

FRONIUS IG DatCom Detail

Ⓞ Operating Instructions
Data communication



Dear Reader

Introduction

Thank you for choosing Fronius - and congratulations on your new, technically high-grade Fronius product! This instruction manual will help you get to know your new machine. Read the manual carefully and you will soon be familiar with all the many great features of your new Fronius product. This really is the best way to get the most out of all the advantages that your machine has to offer.

Please also take special note of the safety rules - and observe them! In this way, you will help to ensure more safety at your product location. And of course, if you treat your product carefully, this definitely helps to prolong its enduring quality and reliability - things which are both essential prerequisites for getting outstanding results.



Safety rules

DANGER!



“**DANGER!**” indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word must be limited to the most extreme situations. This signal word is not used for hazards relating to property damage unless there is also a risk of personal injury appropriate to this level.



WARNING!



“**WARNING!**” indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury. This signal word is not used for hazards relating to property damage unless there is also a risk of personal injury appropriate to this level.

CAUTION!



“**CAUTION!**” indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to draw attention to unsafe practices that may cause damage to property.

NOTE!



“**NOTE!**” indicates a situation which implies a risk of impaired welding results and damage to the equipment.

Important!

“**Important!**” indicates practical hints and other particularly useful information. It is not a signal word for a harmful or dangerous situation.

Whenever you see any of the symbols shown above, you must pay even closer attention to the contents of the manual!

General Remarks



This equipment has been manufactured in accordance with the state of the art and general safety-engineering principles. Nevertheless, incorrect operation or misuse may still endanger

- the life and well-being of the operator or of third parties,
- the equipment and other tangible assets belonging to the owner/operator,
- working efficiently with the equipment.

All persons involved in any way with starting up, servicing and maintaining the equipment must

- be suitably qualified
- have good knowledge of dealing with electrical installations and
- read this instruction manual thoroughly and follow the instructions to the letter.

The instruction manual must be kept at the machine location at all times. In addition to the instruction manual, it is important to comply with both the generally applicable and local accident prevention and environmental protection regulations.

General Remarks

(continued)

All the safety instructions and warning signs on the machine itself:

- must be kept in a legible condition
- must not be damaged
- must not be removed
- must not be covered, pasted or painted over

For information about where the safety instructions and warning signs are located on the machine, please refer to the section of your machine's instruction manual headed "General Remarks".

Any malfunctions which might impair machine safety must be remedied immediately - meaning before the equipment is next switched on.

Your safety is at stake!

Utilisation for Intended Purpose Only



The machine may only be used for jobs as defined by the "intended purpose".

Utilisation for any other purpose, or in any other manner, shall be deemed "not in accordance with the intended purpose". The manufacturer shall not be liable for any damage resulting from such improper use.

Utilisation in accordance with the "intended purpose" also comprises

- thorough reading of and compliance with all the instructions, safety instructions and warnings given in this manual
- performing all stipulated inspection and servicing work
- installation in accordance with the instruction manual

Where appropriate, the following guidelines should also be applied:

- regulations of the power supply company for input to the grid
- information provided by the manufacturer of the solar modules

Ambient Conditions



Operation or storage of the machine outside the stipulated range is deemed "not in accordance with the intended use". The manufacturer shall not be liable for any damage resulting therefrom.

Please refer to the technical data in your instruction manual for accurate information about the permissible ambient conditions.

Qualified Staff



The servicing information provided in this instruction manual is only intended for qualified staff. An electric shock can be fatal. Please do not carry out any activities other than those referred to in the documentation. This also applies even if you are suitably qualified.



All cables and other leads must be firmly attached, undamaged, properly insulated and adequately dimensioned. Have loose connections, scorched, damaged or under-dimensioned cables and wires repaired immediately by an authorised specialist company.

Qualified Staff
(continued)



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

There is no guarantee in the case of parts sourced from other suppliers that these parts have been designed and manufactured to cope with the stresses and safety requirements that will be placed on them. Use only original spare parts (this also applies to standard parts).

