



SHIFTING THE LIMITS



## Fronius DATCOM Detail

EN-US

Operating Instructions

Data Communication



42,0410,0968

003-24042012



# Dear Fronius Customer,

## Introduction

Thank you for choosing Fronius - and congratulations on your new, high-quality, high-tech Fronius product. This introduction should provide you with general information about the equipment. Please read it carefully to learn about the many great features of your new Fronius product. This is the best way to get the most out of all the advantages that it has to offer.

Please also note the safety information and the safety precautions for the product installation location. Following all product instructions will ensure long-lasting quality and reliability. And these are the essential ingredients for outstanding results.



# Safety Instructions

## Explanation of Safety Warnings!



„**DANGER!**“ Indicates an immediate danger. Death or serious injury may result if appropriate precautions are not taken.



„**WARNING!**“ indicates a potentially dangerous situation. Death or serious injury may result if appropriate precautions are not taken.



„**CAUTION!**“ Indicates a situation where damage or injury could occur. Minor injury or damage to property may result if appropriate precautions are not taken.



**NOTE!** Indicates a situation which could adversely affect work results and may cause damage to equipment.

„**Important!**“ Highlights tips for correct operation and other particularly useful information. It does not indicate a potentially damaging or dangerous situation.

If you see any of the symbols depicted in the „Safety Rules,“ special care is required.

## General



This equipment has been manufactured using state-of-the-art technology and in accordance with general safety regulations. However, incorrect operation or misuse may endanger:

- the life and well-being of the operator or third parties
- the equipment and other property of the owner/operator
- the efficient operation of the equipment.

All persons involved with equipment startup, service and maintenance must:

- be suitably qualified
- be familiar with electrical installations
- have completely read and followed these operating instructions

The operating instructions must be available at the equipment location at all times. In addition to the operating instructions, all applicable local rules and regulations regarding accident prevention and environmental protection must also be followed.

All safety instructions and warning signs on the equipment itself:

- must be maintained in legible condition
- must not be damaged
- must not be removed
- must not be covered or painted over

For information about where the safety instructions and warning signs are located on the equipment, please refer to the “General” section of your equipment’s operating instructions.

Any equipment malfunctions which might impair safety must be remedied immediately before the device is turned on.

**Your safety is at stake.**

## Intended Use



The equipment may only be operated in compliance with its intended use.

Any other purpose does not constitute intended use. The manufacturer is not responsible for any damages resulting from unintended use.

Intended use also includes:

- reading and complying with all general information as well as safety information and warnings from the operating instructions
- compliance with all inspection and maintenance requirements
- installation as per operating instructions

Where appropriate, the following guidelines should also be applied:

- Utility company regulations regarding grid feed-in
- Information from solar module manufacturer

## Ambient Conditions



Operation and/or storage of the device outside of the stipulated range does not constitute intended use. The manufacturer is not responsible for any damages resulting from unintended use.

Please refer to the technical data in your operating instructions for information about permitted ambient conditions.

## Qualified Personnel



The servicing information contained in these operating instructions is intended only for the use of qualified service engineers. An electric shock can be fatal. Please do not perform any actions other than those described in the documentation. This also applies to qualified personnel.



All cables and wires must be secured, undamaged, insulated and adequately dimensioned. Loose connections, scorched, damaged or under-dimensioned cables and wires must be repaired immediately by an authorized specialist.



Maintenance and repair may only be carried out by an authorized specialist.

The use of third-party parts does not guarantee that they were designed and manufactured according to operational demands and safety requirements. Use only original spare parts (also applies to standard parts).

Do not carry out any alterations, installations or modifications to the device without first obtaining the manufacturer's permission.

Immediately replace any components that are not in perfect condition.

## Safety Precautions at Equipment Location

When installing devices with air vents, make sure that cool air can flow freely through the vents unobstructed. The device should only be operated in accordance with the protection class listed on the rating plate.

## Information on Noise Emission Values



The inverter generates a maximum sound power level of <80dB(A) (ref. 1pW) at full-load operation according to IEC 62109-1.

The cooling of the device takes place via an electronic temperature control system at the lowest possible noise level and depends on the power used, ambient temperature and the soiling level of the device, etc.

A workplace-related emissions value cannot be provided for this device because the actual noise level that occurs depends strongly on the installation situation, the grid quality, the surrounding walls and the general properties of the space.

## EMC Device Classifications



Devices in emission class A:

- Are only designed for use in industrial settings
- Can cause grid-bound and radiated interference in other areas

Devices in emission class B:

- Satisfy the emissions criteria for residential and industrial areas. This is also true for residential areas in which the energy is supplied from the public low-voltage grid.

EMC device classification as per the rating plate or technical data

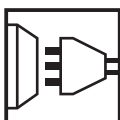
## EMC Precautions



In special cases, there may still be interference for the specified application area despite maintaining standardized emission limit values (e.g. when sensitive equipment is located at the setup location or when the setup location is near radio or television receivers).

In this case, the operator is obliged to take proper action to rectify the situation.

## Grid connection



Devices with a high output (> 16 A) can influence the voltage quality of the grid due to a high current input into the main supply.

This can affect several device types in the form of:

- Connection limitations
- Requirements regarding permitted mains impedance <sup>\*)</sup>
- Requirements regarding minimum required short circuit power <sup>\*)</sup>

<sup>\*)</sup> for each interface to the public grid

See technical data

In this case, the operator or the user of the device must make sure whether or not the device may be connected, if necessary by contacting the power supply company.

## Electrical Installations



Electrical installations may only be carried out in accordance with relevant national and local standards and regulations.

## ESD Precautions



Danger of damage to electronic components due to electrostatic discharge. Take appropriate ESD precautions when replacing and installing components.

## Safety Precautions in Normal-Operation



The device should only be operated when all safety equipment is fully functional. If safety equipment is not fully functional, there is a danger to:

- the life and well-being of the operator or third parties
- the equipment and other property of the owner/operator
- the efficient operation of the equipment

Safety equipment that is not fully functional must be repaired by an authorized specialist before the device is turned on.

Never bypass or disable safety equipment.

## Safety Markings



Equipment with the CE marking fulfils the basic requirements of the Guideline Governing Low-Voltage and Electromagnetic Compatibility. (For more information, please see the attachment and/or the “Technical Data” section in your documentation).

## Disposal

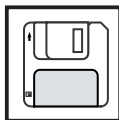


This device should not be disposed of in residential waste.

To comply with European Directive 2002/96/EC on Waste Electrical and Electronic Equipment and its implementation as national law, electrical equipment that has reached the end of its life must be collected separately and returned to an approved recycling facility. Any device that you no longer require must be returned to your dealer or you must find an approved collection and recycling facility in your area.

Ignoring this EU Directive may have adverse affects on the environment and your health.

## Data Security



The user is responsible for backing up data relating to changes made to factory settings. The manufacturer will not accept liability if personal settings are deleted.

## Copyright



The manufacturer maintains the copyright to these operating instructions.

Text and illustrations are technically correct at the time of going to print. The right to make modifications is reserved. The contents of the operating instructions shall not provide the basis for any claims whatsoever on the part of the purchaser. We would be grateful for any comments or suggestions regarding improvements and/or error corrections for the operating instructions.



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# General

## **Solar Net basics**

Fronius Solar Net is the basis for unlimited, individual application of DATCOM components. Fronius Solar Net is a data network which enables several Fronius inverters to exchange data with DATCOM components.

The Fronius Solar Net data network operates as a ring-shaped bus system. A single data link between the individual components enables communication between one or more Fronius inverters and the DATCOM components. This minimizes the cabling effort for the individual DATCOM components.

## **DATCOM / Plug-in card principle**

DATCOM components are available as plug-in cards (similar to the PC). Depending on the country setup, Fronius inverters can be equipped with up to three plug-in cards within the housing. Plug-in cards communicate within the inverter via its internal network. External communication to Fronius Solar Net takes place via Fronius Com Cards.

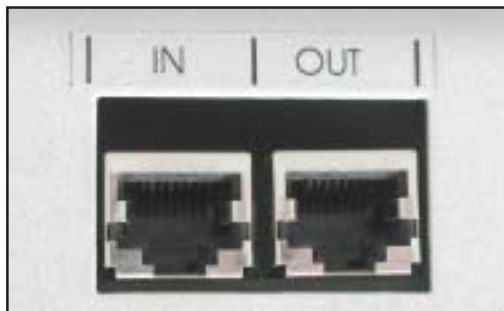
## **DATCOM components with external housing**

For increased flexibility, DATCOM components are also available in versions with an external housing (box).

DATCOM components with external housings are designed in accordance with degree of protection IP 20. For this reason, they are suitable for interior applications only or must be placed in an appropriately rated weather-proof housing.

If required, the base of an external housing can be clipped onto a commercially-available DIN rail.

DATCOM components with external housings are equipped with an input „IN“ and output „OUT“ for data communication within the network.



## Maximum number of DATCOM components and inverters

The following maximum number of DATCOM components and inverters can be connected to a total system (as of May 2008):

- 100 Fronius inverters (Fronius IG, Fronius IG Plus, Fronius IG Plus V, Fronius IG TL or Fronius CL - different models can be combined)
- 1 Datalogger pro or easy card / box or Datalogger Web
- 10 sensor cards / boxes
- 10 public display cards / boxes
- 1 interface card / box
- 200 string controls

However, the system is designed to be easily upgradeable as new DATCOM components are developed.

## Core of Fronius Solar Net: the datalogger

The core of Fronius Solar Net is the datalogger. It coordinates data transmissions and ensures that even large volumes of data are distributed and stored quickly and securely. In addition, the datalogger also records data for the entire system over long periods of time.

The datalogger is equipped with the following:

- Two data interfaces for direct data transfer to the PC (RS232 and USB)
- One data interface for remote PC data queries via modem and telephone line (RS232)

The datalogger is available in three versions:

- **Datalogger pro**  
Datalogger pro can record data from up to 100 inverters and 10 sensor cards/boxes.
- **Datalogger easy**  
Datalogger easy can only record data from the inverter and sensor card / box using Address 1.
- **Datalogger Web**  
Datalogger Web can record data transmitted via the Internet from up to 100 inverters and 10 sensor cards/boxes.

**Important** In the rest of this manual, Datalogger pro, Datalogger easy and Datalogger Web are only referred to specifically if the information relates solely to that version. The term „datalogger“ is used on its own for information that relates to Datalogger pro, Datalogger easy and Datalogger Web.

