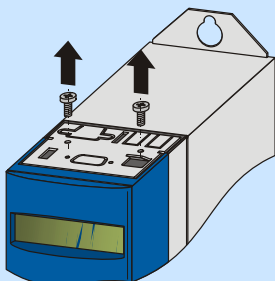
- The screw with locking disk which is included with the ECS 5000 accessories.



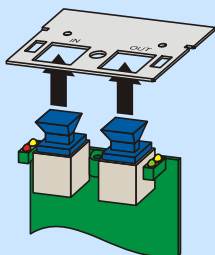


### Installation of an ECS 5000 or PN 5000 in an inverter

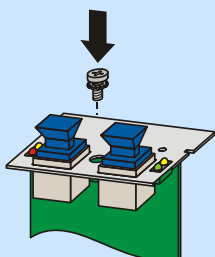
- 1 Remove the mounting screws and take off the cover plate:



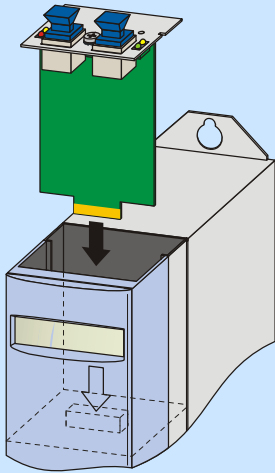
- 2 From below, guide the RJ45 plug connector of the PCB through the metal plate which is included with the accessory:



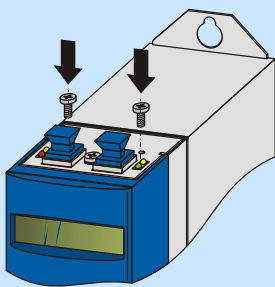
- 3 Secure the metal plate on the PCB with the included screw with locking disk:



- 4 Guide the option board into the inverter so that the gold contacts slide into the black connector:



- 5 Secure the metal plate on the PCB with the included screws:



⇒ You have now installed the accessory.

## 3.2 Installation in the FDS 5000

### **WARNING!**

**Danger of injury/death and property damage due to electric shock!**

- ▶ Before installing accessories, turn off all voltage supplies! Then wait 5 minutes for the DC link capacitors to discharge. Never begin with accessory installation until after this!

### **NOTICE**

**Danger of property damage from incorrect installation of the devices!**

- ▶ It is essential to comply with the following installation instructions to avoid damage to the devices.

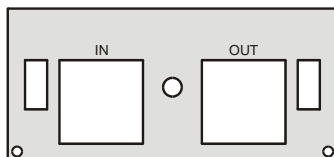


You will need the following accessories for the connection of EtherCAT® or PROFINET®. The accessory part is installed above the inverter's display.

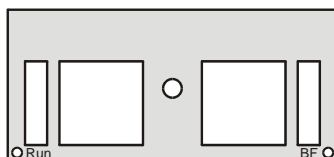
- EtherCAT®: ECS 5000
- PROFINET®: PN 5000

You will require the following for installation:

- A TX10 Torx screwdriver; a Phillips screwdriver
- the following cover plate, which is included in the accessories, is required for installing the ECS 5000:



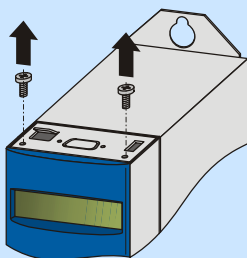
- the following cover plate, which is included in the accessories, is required for installing the PN 5000:



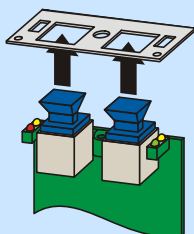
- The screw with locking disk which is included with the ECS 5000 accessories.

#### Installation of an ECS 5000 or PN 5000 in an inverter

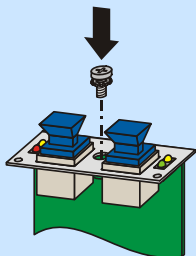
- 1 Remove the mounting screws and take off the cover plate:



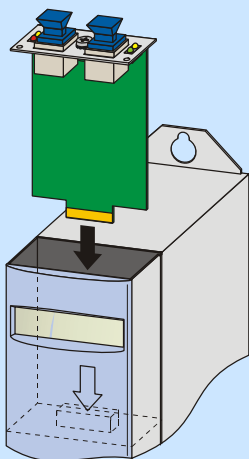
- 2 From below, guide the RJ45 plug connector of the PCB through the metal plate which is included with the accessory:



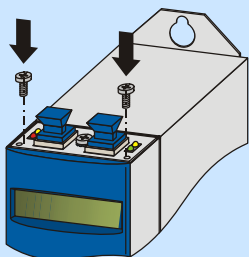
- 3 Secure the metal plate on the PCB with the included screw with locking disk:



- 4 Guide the option board into the inverter so that the gold contacts slide into the black connector:



- 5 Secure the metal plate on the PCB with the included screws:



⇒ You have now installed the accessory.