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

Replace immediately any components that are not in perfect condition.

Safety Precautions at the Machine Location

Ensure when installing machines with cooling-air vents that the cooling air can flow freely through the air vents without obstruction. Only operate the machine with the degree of protection specified on the rating plate.

EMC Precautions



Care must be taken during installation to ensure that there is no occurrence of electromagnetic interference with electrical and electronic equipment.

Electrical Installations



Electrical installations may only be executed in accordance with the relevant national and regional standards and specifications.

ESD Protective Measures



Danger of damage to electronic components due to electrostatic discharge. Take appropriate protective measures when replacing and installing the components.

Safety Precautions in Normal Operation



Only operate the machine if all its protective features are fully functional. If any of the protective features are not fully functional, there is a danger to:

- the life and well-being of the operator or other persons
- the equipment and other tangible assets belonging to the owner/operator
- working efficiently with the equipment.

Have any safety features that are not fully functional repaired by an authorised specialist company before switching the machine on again.

Never bypass or disable safety features.



Safety markings



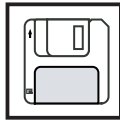
Equipment with the CE mark fulfils the basic requirements of the Guideline Governing Low-Voltage and Electromagnetic Compatibility. (More detailed information about this may be found in the Annex or in the section of your documentation headed "Technical Data".)

Disposal



Do not dispose of this device with normal domestic waste!
To comply with the 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 our agent, or find out about the approved collection and recycling facilities in your area.
Ignoring this European Directive may have potentially 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



Copyright to this instruction manual remains the property of the manufacturer.

The text and illustrations are all technically correct at the time of going to print. The right to make modifications is reserved. The contents of the instruction manual shall not provide the basis for any claims whatever on the part of the purchaser. We should be most grateful for your comments if you have any suggestions for improvement, or can point out to us any mistakes which you may have found in the manual.

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General

LocalNet - Basic Principles

Principle of the DatCom / Plug-in Card

The LocalNet allows you to use the DatCom components without restriction and to customise their use to your needs. The LocalNet is a data network that allows data from several FRONIUS IG units to be exchanged with the DatCom components.

The LocalNet data network corresponds to a ring-type bus system. A single data link between the individual components is sufficient to allow one or more FRONIUS IG inverters to communicate with the DatCom components. This minimises the amount of wiring required for the individual DatCom components.

The DatCom components are available in the form of plug-in cards (as for a PC). The FRONIUS IG box has enough space to insert four plug-in cards.

The DatCom components are also available with an external box for increased flexibility.

Principle of the DatCom Plug-in Card (continued)

The following DatCom components and inverters (maximum numbers) can be connected to form an overall PV system (as at December 2003):

- 100 inverters from the FRONIUS IG series (different types may be combined, e.g. IG 15 and IG 60 with internal and external box)
- 1 Datalogger professional
- 10 sensor cards / boxes
- 10 public display cards / boxes

However, the system is designed to allow DatCom components that are developed in the future to be easily retrofitted.

Datalogger

At the very heart of the LocalNet is the Datalogger. It coordinates data traffic and allows even large volumes of data to be distributed quickly and reliably. The Datalogger also stores the data for the entire PV system for long periods.

The Datalogger has two data ports

- for sending data directly to the PC (RS232 - Datalogger card, USB - Datalogger box)
- for looking up data on a remote PC via modem and telephone line (RS232)

Two versions of the Datalogger have been available since June 2003.

Datalogger professional

The Datalogger professional stores the data from up to 100 inverters and 10 sensor cards / boxes.

Datalogger easy:

The Datalogger easy only stores data from the inverter and sensor card / box with address 1.

Important! In the rest of this manual, the Datalogger professional or Datalogger easy is specifically referred to only if the information relates solely to that version. The term „Datalogger“ is used on its own for information that relates to both the Datalogger professional and the Datalogger easy.