## Fronius Com Cards for connecting inverters to Fronius Solar Net

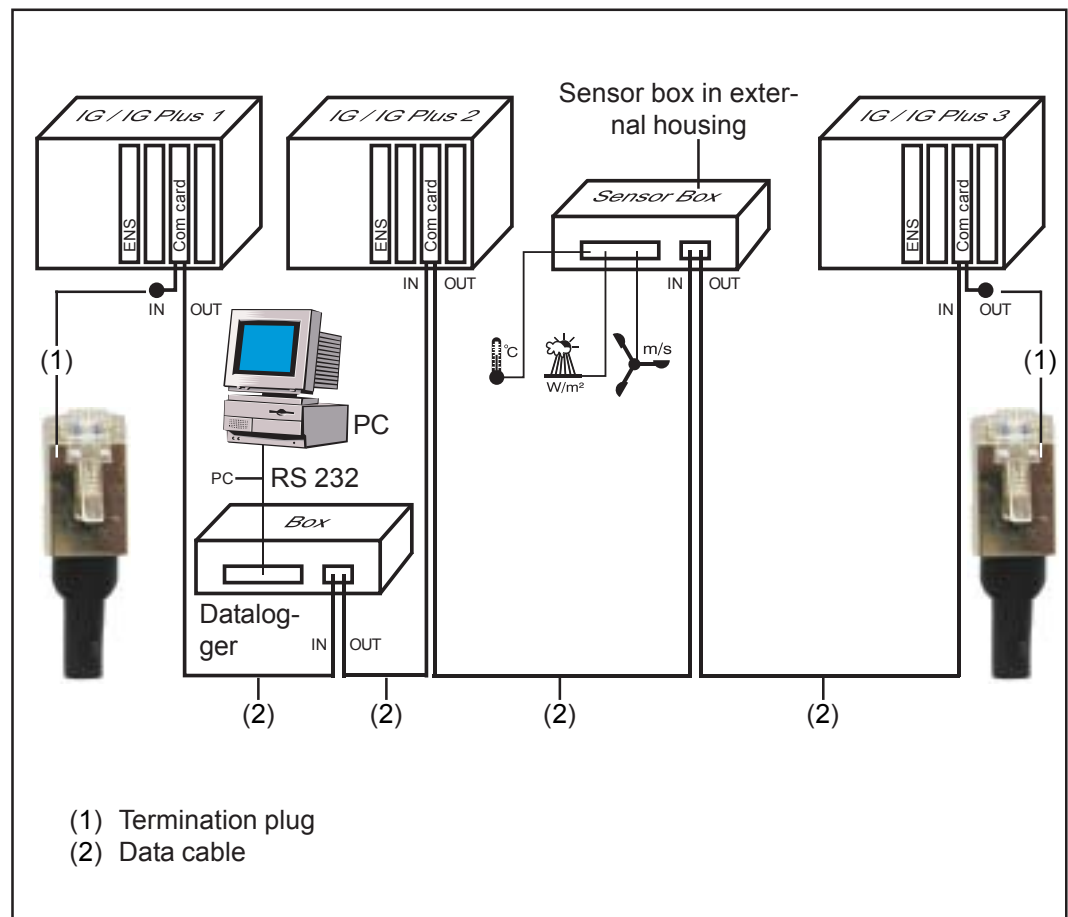
Fronius Com Cards provide the data link from a Fronius inverter to Fronius Solar Net and to the DATCOM components connected to it. In addition, Fronius Com Cards also offer galvanic isolation between the photovoltaic system and the inverters providing additional safety. Fronius Com Cards must be installed in each inverter connected to Fronius Solar Net.



**NOTE** Every Fronius inverter to be monitored using a datalogger requires a COM Card, even if the system only contains one Fronius inverter. In this case, the Fronius Com Card serves as a link between the internal network of the inverter and the Fronius Solar Net interface of the datalogger.

Each Fronius Com Card is equipped with two RS 422 interfaces - an input and an output. The input is labeled „IN“ and the output is labeled „OUT.“

## System component networking example in Fronius Solar Net



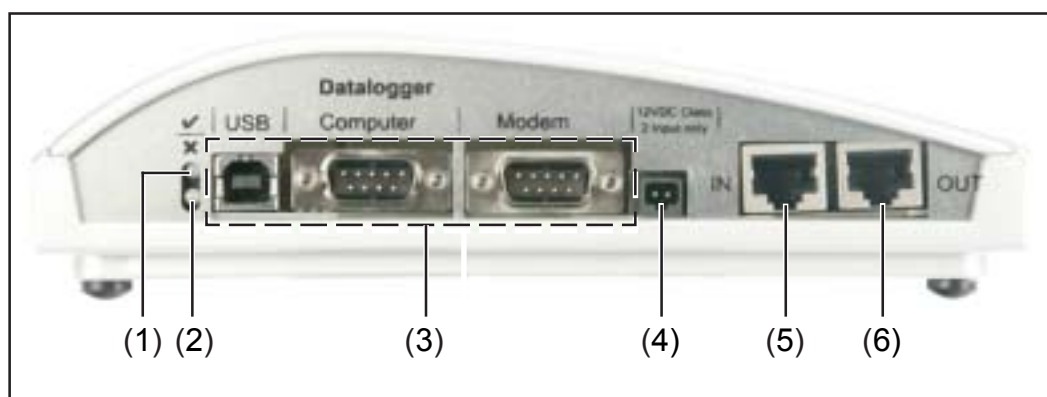
**NOTE** Potential differences can lead to malfunctions or in the worst case to the destruction of DATCOM components. DATCOM components must not be networked with one another across buildings. Photovoltaic systems with inverters and DATCOM components in different buildings require DATCOM systems that are installed separately.

# General connections and displays

## General

**Important** The following figure shows the connection area for DATCOM components using the Datalogger pro box as an example. Area (5) / (6) may differ depending on the DATCOM components.

## General connections and displays



- (1) **Green status LED** ... lights up when there is sufficient power supply to the components. When the green LED is not lit, sufficient power supply should be provided (section „Power supply“).
- (2) **Red status LED** ... lights up continuously when there is sufficient supply, but an error has occurred in the data communication (e.g., two sensor cards with the same address).

Also lights up when the termination plug is not inserted correctly.

**Important** The „red status LED“ may turn on briefly during operation. This does not indicate an error. The „red status LED“ is also used for additional functions for various DATCOM components.

- (3) **Specific connections** ... depending on the functionality of the respective component.
- (4) **Power supply connection socket** ... used to connect the power pack to the power supply (section „Power supply“).
- (5) **Data communication input „IN“**
- (6) **Data communication output „OUT“**

# Power supply to DATCOM components

## General

Power is supplied to DATCOM components independently of the inverter. This ensures a power supply when there is no power from the photovoltaic modules. Power is supplied to DATCOM components via Fronius com cards or plug-in power packs. This is particularly important when using a Fronius Sensor Card because this ensures that the datalogger will be able to record all data even at night.

## Power supply to DATCOM components via Fronius Com Card

Fronius Com Cards are responsible for powering DATCOM components. The integrated power supply of a Fronius Com Card is implemented via special contacts in the slot, which continue to supply power even when there is no power from the photovoltaic modules.

Fronius Com Cards version 1.7 and higher are equipped with a switched-mode power supply and can be used with several supply voltages (208 V / 220 V / 230 V / 240 V / 277 V).



**WARNING!** An electric shock can be fatal. Danger of an electrical shock due to insufficient dimensioning for US-specific grid voltages. Fronius Com Cards up to version 1.4B (item number 4,070,769) cannot be used with the Fronius IG Plus USA.





## Power supply to DATCOM components via Fronius Com Card

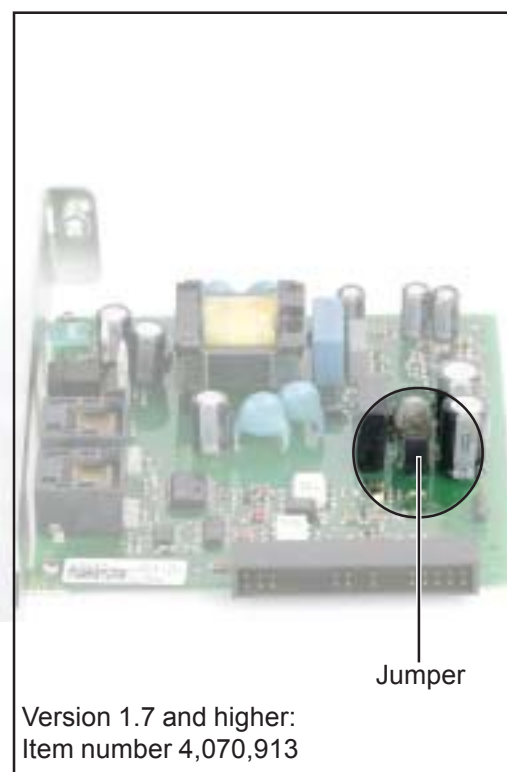
(continued)

One Fronius Com Card can supply three additional DATCOM components, or one additional DATCOM component if it is located in a Datalogger Web. Because the power is supplied via the data cable, the DATCOM components in an external housing are also supplied.



**NOTE** When using more than 2 inverters in a system, the power supply can be deactivated for individual Fronius Com Cards to decrease the power consumption for the DATCOM.

## Deactivating Fronius Com Cards



1. This can be done by removing the AC fuse (MST 315 mA / 250 V) or the jumper for every second Fronius Com Card.

## Checking the power supply via Fronius Com Cards

Once cabling and installation of system components is complete, including the network connection to all inverters, the green LED should light up on all Fronius Solar Net clients. If this is not the case:

- Check cable connections
- Check that all inverters are connected to the network

**Important** Once the power has been turned on, the Fronius Com Card requires approx. 10 s until the green LED lights up.

## Checking the power supply via Fronius Com Cards (continued)

If the green LED is not lit for individual system components:

- Plug another power pack into the corresponding DATCOM component

### Power pack



Each DATCOM component (whether a card or box) is equipped with a 12 V power pack connection socket.



**NOTE** If a system only has one inverter but more than 3 DATCOM components, the Fronius Com Card in the inverter may not provide sufficient power for all DATCOM components. This means that the green LED would not light up on all DATCOM components. In this case, the additional power pack should be plugged into one of the DATCOM components with no green LED.

If there is a Fronius Datalogger Web in Solar Net, the Fronius Com Card can only supply one additional DATCOM component, e.g., inverter + Fronius Datalogger Web + Fronius Sensor Box.

One power pack can supply up to eight DATCOM components. No additional supply cables are needed for this. The data communication cable is used to provide power between components.



**NOTE** The power pack available from Fronius was designed specifically for DATCOM components. Do not use any other power pack.

**Important** The scope of delivery for the power pack includes a power adapter for the following regions:

- Australia
- EU
- UK
- USA

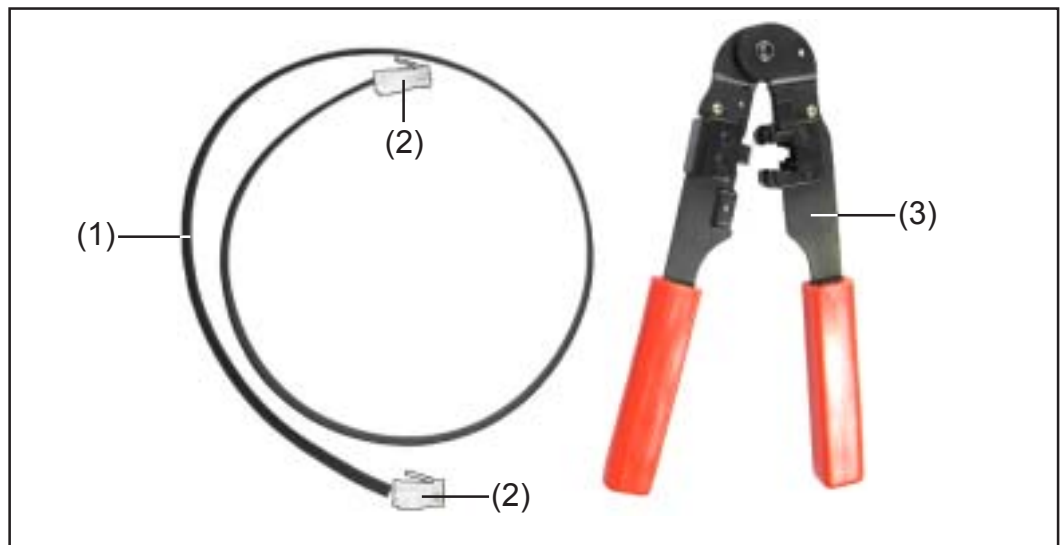
# Cabling

## Fronius Solar Net client

An inverter with a Fronius Com Card or DATCOM component with an external housing will be referred to as a Fronius Solar Net client in the following.

## Data cable

The data connection for the Fronius Solar Net client uses 8-pin data cables (1:1-connection) and RJ 45 plugs. A commercially-available crimping tool can be used to easily adjust the cable to the desired length.