## 4 Connection

### 4.1 ECS 5000

#### Terminal description X200 und X201

Pin		Designation	Function
	1	TxData +	EtherCAT® communication
	2	TxData -	
	3	RecvData +	
	4	nc	—
	5	nc	
	6	RecvData -	EtherCAT® communication
	7	nc	—
	8	nc	

#### Specifications of the cable

STÖBER ANTRIEBSTECHNIK offers fabricated cables for the EtherCAT® connection. Correct function is not guaranteed unless these cables are used. Read and comply with chapter 1 Overview.

Another possibility is to use cables with the following specifications:

Plug con. wiring	Patch or Crossover
Quality	CAT5e
Shield	SFTP or PIMF

### 4.2 PN 5000

#### X200 and X201 terminal description

The terminal configuration is determined by T 568-B.

Pin		Designation	Function
	1	TxData +	PROFINET® communication
	2	TxData -	
	3	RecvData +	
	4	nc	Connect via RC-link with housing
	5	nc	
	6	RecvData -	PROFINET® communication
	7	nc	Connect via RC-link with housing
	8	nc	

Observe the PROFINET installation guideline for the cable specification (PROFINET Order No. 8.071, identification: TC2-08-0001); you can obtain the document at [www.profibus.com](http://www.profibus.com).

[illegible]



## Address registers

Always up to date on the internet: [www.stober.com](http://www.stober.com) → contact

- Technical Offices (TB) for advice and marketing in Germany
- Global presence for advice and marketing in about 25 countries
- Service Network Germany
- Service Network International
- STÖBER Subsidiaries:

### Austria

**STÖBER ANTRIEBSTECHNIK GmbH**  
Hauptstraße 41a  
4663 Laakirchen  
Fon +43 7613 7600-0  
Fax +43 7613 7600-2525  
E-Mail: [office@stoeber.at](mailto:office@stoeber.at)  
[www.stoeber.at](http://www.stoeber.at)

### USA

**STOBER DRIVES INC.**  
1781 Downing Drive  
Maysville, KY 41056  
Fon +1 606 7595090  
Fax +1 606 7595045  
eMail: [sales@stober.com](mailto:sales@stober.com)  
[www.stober.com](http://www.stober.com)

### France

**STÖBER S.a.r.l.**  
131, Chemin du Bac à Traille  
Les Portes du Rhône  
69300 Caluire et Cuire  
Fon +33 4 78989180  
Fax +33 4 78985901  
eMail: [mail@stober.fr](mailto:mail@stober.fr)  
[www.stober.fr](http://www.stober.fr)

### Switzerland

**STÖBER SCHWEIZ AG**  
Rugghölzli 2  
5453 Remetschwil  
Fon +41 56 496 96 50  
Fax +41 56 496 96 55  
eMail: [info@stoeber.ch](mailto:info@stoeber.ch)  
[www.stoeber.ch](http://www.stoeber.ch)

### Great Britain

**STOBER DRIVES LTD.**  
Upper Keys Business Village  
Keys Park Road, Hednesford  
Cannock WS12 2HA  
Fon +44 (0) 1543 458 858  
Fax +44 (0) 1543 448 688  
E-Mail: [mail@stober.co.uk](mailto:mail@stober.co.uk)  
[www.stober.co.uk](http://www.stober.co.uk)

### Italy

**STÖBER TRASMISSIONI S. r. l.**  
Via Risorgimento, 8  
20017 Mazza di Rho (Milano)  
Fon +39 02 93909-570  
Fax +39 02 93909-325  
eMail: [info@stoeber.it](mailto:info@stoeber.it)  
[www.stoeber.it](http://www.stoeber.it)

### China

**STOBER CHINA**  
German Centre Beijing  
Unit 2010, Landmark Tower 2,  
8 North Dongsanhuan Road  
Chaoyang District  
100004 Beijing  
Fon +86 10 65907391  
Fax +86 10 65907393  
eMail: [info@stoeber.cn](mailto:info@stoeber.cn)  
[www.stoeber.cn](http://www.stoeber.cn)

### Japan

**STOBER Japan**  
P.O. Box 113-002, 6 chome  
15-8, Hon-komagome  
Bunkyo-ku  
Tokyo  
Fon +81 3 5395-6788  
Fax +81 3 5395-6799  
eMail: [mail@stober.co.jp](mailto:mail@stober.co.jp)  
[www.stober.co.jp](http://www.stober.co.jp)

### Singapore

**STOBER Singapore**  
50 Tagore Lane  
#05-06B  
Entrepreneur Centre  
Singapore 787494  
Fon +632 241 89 - 01/02/03/04/05  
Fax +632 241 40 - 40/60  
E-Mail: [info@stober.sg](mailto:info@stober.sg)  
[www.stober.sg](http://www.stober.sg)



# STÖBER



## **STÖBER ANTRIEBSTECHNIK GmbH + Co. KG**

Kieselbronner Str. 12

75177 PFORZHEIM

GERMANY

Tel. +49 (0)7231 582-0

Fax. +49 (7231) 582-1000

E-Mail: [mail@stoerber.de](mailto:mail@stoerber.de)

**24/h service hotline +49(0) 180 5 786 323**

**[www.stoerber.com](http://www.stoerber.com)**

Technische Änderungen vorbehalten

Errors and changes excepted

ID 442150.03

04/2012