COM Cards

The COM cards provide the data link between the FRONIUS IG and the LocalNet, and thus to the DatCom components connected to this network. The COM cards also provide electrical isolation between the photovoltaic system and the inverters, and are thus a significant safety factor. There must be COM cards in every inverter that is connected to the LocalNet.

COM Cards (continued)



NOTE: If a Datalogger is to be used to record the data from just one FRONIUS IG, a COM card is still necessary. In this case, the COM card acts as a coupler between the internal network of the FRONIUS IG and the LocalNet port of the Datalogger.

LocalNet - Installing the System Components

Plugging in Cards



WARNING: Mains voltage is potentially fatal. The terminal area must only be opened by a qualified electrical installation engineer and must be de-energised first.



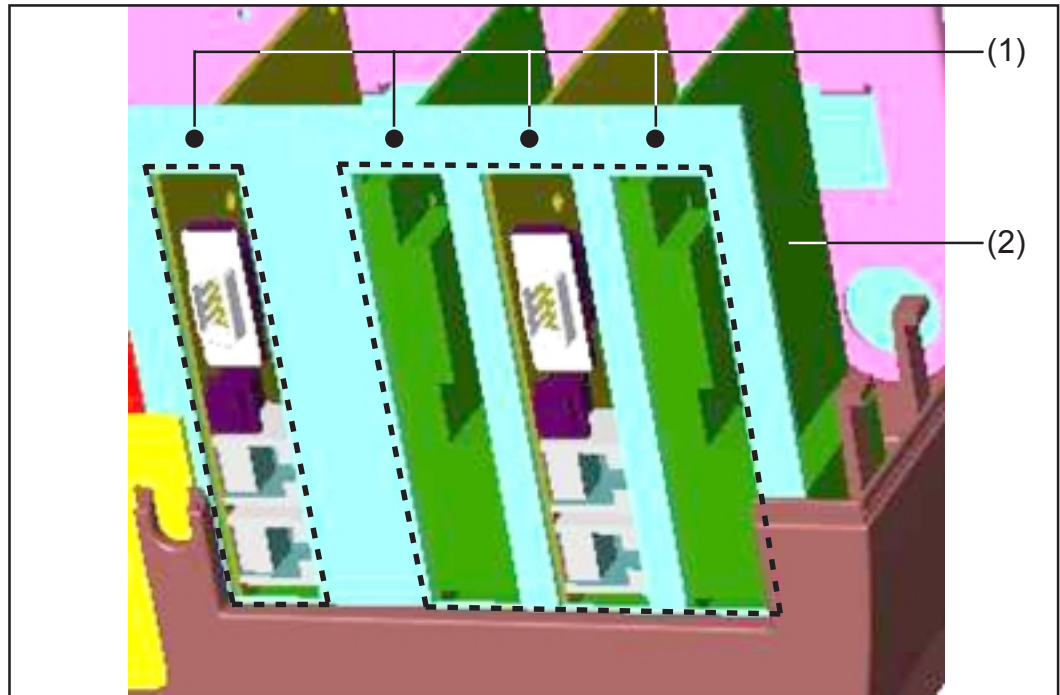
WARNING: Mains voltage and DC voltage from the solar modules are potentially fatal. The plug-in cards must not be inserted until the FRONIUS IG


- has been disconnected on the grid (AC) side
- has been disconnected on the solar module (DC) side

The procedure for inserting the plug-in cards is as follows:

- Set the FRONIUS IG to „Standby“ (see the „Setup Menu“ section of the FRONIUS IG operating instructions)
- Disconnect the FRONIUS IG on both the AC and the DC side
- Open the terminal area - see the „Opening the Box“ section in the FRONIUS IG operating instructions
- Move display to the left-hand side and remove from the front
- Remove the fixing screw (1) from a free slot and remove the slot cover


Plugging in Cards (continued)

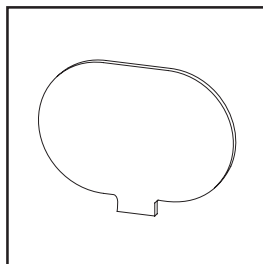


 **NOTE:** Risk of damage to the plug-in card. Please follow the general ESD instructions when handling plug-in cards.

In principle, any plug-in card may be inserted into any slot, but we recommend the following assignments for reasons of space:

- ENS card present (only required in certain countries):
 - When all the slots are in use:
 - Insert the COM card into the outermost slot on the right
 - Insert the other cards into the middle slots
 - When not all the slots are in use: Insert the cards into any slots
- ENS card not present:
 - Insert the COM card into the outermost slot on the left
 - Insert the other cards into any slots
- Insert plug-in card (2) into the slot
- Fix the card (2) in place using the fixing screw

 **NOTE:** For FRONIUS IG US use the small metal plate provided with the COM Card to secure the screw.



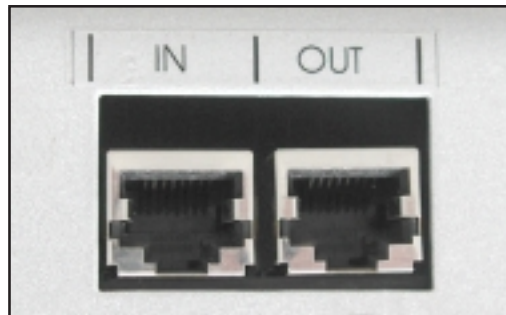
- Close the box
- Connect AC and DC cables to the FRONIUS IG

DatCom Components with External Box

DatCom components with external box have degree of protection IP 20. As a result, they are only suitable for use indoors, or must be fitted in a box suitable for outdoor use.

Cable Connection

The plug-in cards communicate within the FRONIUS IG via its internal network. External communication (LocalNet) requires the COM cards. Each COM card has two RS-485 interfaces as inputs and outputs. The input is labelled „IN“ and the output is labelled „OUT“.

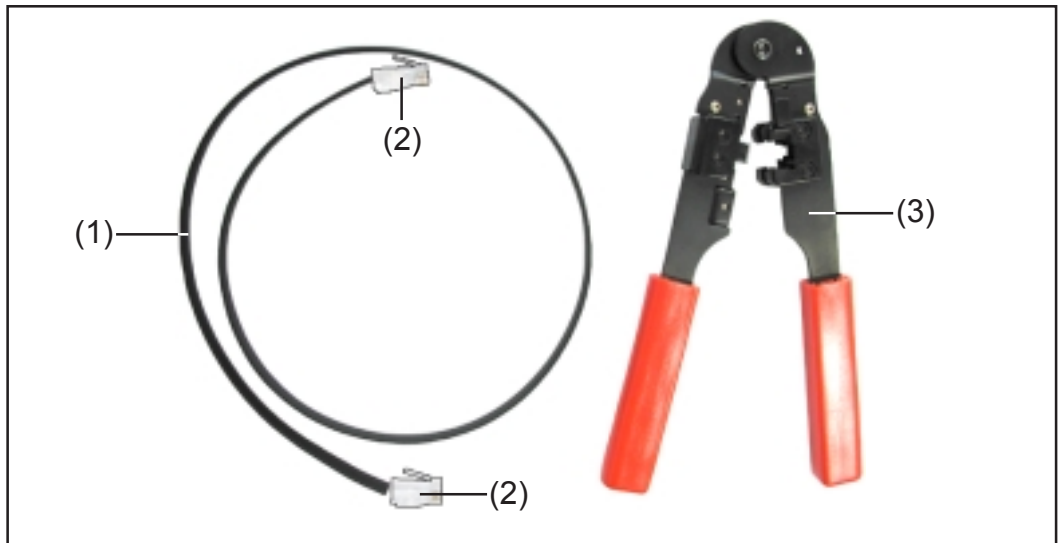


The DatCom components with external box also have an input „IN“ and an output „OUT“ for data communication on the network.

A FRONIUS IG with COM card or a DatCom component with external box will be called a LocalNet station below.