The items mentioned above are available from Fronius under the following item numbers:

- (1) 40,0003,0384 ... 8-pin ribbon cable, 100 m roll
- (2) 43,0003,0815 ... RJ 45 plug
- (3) 42,0435,0019 ... Crimping tool

Proceed as follows to assemble the data cables:

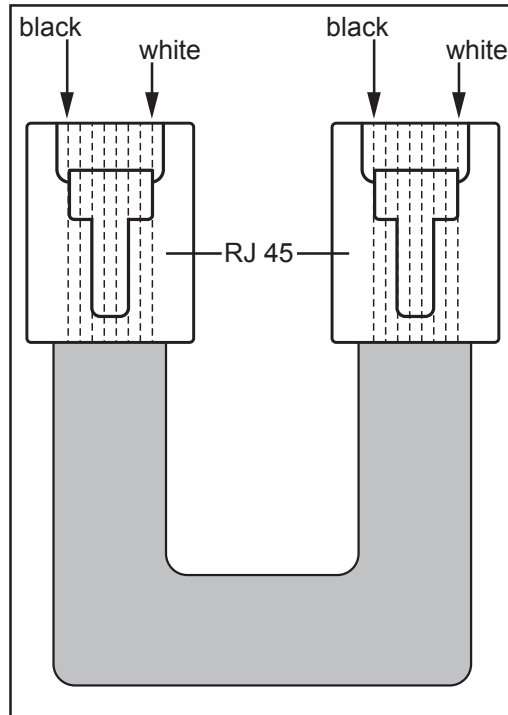
1. Shorten cable to the desired length using the crimping tool
2. Strip the outer insulation of the cable ends using the crimping tool



**NOTE** When fitting RJ 45 plugs, please note the following: The wires must have the same position in both plugs (e.g., black = PIN1, white = PIN8)

3. Fit RJ 45 plugs

## Data cable (continued)



For increased data security in an insecure environment, we recommend an 8-pin 1:1 LAN network cable (e.g., CAT5 cable, screened and twisted) as an alternative to the ribbon cable. These cables can be obtained from Fronius pre-assembled in the following lengths:

- CAT5 cable 1 m (43,0004,2435)
- CAT5 cable 20 m (43,0004,2434)
- CAT5 cable 60 m (43,0004,2436)

If you would like to assemble these twisted cables yourself, it is vital that you adhere to the following pin assignment for the RJ 45 plugs:

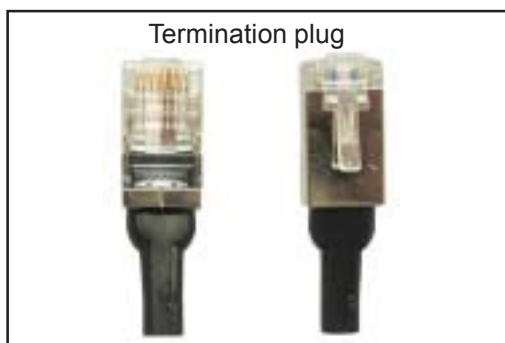
- Pin 1: +12 V (white/orange)
- Pin 2: GND (orange)
- Pin 3: RX+ (white/green)
- Pin 4: TX+ (blue)
- Pin 5: TX- (white/blue)
- Pin 6: RX- (green)
- Pin 7: GND (white/brown)
- Pin 8: +12 V (brown)



**NOTE** Data cables are not UV resistant. They should be protected from sunlight when laid outdoors.

## Cabling

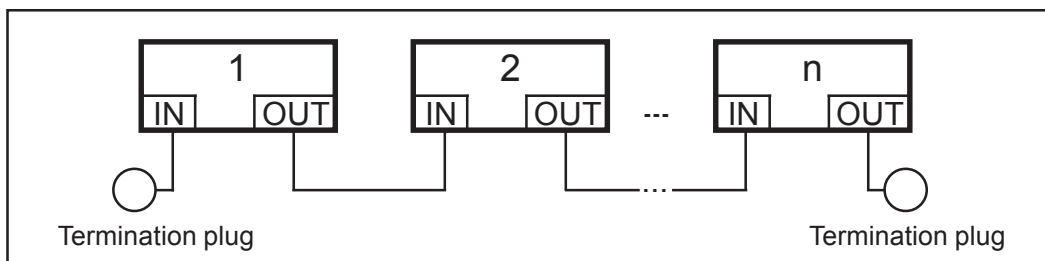
Following the cable connections described below, connect each „OUT“ socket of the previous Fronius Solar Net client to the „IN“ socket of the next client. The total individual lengths of all connection cables should not exceed 1000 m.



The datalogger is equipped with two termination plugs.

Insert termination plugs as follows:

- At the „IN“ input of the first Solar Net client
- At the „OUT“ output of the last Solar Net client



**NOTE** All inputs „IN“ and outputs „OUT“ of Fronius Solar Net clients must be filled with either cable connections or termination plugs.

# Installing plug-in cards into inverters

## General

Please see the operating instructions for the respective inverter for information regarding plug-in card installation.

Please note the safety and warning information in your inverter's operating instructions.

## Safety



**WARNING!** An electric shock can be fatal. Danger from grid voltage and DC voltage from solar modules.

- The connection area should only be opened by a licensed electrician.
- The separate power stage set area should only be disconnected from the connection area after first being disconnected from the grid power.
- The separate power stage set area should only be opened by Fronius-trained service personnel.

Before making any connections, make sure that the AC and DC sides are disconnected from the inverter, e.g.:

- Switch off the AC automatic circuit breaker for the inverter
- Cover solar modules

Please observe the 5 safety rules.



**WARNING!** An electric shock can be fatal. Danger from residual voltage from capacitors.

You must wait until the capacitors have discharged.



**NOTE** Follow general ESD precautions when handling plug-in cards.

## Overview

Plug-in card installation will be described using the following inverters as an example:

- Installing plug-in cards into Fronius IG
- Installing plug-in cards into Fronius IG Plus

# Installing plug-in cards into Fronius IG

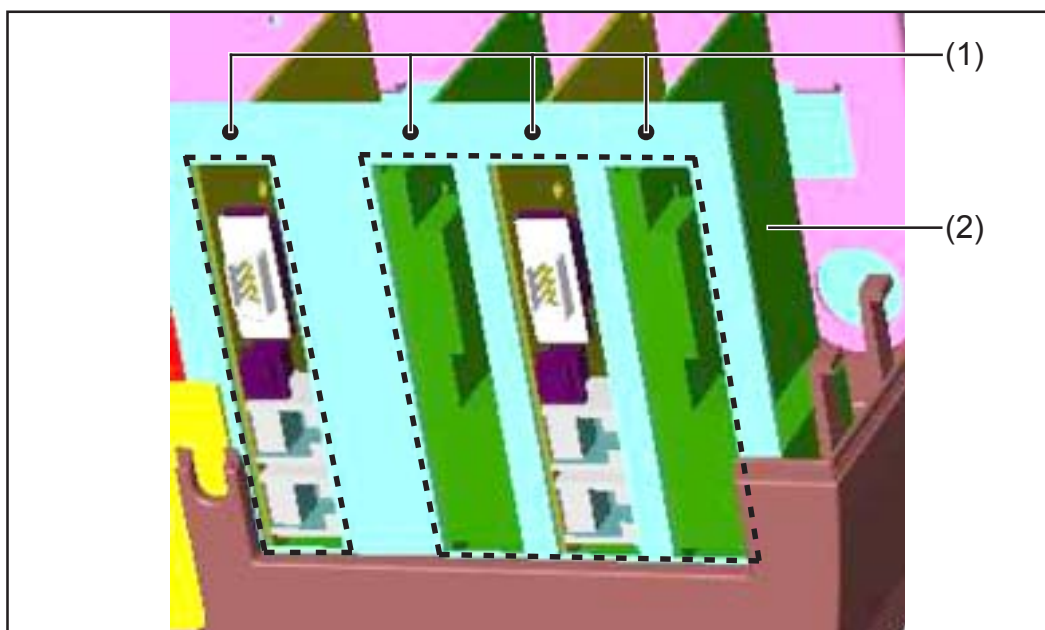
## Preparation

1. Set the Fronius IG to „Standby“ (see „The Setup Menu“ in the Fronius IG operating instructions)
2. Disconnect the Fronius IG from both the AC and DC sides
3. Open the connection area - see „Opening Housing“ in the Fronius IG operating instructions
4. Slide the display to the left, lift up and remove.

## Installing plug-in cards into Fronius IG



**NOTE** Plug-in cards may be damaged. Follow general ESD precautions when handling plug-in cards.



1. Loosen the fixing screw (1) from a free slot and remove the slot cover
2. Insert plug-in card (2) into the slot

In general, each plug-in card will fit into each slot. However, we recommend the following:

ENS card (only required in specific countries):

- When using all card slots:  
Insert the Fronius Com Card into the farthest slot on the right  
Insert the remaining plug-in cards into the center slots
- When not using all card slots: Insert plug-in cards as required

ENS card not present:

- Insert the Fronius Com Card into the farthest slot on the left
- Insert the remaining plug-in cards as required

**Installing plug-in cards into Fronius IG**  
(continued)

3. Secure plug-in card (2) using fixing screw (1)
4. Close housing
5. Connect AC and DC lines to the Fronius IG



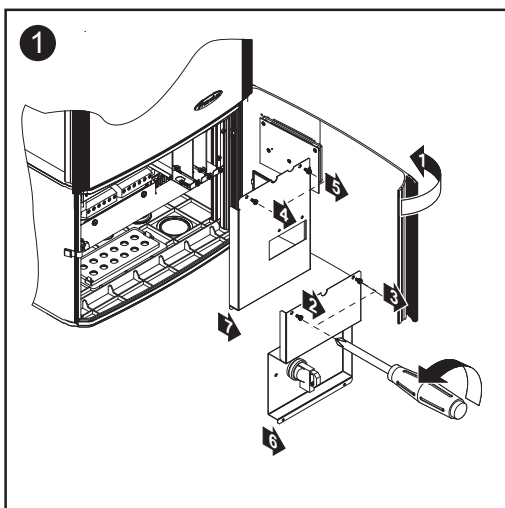
# Installing plug-in cards into Fronius IG Plus

## Opening Fronius IG Plus

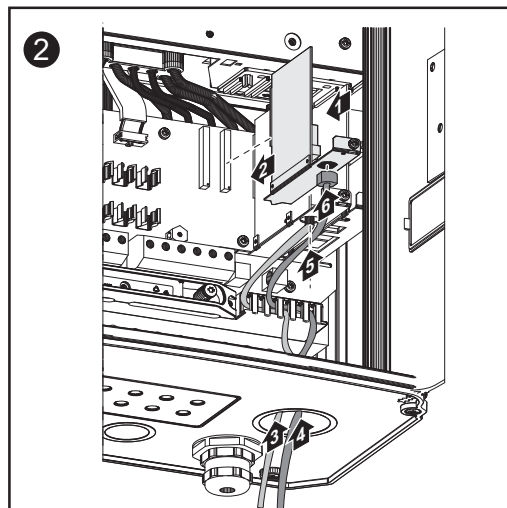
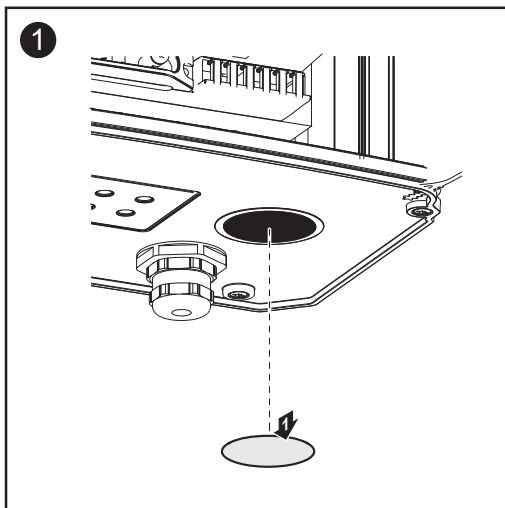


**WARNING!** An electric shock can be fatal. Danger from grid voltage and DC voltage from solar modules. When adding plug-in cards to the Fronius IG Plus, please follow all inverter safety instructions and information before opening the inverter.