Data Cable

The data link between the LocalNet stations uses 8-pole data cables (1:1 connection) and RJ-45 male connectors. The cables can be easily made up to the desired length using a standard crimping tool.

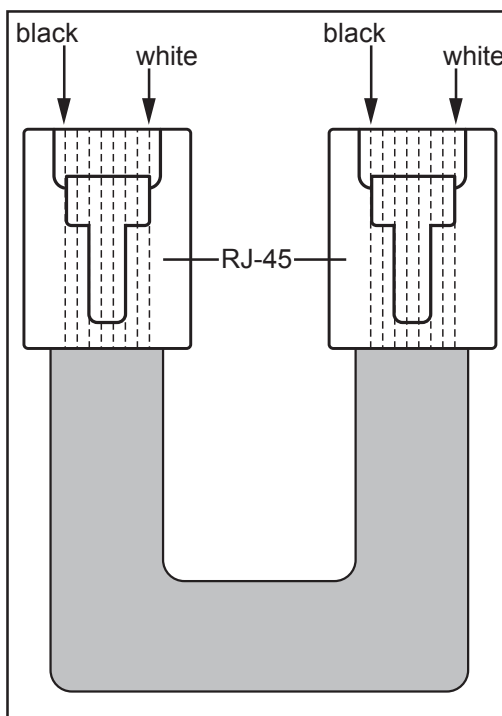


You will need:

- (1) an 8-pole ribbon cable
- (2) two RJ-45 male connectors (8-pole telephone jacks)
- (3) a crimping tool

The above items are available from FRONIUS under the following part numbers:

- (1) 8-pole ribbon cable, 100 m reel (40,0003,0384)
- (2) RJ-45 jack (43,0003,0815)
- (3) Crimping tool (42,0435,0019)



The procedure for making up the data cables is as follows:

- Use the crimping tool to shorten the cable to the desired length
- Strip the ends of the cable using the crimping tool

NOTE: Please note the following point when attaching the RJ-45 jack: The wires must be in the same positions in both connectors (e.g. black = PIN1, white = PIN8)

- Attach the RJ-45 jack


Data Cable (continued)

To increase the data integrity in an environment that is potentially subject to faults, we recommend the use of an 8-pole 1:1 LAN network cable (e.g. CAT5 cable, shielded and twisted) as an alternative to the ribbon cable. Made-up cables are available from FRONIUS 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)

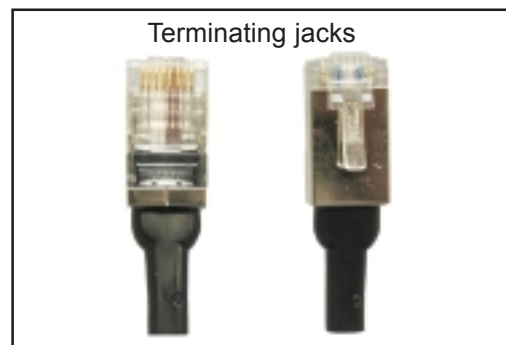
If you prefer to make up these twisted cables yourself, the following pin assignment **MUST** be used in the RJ-45 jack:

- Pin 1: +12V (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:** The data cables are not UV-resistant. They must be protected against direct sunlight if they are run outdoors.

Wiring

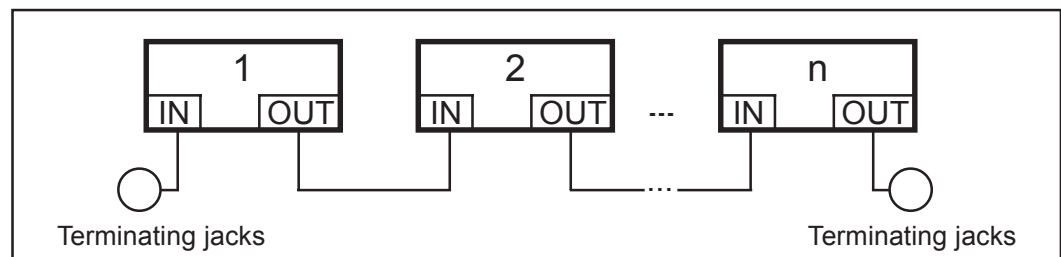
Use the cable connections described above to connect the „OUT“ socket of the previous LocalNet station to the „IN“ socket on the next station. Added together, the individual cable lengths must not exceed 1000 m.