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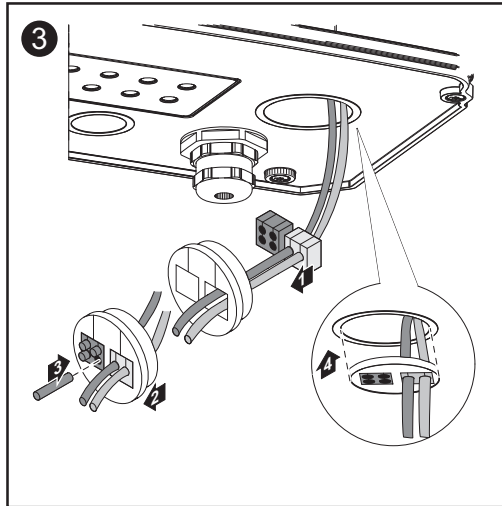
## Installing plug-in cards into Fronius IG Plus



**Important** Depending on the number of plug-in card cables, please use the corresponding square sealing inserts.

For the Fronius IG Plus, place the Fronius Com Card in the slot on the far right.

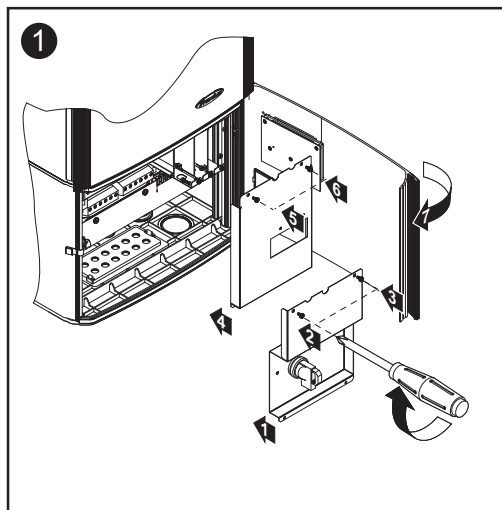
**Installing plug-in cards into Fronius IG Plus**  
(continued)



Square sealing inserts are part of the plug-in card scope of delivery.

The round sealing insert is included in the „Fronius Com Card“ option scope of delivery.

**Closing Fronius IG Plus**



# Defining system components in Fronius Solar Net

## General

Fronius Solar Net will recognize different DATCOM components automatically (datalogger, sensor card, etc.). However, there is no automatic distinction between several identical DATCOM components. For this reason, each system component must have an individual number (address) to uniquely identify each system component in Fronius Solar Net (inverter or DATCOM component).

Fronius inverters give you the option to set the address directly on the display. However, some versions of Fronius IG are not equipped with a display. In this case, the address can be set via two keys. DATCOM components are equipped with a special setting wheel for addresses. A small screwdriver is required for this.

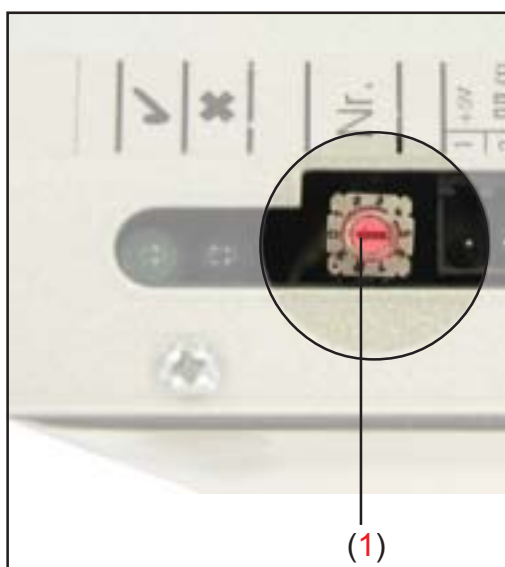
## Setting the address on the inverter

Please see the inverter operating instructions for setting the inverter address.

## Setting the address on DATCOM components

Proceed as follows for all DATCOM components (whether card or box):

1. Turn the setting wheel (1) to the desired address using a screwdriver



**Important** You do not have to set the address for the datalogger because there is always only one datalogger per system.

**Setting the  
address on  
DATCOM  
components**  
(continued)



**NOTE** Two identical devices should never have the same address in a network.

Example:

- Permitted:  
Fronius IG „Address 1,“ Sensor Card „Address 1“
- Not permitted:  
Fronius IG 20 „Address 1,“ Fronius IG 30 „Address 1“

# Detailed description of DATCOM components

## Available DATCOM components

The following DATCOM components are currently available (as of May 2008):

- Fronius Datalogger \*
- Fronius Com Card \*
- Fronius Sensor Card / Box \*
- Fronius Public Display Card / Box \*
- Fronius Interface Card / Box \*
- Fronius Datalogger Web \*\*
- Fronius String Control \*\*
- Fronius Power Control Box \*\*

\* is described in these operation instructions

\*\* is described in the device's operating instructions

### Software

- Fronius Solar.access
- Fronius Solar.web

**Important** „Fronius Solar.access“ is only dealt with briefly in these operating instructions. For a more detailed explanation of the functions of „Fronius Solar.access“ and „Fronius Solar.web,“ please see the respective help.

## Overview

„Detailed description of DATCOM components“ is composed of the following sections:

- Fronius Datalogger Card / Box
- Fronius Com Card
- Fronius Sensor Card / Box
- Fronius Public Display Card / Box
- Fronius Interface Card / Box
- Over-current and under-voltage shutdown
- Fronius Solar.access software
- Technical data

# Fronius Datalogger Card / Box

## General

The datalogger is available as a card or box. The datalogger is required for networking several DATCOM components and inverters.



**NOTE** The entire network may not contain more than one datalogger.

As the only system component with a real-time clock, the datalogger is responsible for system management. It continuously identifies which devices are in the system and regulates the data traffic between the individual system components.

The datalogger also establishes PC connections for external data processing.

## Versions

Datalogger Card



Datalogger Box



Datalogger & Interface



The datalogger is available in the following versions

- Datalogger pro as card or box
- Datalogger easy as card or box
- Datalogger & Interface as box
- Datalogger Web



**NOTE** Datalogger easy can only record data from the inverter and sensor card / box using Address 1.

The data from the remaining components are saved unrestricted. In addition, Datalogger pro and Datalogger & Interface record data from all inverters and sensor cards / boxes in the system.

## Number of system components for Datalogger pro and Datalogger & Interface

Datalogger Pro and Datalogger & Interface can manage and store operating data for the following max. number of system components:

- 100 Fronius solar inverters (different models can be combined)
- 10 Fronius Sensor Cards / Boxes
- 10 Fronius Public Display Cards / Boxes
- 1 Fronius Interface Card / Box
- 200 Fronius String Controls

## Connections

The datalogger is equipped with the following connections:

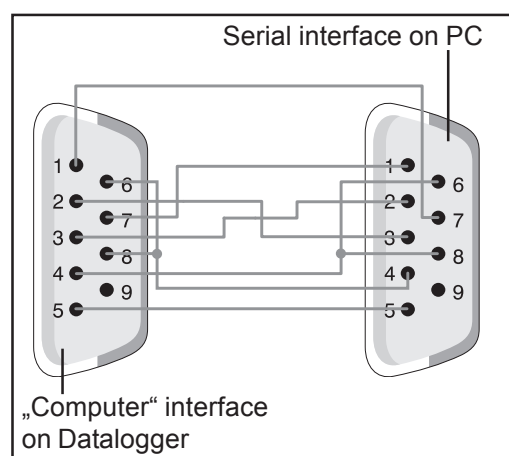
- two RS232 interfaces with 9-pin submin connections
- a USB port

The connections are used for data transfers

- one directly to the PC
- one for remote PC data queries via modem and telephone line

The Datalogger & Interface is equipped with an additional RS 232 interface that is used to transmit operating data in another format. For more information, please see section „Fronius Interface Card/Box.“

Terminal assignment of connection cable between Datalogger Card and PC:



**NOTE** The 9-pin cable may not exceed 20 m in length.

**Important** The interface cable is not included with the datalogger. A 1.8 m interface cable can be purchased from Fronius (43,0004,1692).

Please use a USB A/B cable to connect the Datalogger Box to the PC.

Please use the cable that comes with the modem to connect the modem to the datalogger. For cable connection instructions, please see your modem's operating instructions.

## Modem

Different modems can be connected to the datalogger for reading system data via modem. All modems described in the following have been tested by Fronius. The „Fronius Solar.access“ software enables easy configuration.

### Tixi message modem

The datalogger supports various Tixi message modems. Message modems can be used to send service messages as a fax or e-mail. There is also an ISDN version of this modem that is also compatible with the datalogger.

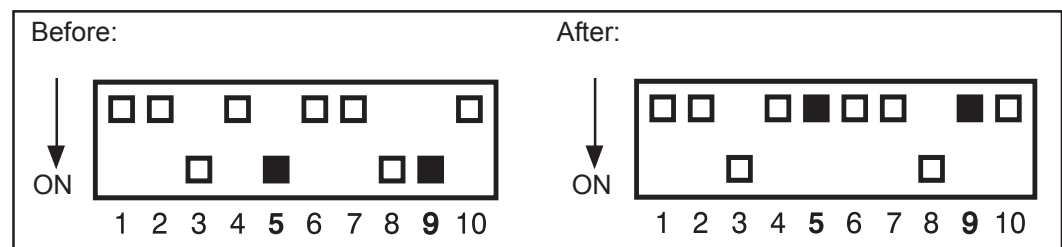
**IMPORTANT** When the ISDN message modem is connected to the datalogger, it will only be possible to dial in with an ISDN modem.

### US Robotics (or 3COM Courier) „V.Everything 56 K“



**NOTE** Automatic call acceptance must be activated on the modem in order to function correctly with the datalogger.

To activate automatic call acceptance:



- Set DIP switches (5) and (9) underneath the modem to the „OFF“ position
- The „AA“ LED on the modem must light up

### Siemens TC35i Terminal

We recommend this modem for GSM applications (EGSM 900 MHz, GSM 1800 MHz). However, given the lower data rate, communication between the datalogger and the „Fronius Solar.access“ software is likely to be slower, particularly during data transfers and when making settings.



**NOTE** Deactivate the PIN request function on the SIM card before you insert the SIM card into the GSM modem.

**Important** An analog modem cannot connect to a GSM modem in some countries.

Using a GSM modem instead of an analog modem will rectify the situation.



## Modem (continued)

**Important** Some SMS providers also cannot connect to a GSM modem.

Using an analog modem instead of a GSM modem will rectify the situation

### Other 56K modems

You can also use other 56K modems that support the V.90 standard. However, please note the following:

- Only the modems listed below are guaranteed to work correctly with the datalogger
- When using other modems, you may be required to modify the initialization string (see section „Fronius Solar.access software“)

## SMS messages using the datalogger

The datalogger has SMS capability when connected to a modem. In this configuration, the datalogger can send an SMS to up to 3 mobile phones. In this mode, the datalogger automatically dials into a special service offered by the telecom provider. This service is called an SMS Center (SMSC), which converts the data into a text message.

### Services

The following services have been tested by Fronius:

- Germany: „D1 alphaservice“ 0049 (0) 1712521002
- Austria: „A1“ 0043 (0) 900 664914
- United Kingdom: „Vodafone“ 0044 (0) 7785 499993
- United Kingdom: „One 2 One“ 0044 (0) 7958 879889

However, the services listed above do not offer all the same features. Some can only be called from within the country and others only allow a text message.

Overview of features:

- „D1“: Can be dialed from Germany and Austria  
Number of text messages: 3  
Compatible with ISDN and analog telephone network
- „E-Plus“: Can be dialed from Germany and Austria  
Number of text messages: 3
- „A1“: Can be dialed from Austria  
Number of text messages: 3  
Compatible with analog telephone networks
- „Vodafone“: Can be dialed from the UK and Austria  
Number of text messages: 1  
Compatible with analog telephone networks

**SMS messages using the Datalogger**  
(continued)

- „One 2 One“: Can be dialed from the UK, Germany, Austria and Spain  
Number of text messages: 1  
Compatible with analog telephone networks

**Saving data**

The datalogger saves the current data of all inverters and sensor cards / boxes integrated into the system at regular intervals. This interval can be set using the „Fronius Solar.access“ software (range of 5 to 30 minutes).

The saved data can be downloaded for further processing using a PC. The „Fronius Solar.access“ software enables efficient and organized editing, archiving and display of data.

If the system only has one inverter, the datalogger can store data for a duration of up to 3 years (approx. 1000 days). However, the memory capacity is reduced accordingly depending on the number of inverters and/or sensor cards / boxes that are integrated into the system. If the Fronius Solar Net has 10 inverters and/or sensor cards / boxes, this duration is reduced to a tenth (=100 days).

**Important** Even when the maximum number of 100 inverters and 10 sensor cards is used, the storage duration of the datalogger is still 1000/110 = approximately 9 days (for a storage interval of 30 minutes).

Please note the following when decreasing the storage interval using the „Fronius Solar.access“ software: If the interval is decreased from 30 to 15 minutes, for example, the data storage duration will be reduced by half (e.g., from 1000 days to 500 days).

**Important** When the datalogger memory is full, all data is not immediately deleted. The oldest data will be continually overwritten by the newest data. The latest data at the last PC download will therefore remain in the datalogger over the entire storage time.

# Fronius Com Card

## General



Fronius Com Cards provide the data link from an inverter to Fronius Solar Net and to the DATCOM components connected to it. For this reason, Fronius Com Cards are only available as plug-in cards.

One Fronius Com Card is required for each inverter.

## Connections

The Fronius Com Card is equipped with two RS 422 interfaces for data transfer

- Data communication input „IN“
- Data communication output „OUT“

## Fronius Com Card as the power supply

Fronius Com Cards are responsible for powering DATCOM components. Therefore, Fronius Com Cards are equipped with an integrated power supply. The integrated power supply of Fronius Com Cards is implemented via special contacts in the slot. These contacts continue to supply power even when there is no power from the photovoltaic modules. One Fronius Com Card with an integrated power supply can supply three additional DATCOM components, or one additional DATCOM component if it is located in a Datalogger Web.

**Important** Additional DATCOM components can be supplied even if they are located in a different inverter or in an external housing.

Each DATCOM component has an LED that lights up green when there is sufficient power. The green light for the Fronius Com Cards described here indicates that the integrated power supply is functioning.



**NOTE** When a Fronius Com Card is inserted and the inverter is connected to the AC side, the green LED must light up after a max. of 10 s.

**Fronius Com Card as the power supply**  
(continued)

If this is not the case, please check for the following errors:

- The Fronius Com Card is not inserted correctly.
- The inverter is not correctly connected to the AC side.
- There is a short circuit in the connection cables to the other system components.
- The Fronius Com Card has to supply more than three DATCOM components.

If too many DATCOM components are being supplied by one Fronius Com Card, proceed as follows:

- Plug a power pack into the DATCOM component lacking the green LED.



**NOTE** If a system only has one inverter but more than 3 DATCOM components, the Fronius Com Card in the inverter may not provide sufficient power for all DATCOM components. This means that the green LED would not light up on all DATCOM components. In this case, the additional power pack should be plugged into one of the DATCOM components with no green LED.

See also section „Power supply to DATCOM components.“

**Fronius Com Card power output**

The output of a Fronius Com Card with an integrated power supply for additional DATCOM components is approx. a max. of 3 W (depending on the grid voltage).



**NOTE** At particularly weak points in the grid (where the AC voltage is less than 200 V), one Fronius Com Card may only be able to supply two additional DATCOM components, or only one additional DATCOM component if it is located in a Datalogger Web.

# Fronius Sensor Card / Box

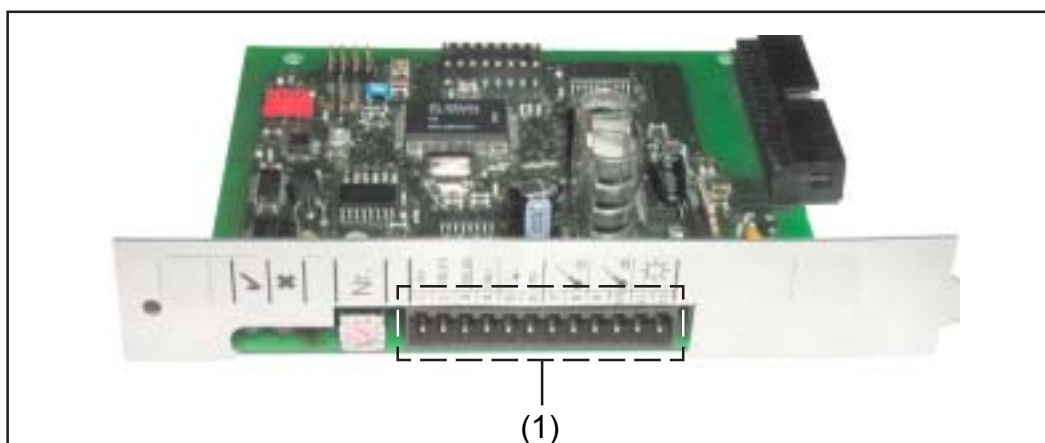
## General

The Fronius Sensor Card is available as a card or box. The Fronius Sensor Card / Box is equipped with inputs for a total of six measurement signals:

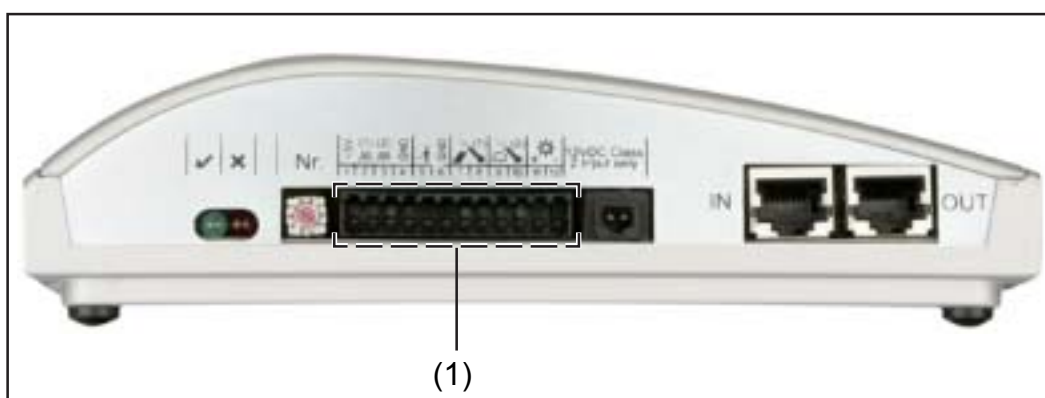
- Two analog inputs for two Pt1000 temperature sensors
- One analog input for analyzing a voltage signal from an irradiance sensor
- Two digital inputs, e.g., for a power consumption sensor and a wind speed sensor
- One analog input for analyzing a current signal (0 to 20 mA, 4 to 20 mA)

## Connections

### Fronius Sensor Card



### Fronius Sensor Box



- (1) Connection area for measurement signal inputs  
Screw-type terminals are used to connect the sensor wires

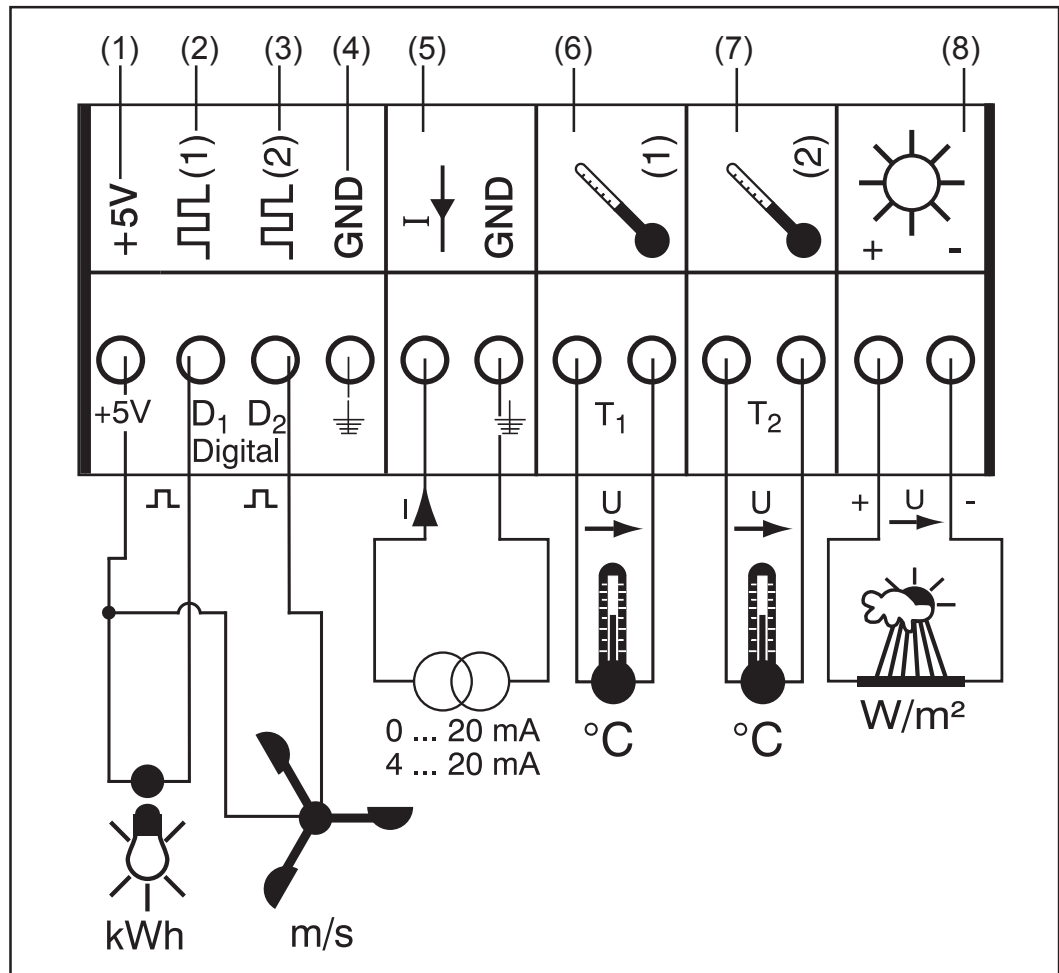
**NOTE** The maximum cross section of the sensor wires at the screw terminals should not exceed 1.5 mm<sup>2</sup> (AWG 17).

## Overview of measurement signal inputs

Fronius also offers ready-made sensors for measuring ambient temperature, module temperature, irradiance, wind speed and energy.



**NOTE** Each measurement signal input must be activated and configured before use via the „Fronius Solar.access“ software. Always connect an appropriate sensor to activated inputs. Otherwise, free inputs will also be recorded by the datalogger. The result is a misleading value for the parameter that is not based on a measurement signal.



### Digital inputs

- (1) Power supply +5 V for digital channel
- (2) Digital input channel D1
- (3) Digital input channel D2
- (4) GND for digital channel

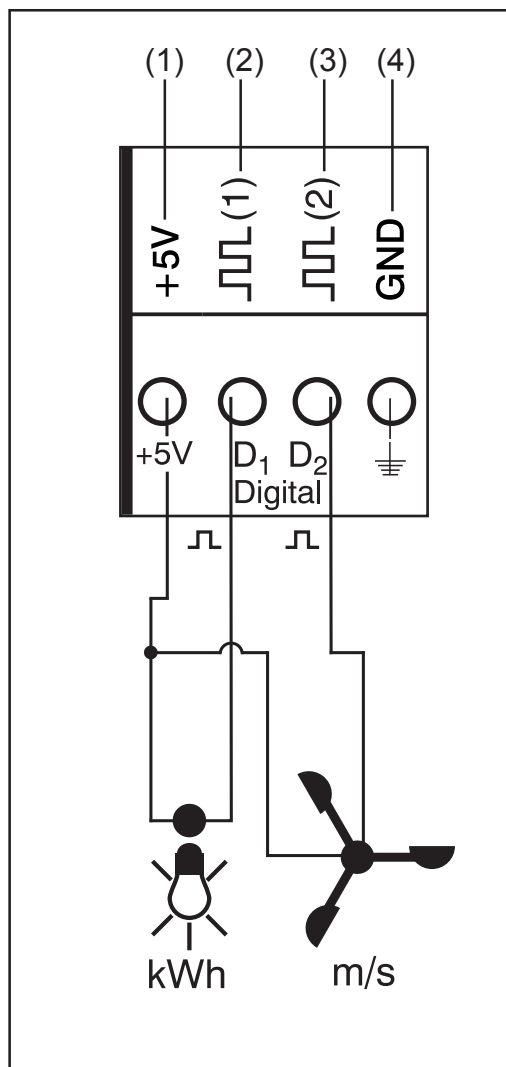
### Temperature channels

- (6) Temperature measurement T1
- (7) Temperature measurement T2
- (8) Analog input for voltage signal

## Digital inputs

Digital inputs (2) and (3) are used to analyze voltage pulses (e.g., from an electricity meter). Sensor data is analyzed using the „Fronius Solar.access“ software.