Two terminating jacks are supplied with the Datalogger.

Insert the terminating jacks as follows:

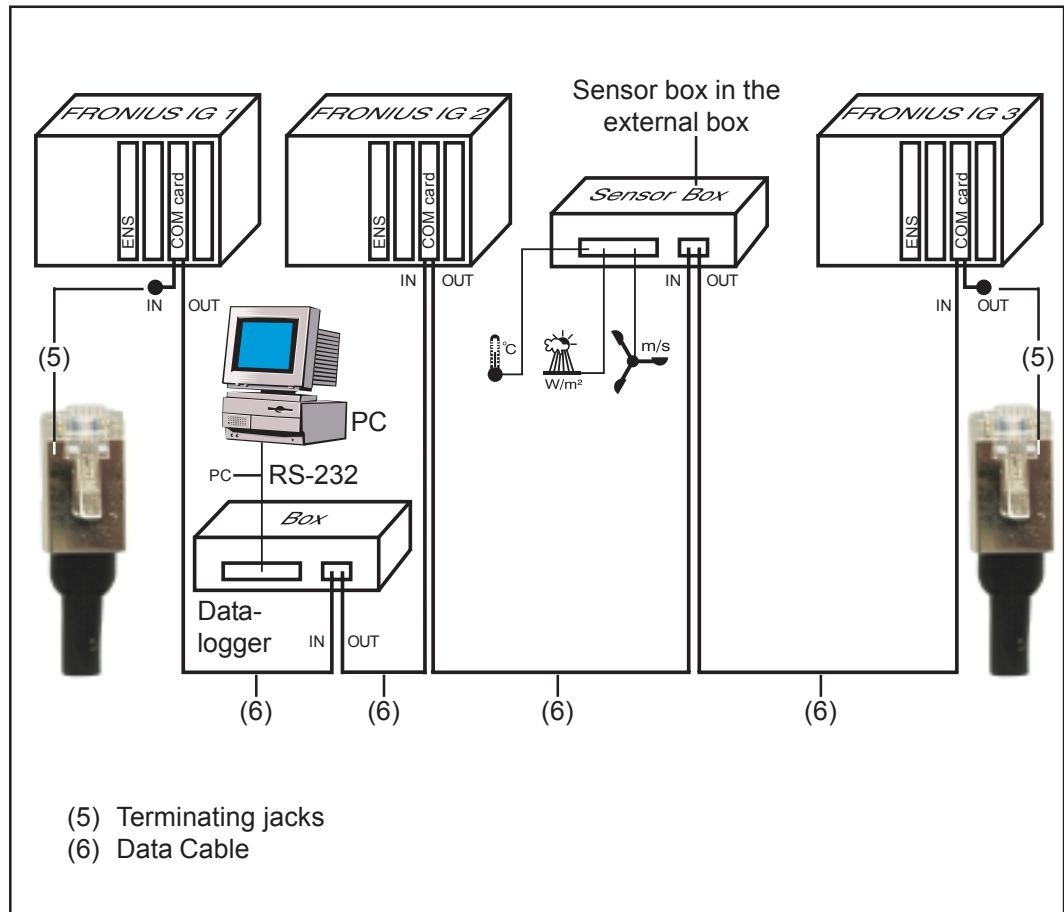
- at input „IN“ of the first LocalNet station
- at output „OUT“ of the last LocalNet station



Wiring (continued)

- NOTE:** All the „IN“ inputs and „OUT“ outputs of the LocalNet stations must be assigned either to cable connections or to terminating jacks. This also applies to the inputs and outputs if a COM card is used.
- in PV systems with just one FRONIUS IG and
 - no DatCom components in the external box

Networking Example for the System Components on the Local- Net



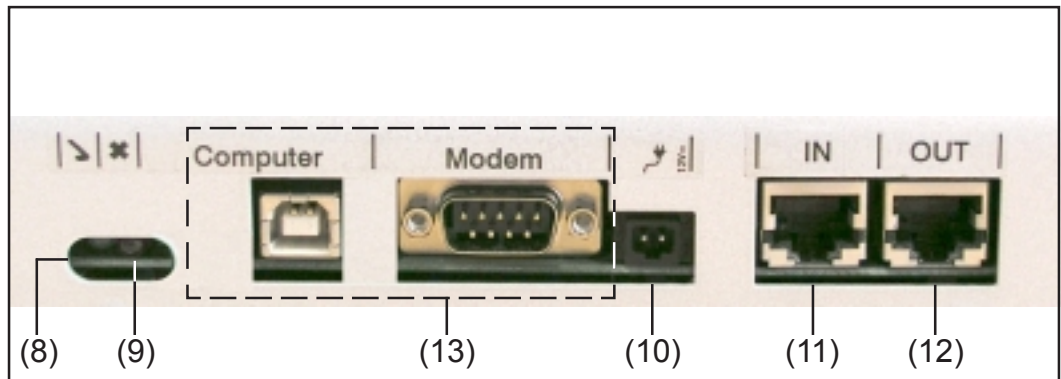
Connections and Displays

General Connections and Displays

View



NOTE: The following illustration show the connection area for the DatCom components on the example of the Datalogger professional box. This area (13) differs on the various DatCom components.



Explanatory Note

(8) **Status LED green** ... lights up if there is a sufficient power supply to the components. If the green LED does not light up, then an adequate power supply should be provided („Power supply“ section).

(9) **Status LED red** ... lights up continuously if the power supply is sufficient, but an error has occurred in the data communication (e.g. two sensor cards with the same address).

also lights up if the terminating jacks are not plugged in correctly.

Important! If the „Status LED red“ lights up briefly during operation, this does not indicate an error.

(10) **Power supply terminal socket** ... for connecting a power supply unit to the power supply („Power supply“ section).

(11) **Data communication input „IN“**

(12) **Data communication output „OUT“**

(13) **Specific connections** ... according to the functionality of the individual components.

Power Supply

Supplying the DatCom Components



General

The DatCom components are powered independently of the FRONIUS IG. This ensures a power supply even if the inverter is not feeding power into the grid. The DatCom components are powered via the COM cards or plug-in power supplies. This ensures that the Datalogger stores all the data, even at night, particularly if a sensor card is in use.

COM Cards



The COM cards are responsible for powering the DatCom components. The integral power pack of such a COM card is powered in the slot via special contacts that carry mains voltage even if the inverter is not feeding into the grid.

A COM card can supply three other DatCom components. The power is supplied via the data cable, so even DatCom components in an external box can be supplied.



NOTE: For PV systems with more than 12 FRONIUS IG units, the power supplies of individual COM cards may be deactivated in order to reduce the power consumption of the DatCom.

- Remove the AC fuse (MST 315 mA / 250 V - see picture) on every other COM card.
- Make sure that the powered COM cards are evenly distributed across all phases.



NOTE: Once the system components have been installed and wired up and all FRONIUS IG units are connected to the network, the green LED must light up on all LocalNet stations. If this is not the case:

- Check the cable connections
- Check that all the FRONIUS IG units are connected to the mains

COM Cards (continued)

- If the green LED does not light up on the individual system upgrades:
- Connect a plug-in power supply unit to the affected DatCom component

Power Supply Unit



Every DatCom components in both cards and boxes have a 12 V terminal socket for a power supply unit.

NOTE: If a PV system has just one FRONIUS IG, but more than 3 DatCom components, the COM card in the FRONIUS IG may not supply enough power for all the DatCom components. As a result, the green LED will not light up on all the DatCom components. In this case, plug the additional power supply unit into one of the DatCom components on which the green LED does not light up.