When a sensor is connected to one of the digital channels (2) or (3), the signal can also be analyzed on the inverter display.



### Channel assignment example:

- Channel D1 (2) for electricity meter
- Channel D2 (3) for wind speed sensor

Connect sensors without their own power supply to:

- D1 (2) or D2 (3)
- „+5 V“ (1)

Connect sensors with their own power supply to:

- D1 (2) or D2 (3)
- „GND“ (4)

### Functional principle using electricity meter as an example:

- The Fronius Sensor Card / Box counts the pulses of the electricity meter
- The Fronius Sensor Card calculates the kWh being used from the number of pulses

You need to set the conversion factor using the „Fronius Solar.access“ software (e.g., 10,240 pulses = one kWh)

### Functional principle using wind speed sensor as an example:

- The Fronius Sensor Card counts the pulses of the wind speed sensor
- The Fronius Sensor Card calculates the wind speed from the number of pulses per second

You need to set the conversion factor using the „Fronius Solar.access“ software (e.g., 7 pulses/second = one km/h)

## Digital inputs (continued)

### Setup and installation first example:

Measuring the energy used via the electricity meter at channel D1 (2)

1. Install electricity meter on the corresponding AC lines
2. Connect the pulse output of the electricity meter to channel D1 (2) and „+5 V“ (1)
3. Activate channel D1 (2) via the „Fronius Solar.access“ software
  - Assign desired channel name (e.g., „Power Consumption“)
  - Select unit (e.g., „kWh“)
  - Enter conversion factor

### Setup and installation second example:

Measuring wind speed using wind speed sensor at channel D2 (3)

1. Install wind speed sensor in the proper position
2. Connect the wind speed sensor to channel D2 (3) and „+5 V“ (1) or „GND“ (4)
3. Activate channel D2 (3) via the „Fronius Solar.access“ software
  - Assign desired channel name (e.g., „Wind Speed“)
  - Select unit (e.g., „km/h“)
  - Enter conversion factor

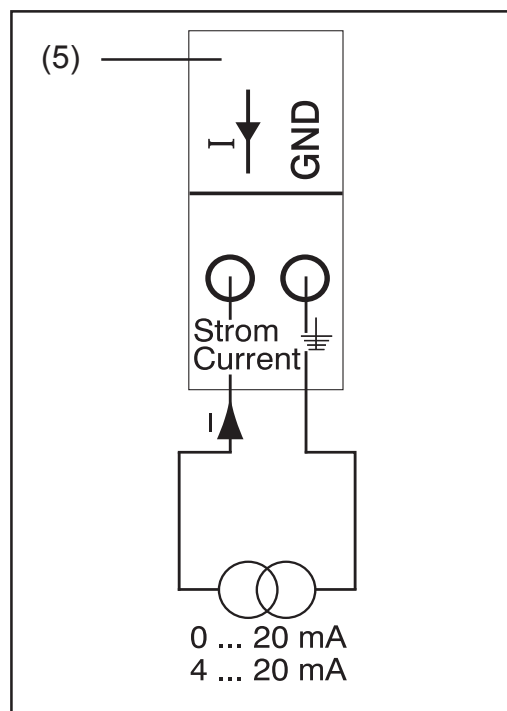


**NOTE** The length of the sensor cable should not exceed 30 m so that measurement results are not distorted.



## Analog input for current signal

The analog input (5) is used to connect a sensor using a standard 20 mA current interface. Analysis can only take place using the „Fronius Solar.access“ software.



### Channel assignment example:

- Connecting a humidity sensor with a current signal to the analog input (5)

### Functional principle:

- A humidity sensor with a current signal is an active sensor that sends out current that rises as the humidity increases.
- The Fronius Sensor Card measures the current between both connections of the analog input (5).
- The humidity level is derived from the measured current

### Specific values:

The Fronius Sensor Card / Box has two measuring ranges at the analog input (5).

Select the measuring range using the „Fronius Solar.access“ software:

- Measuring range 1 ... 0 to 20 mA
- Measuring range 2 ... 4 to 20 mA

**Important** Enter the conversion factor using the „Fronius Solar.access“ software so that the Fronius Sensor Card / Box can convert from mA to the desired unit.

The conversion factor depends on the sensor and can be obtained from the respective sensor datasheet.

### Setup and installation example:

Measuring the humidity using a humidity sensor at the analog input (5)

1. Install the humidity sensor at the proper position
2. Connect humidity sensor to the analog input (5)
3. Activate the analog input (5) via the „Fronius Solar.access“ software
  - Assign desired channel name (e.g., „Humidity“)
  - Select unit (e.g., „%“)
  - Set measuring range
  - Enter conversion factor

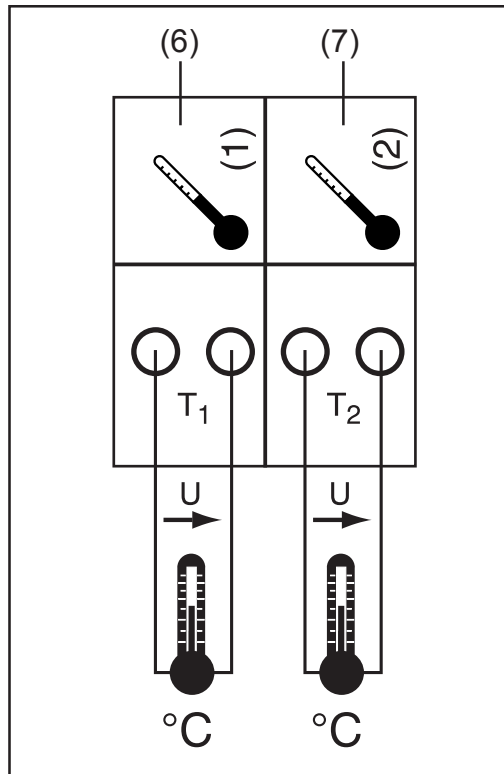
## Temperature channels

Channels T1 (6) and T2 (7) are used for temperature measurements using Pt1000 temperature sensors.



**NOTE** Pt100 temperature sensors are not permitted.

The analysis can take place on the inverter display as well as via the „Fronius Solar.access“ software. Channel T1 is used for the solar module temperature and channel T2 is used for the ambient temperature.



### Channel assignment example:

- Channel T1 (6) for solar module temperature
- Channel T2 (7) for outside temperature

### Functional principle:

- Temperature sensors consist of resistors that change their resistance value in response to changes in temperature
- The Fronius Sensor Card / Box measures the voltage drop at the resistor when a constant current is flowing through the resistor
- The Fronius Sensor Card calculates the temperature from this voltage drop

### Setup and installation example:

Temperature measurement at solar modules using Pt1000 temperature sensor at connection T1 (15)

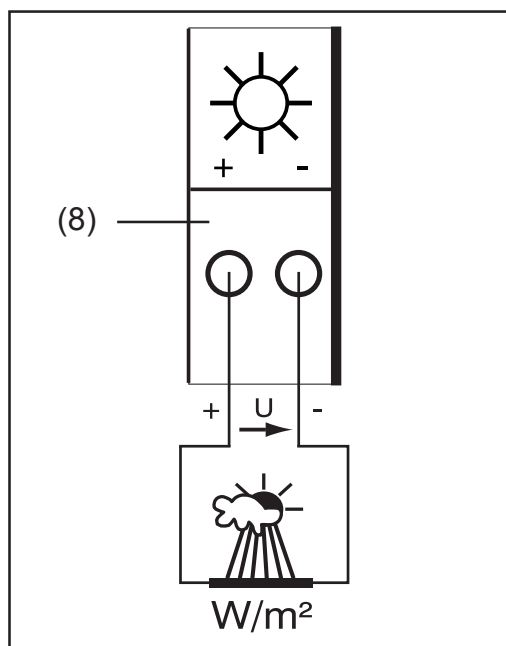
1. Attach Pt1000 temperature sensor to solar module
2. Connect Pt1000 temperature sensor to channel T1 (6)
3. Activate channel T1 (6) via the „Fronius Solar.access“ software
  - Assign desired channel name (e.g., „Module Temperature“)
  - Select unit (°C / °F)



**NOTE** The length of the sensor cable should not exceed 20 m so that measurement results are not distorted.

## Analog input for voltage signal

The analog input (8) is used to analyze a voltage signal from an irradiance sensor. The analysis can take place on the inverter display as well as via the „Fronius Solar.access“ software.



### Channel assignment example:

- Irradiance sensor at solar module level

### Functional principle:

- An irradiance sensor with a voltage signal is an active sensor that sends out voltage that rises as the irradiance increases.
- The Fronius Sensor Card / Box measures the voltage between both connections of the analog input (8).
- The irradiance level is derived from the measured voltage.

### Specific values:

The Fronius Sensor Card has three measuring ranges at the analog input (8).

Select the measuring range using the „Fronius Solar.access“ software:

- Measuring range 1 ... 0 to 100 mV
- Measuring range 2 ... 0 to 200 mV
- Measuring range 3 ... 0 to 1000 mV

**Important** Enter the conversion factor using the „Fronius Solar.access“ software so that the Fronius Sensor Card can convert from mV to the desired unit. The conversion factor depends on the irradiance sensor and is specified in the sensor datasheet (e.g., 70 mV corresponds to 1000  $W/m^2$ ).

### Setup and installation example:

Measurement of solar irradiation at the solar modules using an irradiance sensor at the analog input (8)

1. Attach irradiance sensor parallel to the solar modules
2. Connect irradiance sensor to the analog input (8)
3. Activate the analog input (8) via the „Fronius Solar.access“ software
  - Assign desired channel name (e.g., „Solar Irradiation“)
  - Set measuring range
  - Enter conversion factor



**NOTE** The length of the sensor cable should not exceed 30 m so that measurement results are not distorted.

# Fronius Public Display Card / Box

## General

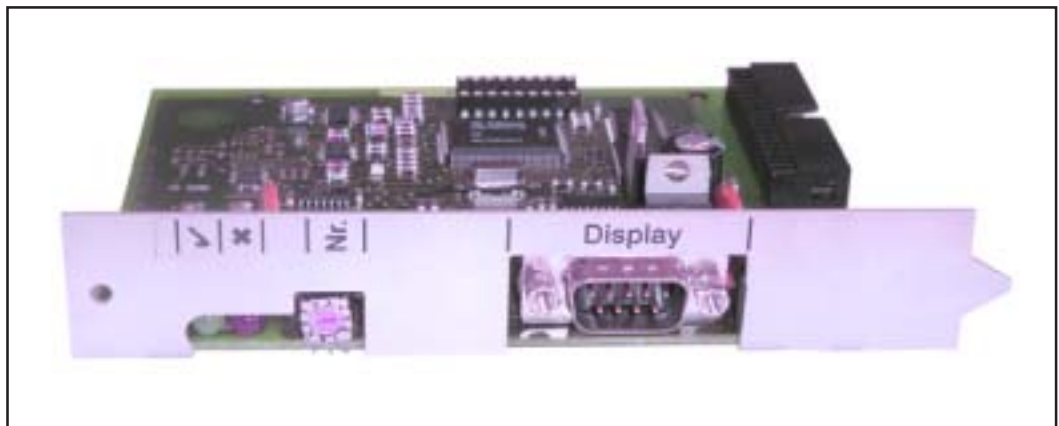
The Fronius Public Display Card is available as a card or box. The Fronius Public Display Card / Box is used to connect different large displays. The general connections have the same function as the other DATCOM components (setting wheel for the address, socket for power supply, LEDs).

Up to 10 Fronius Public Display Cards / Boxes can be integrated into one photovoltaic system. This means that one system can have up to 10 different large displays.

## Connections

The Fronius Public Display Card / Box is equipped with an RS 232 interface for a 9-pin submin plug. The 9-pin submin plug is used to connect a large display.

## Fronius Public Display Card



## Fronius Public Display Box



## Configuring the Fronius Public Display Card / Box

The Fronius Public Display Card / Box can be configured for two different display types using the „Fronius Solar.access“ software.

Display type A:

The „Display type A“ setting is used for alphanumeric Fronius displays or Rico displays connected to the Fronius Display Card / Box.

The Fronius Public Display Card / Box is programmed to recognize the display type automatically. No other settings are required.

**Important** If the display is to show the irradiance, solar module temperature or outside temperature values, the corresponding sensors must be connected to the Fronius Sensor Card / Box with address 1.

Additional, optional settings may also be made using „Fronius Solar.access.“ Detailed information on settings options can be found in the section „Fronius Solar.access software.“

**Important** The Fronius Public Display Card is already integrated into the Fronius Public Display, which reduces the cabling effort considerably.

Display type B:

When the „Display type B“ setting is selected, the Fronius Public Display Card / Box sends a defined data record via the serial interface.

Interface parameters:

- 2400 baud
- 8 data bits
- 1 stop bit
- No parity
- Handshake off

The data record contains the following values:

- Total energy (kWh)
- Daily energy (kWh)
- Present output (kW)
- Irradiation (W/m<sup>2</sup>) .... only available when a corresponding sensor is connected to the Fronius Sensor Card / Box with address 1.

The data record output corresponds to the following format:

- Total energy: 6-digit, no decimal places, in kWh
- Daily Energy: 4-digit, no decimal places, in kWh
- Present output: 4-digit, two before and two after the decimal point, in kW (the decimal point is not transferred since it is always in the same place)
- Irradiation: 4-digit, no decimal places, in W/m<sup>2</sup>

**Configuring  
the Fronius  
Public Display  
Card / Box**  
(continued)

The data record is made up of ASCII characters (97 bytes) and is structured as follows:

- Start: #
- Total Energy: 6 bytes
- Daily Energy: 4 bytes
- Output: 4 bytes
- Empty field: 16 bytes, 20 hex
- Empty field: 2 bytes, 30 hex
- Irradiation: 4 bytes
- Empty field: 2 bytes, 30 hex
- Empty field: 56 bytes, 20 hex
- End: CR LF

Leading zeros are not suppressed.

**Important** For „Irradiation“: If no corresponding sensor is available, then this value will be treated as a „0 W / m<sup>2</sup>“ measured valued.

# Fronius Interface Card / Box

## General

The Fronius Interface Card / Box is available as a card or box and is used to transmit various system data in a freely accessible format. The communication interface is RS 232 for a 9-pin submin plug.

The following can be integrated into one system:

- One Fronius Interface Card / Box or
- One Datalogger & Interface

Transferable data (serial interface)

Inverter: Pac, Uac, Iac, fac, Udc, Idc, Eac

Sensors: The values from temperature, irradiance and digital channels of all sensor cards / boxes in the system

For a detailed protocol description, please go to [www.fronius.com](http://www.fronius.com).

The baud rate can be set via the „Baud“ adjuster on the device:

Adjuster setting	Speed (baud)
0	2400
1	4800
2	9600
3	14400
4	19200

**Important** A setting of 5 - 9 on the „Baud“ adjuster means a speed of 2400 baud.

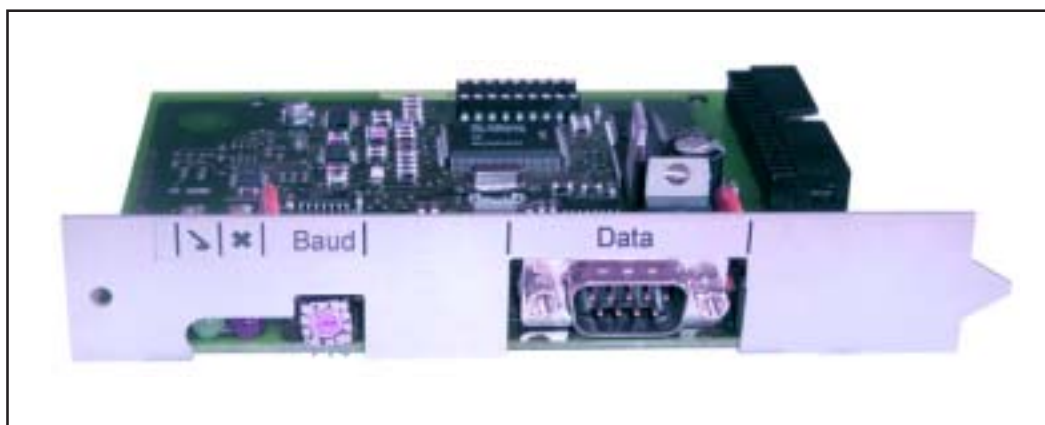
RS 232 pin assignment

2: RxD

3: TxD

5: GND

## Interface card



Interface box





# Over-current and under-voltage shutdown

## General

The Fronius Com Card, Fronius Sensor Box, Fronius Public Display Box and Fronius Interface Box have a shutdown function that interrupts the energy supply in Fronius Solar Net:

- in the event of over-current, e.g., in case of a short circuit
- in the event of under-voltage

## Functional principle

The over-current and under-voltage shutdown function does not depend on the direction of the current flow. If one of the DATCOM components previously mentioned measures a current flow  $> 3 \text{ A}$  or a voltage  $< 7 \text{ V}$  in Fronius Solar Net, the energy supply in the Solar Net is interrupted. The energy supply can be restored automatically or manually.

## Safety



**WARNING!** An electric shock can be fatal. Danger from DC voltage from solar modules.

- Make sure that the input and output sides in front of the device are not charged before making any connections or settings to the inverter.
- Any and all connections and settings should only be carried out by qualified electricians.
- Follow the safety rules in the inverter operating instructions.

## Restoring the energy supply automatically (factory setting)

The Fronius Com Card, Fronius Sensor Box, Fronius Public Display Box and Fronius Interface Box are set at the factory to automatically restore the power supply. The jumper is set to the „Auto“ position.

- After a shutdown due to over-current or under-voltage, the DATCOM component tries to restore the energy supply in the Fronius Solar Net every 5 seconds so long as there is a short circuit, for example.
- The „Power OK“ LED flashes briefly every 5 seconds.
- When the power supply is reestablished the „Power OK“ LED lights up green.

If there is no short circuit and the „Power OK“ LED does not light, then the shutdown is due to under-voltage. In this case, the DATCOM components require an external energy supply via an external power supply unit.

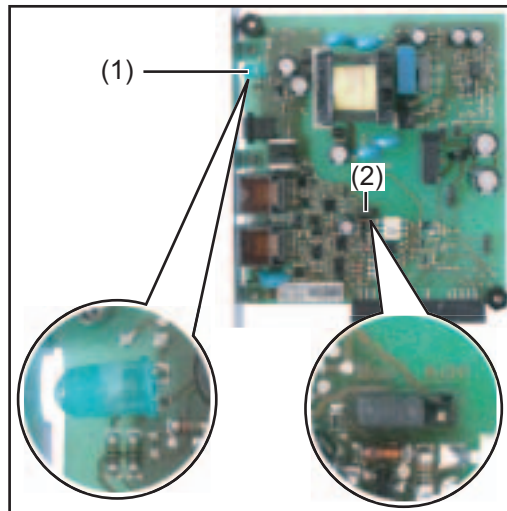
## Restoring the energy supply manually

The manual restoration option for the energy supply helps the installer during Fronius Solar Net troubleshooting.

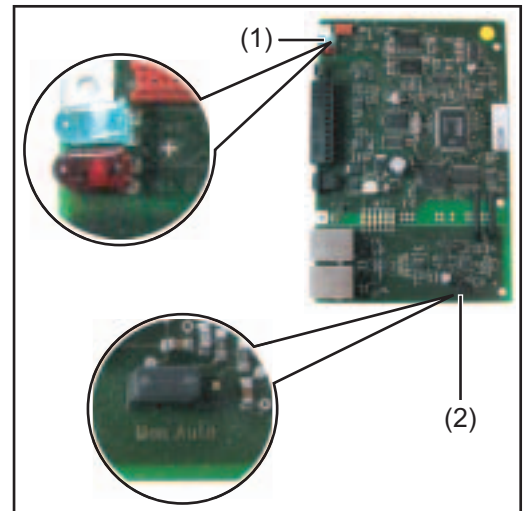
Jumper positions:

Auto      Automatic restoration of the energy supply (factory setting)

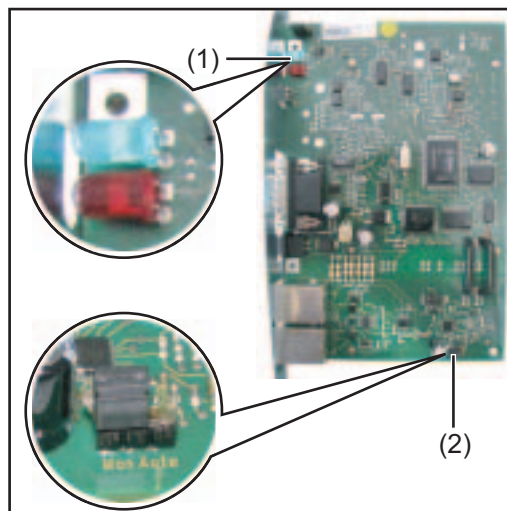
Man      Manual restoration of the energy supply



*Jumper at „Man“ pos. and „Power OK“ LED on Fronius Com Card*



*Jumper at „Man“ pos. and „Power OK“ LED on Fronius Sensor Box PC board*



*Jumper at „Man“ pos. and „Power OK“ LED on Fronius Public Display Box / Fronius Interface Box PC board*

Open the external housing of the DATCOM component to set the jumper for the Fronius Sensor Box, Fronius Public Display Box and Fronius Interface Box.

## Restoring the energy supply manually

(continued)

The jumper (2) must be set to the „Man“ position for manual restoration of the energy supply.

- After a shutdown due to over-current or under-voltage, there are 2 options available to restore the energy supply manually:
  - a) Unplug and then plug in data communication cables from the RJ 45 IN and OUT connections; if available, unplug the cable for an external power supply
  - b) Cover the „Power OK“ LED (1) for 0.5 - max. 2 seconds (e.g., with your finger)

In order for the „Power OK“ LED (1) to detect the darkness, certain ambient lighting conditions are required. If the lighting conditions on site are insufficient, the LED will not react. In this case, shine a flashlight into the LED and then cover it to darken it, for example.

- When the power supply is reestablished the „Power OK“ LED (1) lights up green.

If there is no short circuit and the „Power OK“ LED (1) does not light, then the shutdown is due to under-voltage. In this case, the DATCOM components require an external energy supply via an external power supply unit.

# „Fronius Solar.access“ software

## General

The „Fronius Solar.access“ software is the user interface to your photovoltaic system. „Fronius Solar.access“ communicates as follows with your photovoltaic system

- via Ethernet through Datalogger Web
- via USB, RS 232 or an analog modem through Datalogger easy / pro

„Fronius Solar.access“ can be used for the following for your photovoltaic system

- It can change parameters for all inverters and DATCOM components
- It can display present data for all inverters, sensors and string controls
- It can download saved archived data from the datalogger and display it graphically

## Properties

- Graphical analysis of archived data
- Graphical display of present data
  - Total view
  - Comparison view
  - Detailed view of inverters
  - String control
  - Sensor view
  - Component view
- Total view of all systems / system comparison
- Automatic download
- Export function of archived data to Excel files
- It can send an energy report automatically as an Excel file via e-mail
- It can send an energy comparison / service messages via e-mail
- Inverter configuration
- DATCOM component

## System requirements

Min. requirements:

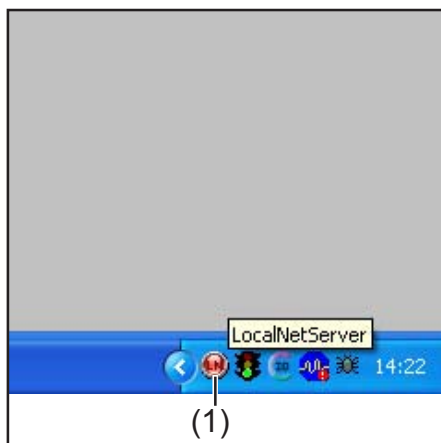
- 600 MB free hard disk space
- CD-ROM drive
- Datalogger Web: Ethernet connection
- Datalogger easy/pro: USB, RS 232 or analog modem
- MS Windows compatible mouse
- The following operating systems are suitable:
  - Microsoft Windows 2000 SP4
  - Microsoft Windows XP
  - Microsoft Windows Vista
  - Internet Explorer 6 or higher

## System requirements (continued)

- Recommended requirements:
- PC with Pentium 4 (1.3 GHz)
  - 1024 MB RAM

## Installing the modem

An analog modem must be installed in the PC in order to be able to access your datalogger remotely. If you already have an analog modem installed in your PC, you can skip this step.



**NOTE** If „Fronius Solar.access“ is already installed, proceed as follows:

1. Close „Fronius Solar.access“
2. Click on the the Solar Net Server icon (1) using the right mouse button and close the Solar Net server

**Important** Once you have installed a modem, you will be able to use all „Fronius Solar.access“ functions - even from a remote location.

## Installing Fronius Solar.access

„Fronius Solar.access“ installation is mostly automatic and requires no previous knowledge.

1. Close all applications and programs on your PC
2. Insert the CD-ROM that came with the datalogger into the drive
3. Select the „Fronius Solar.access“ folder
4. Start the „setup.exe“ file contained therein
5. Follow the instructions of the installation software (wizard)

The selection window for the required database appears.

6. Select the recommended database from the selection menu

## Establishing datalogger / PC connection

1. Connect the datalogger to a serial or USB interface on your PC

**Important** Connecting the datalogger via the USB interface requires the installation of the USB driver.

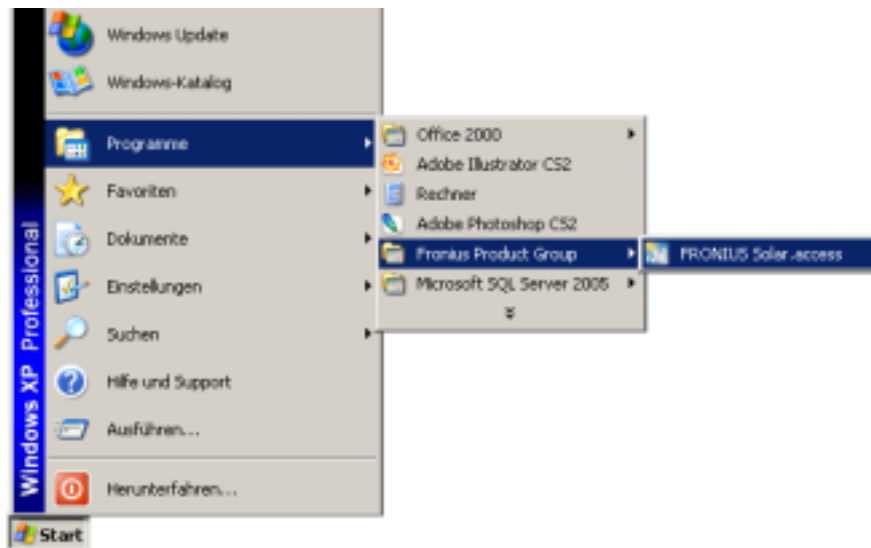
- When the datalogger is connected via the USB interface, „New Hardware Found“ appears in the display window.
- Follow the wizard instructions to search for the new hardware.
- The USB driver for the datalogger is included in the scope of delivery for „Fronius Solar.access.“

If you installed „Fronius Solar.access“ in the predefined folder, the USB driver is located at „C:\ Program Files \ Fronius Austria \ Solar.access \ Driver \ USB.“

2. Enter the path for driver installation and follow the wizard instructions.

The USB interface is setup and „Fronius Solar.access“ is ready for use.

## Starting Fronius Solar.access



„Fronius Solar.access“ is started as follows:

- „Start \ All Programs \ Fronius Product Group \ Fronius Solar.access“

You can also start „Fronius Solar.access“ from the desktop.

## Importing data from IG.access

If data is available from „Fronius IG.access,“ you can import it to „Fronius Solar.access.“ Both archived data and settings are imported.

**Important** Check the settings after import.

## Setting up photovoltaic systems

1. To create a new photovoltaic system, open the „Administration \ PV Systems \ Create PV System“ menu



2. Fill out all fields marked with a \*



Datalogger Web:

3. Set connection type as „Ethernet“
4. The following settings should be made for Datalogger Web in the „Network Address“ field:
  - IP address (e.g., „192.168.1.180“)
  - or host name + domain name (e.g., „samplesystem.fronius.com“)

Datalogger easy / pro - USB:

3. Connect datalogger
4. Install USB driver software
5. Set connection type as „USB“
6. Select the Datalogger in the „USB Connections“ field

**Setting up  
photovoltaic  
systems**  
(continued)

Datalogger easy / pro - RS 232:

3. Insert the Datalogger into the serial interface
4. Select the right COM port (e.g., COM1, COM2, COM3, ...)

Datalogger easy / pro - Modem:

3. Enter the phone number of the photovoltaic system
4. Select modem - must be installed on PC

**Connecting to  
the system**

1. Open the „PV Systems“ menu and select one of the photovoltaic systems
2. Click on the corresponding photovoltaic system, the connection to the PV system will take place automatically

Exception: When using a modem, the PV system connection must take place manually.

**Help**

For a more detailed explanation of the functions of „Fronius Solar.access,“ please see the respective help in the software.



# Technical data

## Datalogger Card / Box

Datalogger Card / Box		
Memory capacity	540 KB	
Memory duration (1 Fronius IG or Fronius IG Plus, memory cycle 30 minutes)	approx. 1000 days	
Supply voltage	12 V DC	
Power consumption	0.4 W	
- With wireless transceiver box:	max. 0.6 W	
Box degree of protection	IP 20	
Dimensions (l x w x h)		
- Datalogger Card:	140 x 100 x 26 mm	
- Datalogger Box:	190 x 115 x 53 mm	
Datalogger Card interfaces	Socket:	Description:
- USB:	USB	„USB“
- RS 232:	9-pin submin	„PC“
- RS 232:	9-pin submin	„Modem“
Datalogger Box interfaces		
- USB:	USB	„USB“
- RS 232:	9-pin submin	„PC“
- RS 232:	9-pin submin	„Modem“
- RS 422:	RJ 45	„IN“
- RS 422:	RJ 45	„OUT“

## Datalogger & Interface

Datalogger & Interface (Box)		
Memory capacity	540 KB	
Memory duration (1 Fronius IG or Fronius IG Plus, memory cycle 30 minutes)	approx. 1000 days	
Supply voltage	12 V DC	
Power consumption	2.8 W	
Box degree of protection	IP 20	
Dimensions (l x w x h)	210 x 110 x 72 mm	
Interfaces	Socket:	Description:
- USB:	USB	„USB“
- RS 232:	9-pin submin	„PC“
- RS 232:	9-pin submin	„Modem“
- RS 232:	9-pin submin	„Data“
- RS 422:	RJ 45	„IN“
- RS 422:	RJ 45	„OUT“

## Sensor Card / Box

Sensor Card / Box		
Supply voltage	12 V DC	
Power consumption		
- Sensor card:	1.1 W	
- Sensor box:	1.3 W	
Box degree of protection	IP 20	
Dimensions (l x w x h)		
- Sensor card:	140 x 100 x 26 mm	
- Sensor box:	197 x 110 x 57 mm	
Interfaces (only sensor box)	Socket:	Description:
- RS 422:	RJ 45	„IN“
- RS 422:	RJ 45	„OUT“
Channels T1, T2		
- Sensors:	Pt1000	
- Measuring range:	-25°C...75°C; -13°F...167°F	
- Accuracy:	0.5°C; 0.8°F	
- Resolution:	1 °C; 1 °F	
Irradiance channel		
- Measuring range:	0...100 mV 0...200 mV 0...1 V	
- Accuracy:	3 %	
Channels D1, D2		
- Max. voltage level	5.5 V	
- Max. frequency	2500 Hz	
- Min. pulse duration	250 us	
- Switching threshold „OFF“ („LOW“):	0...0.5 V	
- Switching threshold „ON“ („HIGH“):	3...5.5 V	
Current input channel		
- Measuring range:	0...20 mA 4...20 mA	
- Accuracy:	5 %	

## Com Card

Com card up to version 1.4B (4,070,769)		
Supply voltage	230 V (+10% / -15%)	
Dimensions (l x w x h)		
- Plug-in card only:	140 x 100 x 33 mm	
Interfaces	Socket:	Description:
- RS 422:	RJ 45	„IN“
- RS 422:	RJ 45	„OUT“
Com card version 1.7 and higher (4,070,913)		
Supply voltage	208 V / 220 V / 230 V / 240 V / 277 V (+10% / -15%)	
Dimensions (l x w x h)		
- Plug-in card only:	140 x 100 x 28 mm	
Interfaces	Socket:	Description:
- RS 422:	RJ 45	„IN“
- RS 422:	RJ 45	„OUT“

## Public Display Card / Box

Public Display Card / Box		
Supply voltage	12 V DC	
Power consumption		
- Public display card:	1.2 W	
- Public display box:	1.6 W	
Box degree of protection	IP 20	
Dimensions (l x w x h)		
- Public display card:	140 x 100 x 26 mm	
- Public display box:	197 x 110 x 57 mm	
Interfaces	Socket:	Description:
- RS 232:	9-pin submin	„Display“
- Public display box additional:		
RS 422	RJ 45	„IN“
RS 422	RJ 45	„OUT“

## Interface Card / Box

Interface Card / Box		
Supply voltage	12 V DC	
Power consumption		
- Interface card:	1.2 W	
- Interface box:	1.6 W	
Box degree of protection	IP 20	
Dimensions (l x w x h)		
- Interface card:	140 x 100 x 26 mm	
- Interface box:	197 x 110 x 57 mm	
Interfaces	Socket:	Description:
- RS 232:	9-pin submin	„Data“
- Interface box additional:		
RS 422	RJ 45	„IN“
RS 422	RJ 45	„OUT“
The baud rate can be set via the „Baud“ adjuster:		
- 2400, 4800, 9600, 14400, 19200		

# Warranty and liability

## **Warranty provisions and liability**

A warranty based on the general terms and conditions applies to Fronius DATCOM components. During this period, Fronius guarantees that your DATCOM component will work correctly. If a defect should occur for which Fronius is responsible, Fronius will repair the defect at the factory free of charge within the warranty period.

Please see your Fronius dealer for warranty claims.

Warranty claims will not be accepted as a result of:

- Non-intended use of your DATCOM components
- Installation has been carried out improperly or not in accordance with standards and, in particular, by unlicensed electricians
- The system has been operated improperly
- Unauthorized changes to DATCOM components
- Damage by foreign objects and acts of God

Warranty claims will be repaired either by Fronius directly or locally by Fronius trained service partners. For return transportation, components must be in their original or equivalent packaging.

These services will be charged to the dealer or his fitter, as will the reinstallation of the repaired device.

## **Scope of warranty**

This warranty only covers DATCOM components. Other photovoltaic system components are not covered by the warranty.

## **Warranty period**

24 months from date of installation.

## **Proof of warranty**

Purchase date on the invoice, transfer date / commissioning date and power company report.



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Under <http://www.fronius.com/addresses> you will find all addresses of our sales branches and partner firms!