A power supply unit can supply up to eight DatCom components. No additional supply cable is necessary. Power is distributed between the components via the data communication cable.

NOTE: Only the power supply unit available from FRONIUS is suitable to guarantee a supply to the DatCom components. You should not therefore connect a different power supply unit.

Important! The power supply unit is also available for the USA or UK with suitable connectors.

Addressing

Defining the System Components on the LocalNet

General

The LocalNet automatically detects different DatCom components (Data-logger, sensor card, etc). However, there is no automatic differentiation between several identical DatCom components. To allow each system component (FRONIUS IG or DatCom component) to be uniquely defined on the LocalNet, each system component must be given an individual number (= address).

The FRONIUS IG allows you to set the address directly on the display. Some versions of the FRONIUS IG have no display, in which case the address is set using two buttons. The other DatCom components have a special setting wheel for addressing. A small slotted-head screwdriver will be needed in order to use it.

FRONIUS IG

The FRONIUS IG operating instructions contain details of how to set the address.

DatCom Components - General

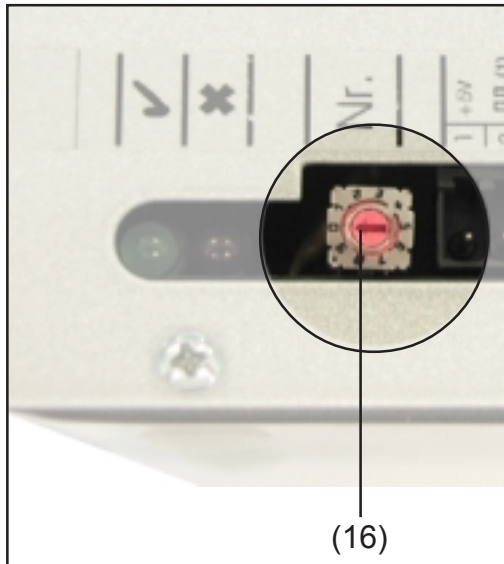


NOTE: There must never be two of the same units with the same address on a network.

Example:

- OK:
FRONIUS IG „address 1“, sensor card „address 1“
- Not OK:
FRONIUS IG 20 „address 1“, FRONIUS IG 30 „address 1“

DatCom Components - General
(continued)



The procedure is as follows for all DatCom components, regardless of whether they are card or box versions:

- Use a suitable slotted-head screwdriver to turn the setting wheel (16) to the desired address

Important! There can only ever be one Datalogger in a PV system, so it is not necessary to set the address on the Datalogger.

Detailed Description of the DatCom Components

Available DatCom Components

General

The following DatCom components are currently available (as at October 2005) and are discussed below:

- Datalogger
- COM Card
- Sensor card / box
- Public display card / box
- Interface card / box
- FRONIUS IG.access

Datalogger

General

The Datalogger is available as a card and as a box. A Datalogger is absolutely essential for networking several DatCom components or FRONIUS IG units.



NOTE: The entire network must not contain more than one Datalogger.

General
(continued)

The Datalogger is available in the following versions

- Datalogger professional as card and box
- Datalogger easy as card and box
- Datalogger & Interface as box

The Datalogger, as the only system component with a real-time clock, is responsible for controlling the PV system. It continuously identifies which devices are in the PV system and regulates the data traffic between the individual system components.

The Datalogger also establishes the connection to the external data processing system on the PC. The Datalogger professional and Datalogger & Interface also store the data from all the inverters and sensor cards/boxes in the system.

The maximum number of system components that the Datalogger professional and Datalogger & Interface can manage and store operating data for is as follows:

- 100 solar inverters from the FRONIUS IG series (several types may be combined, e.g. IG 15 and IG 60 with internal and external box)
- 10 sensor cards / boxes
- 10 public display cards / boxes



NOTE: The Datalogger easy stores only data from the inverter and sensor card / box with address 1.

Connections

The Datalogger has the following connections:

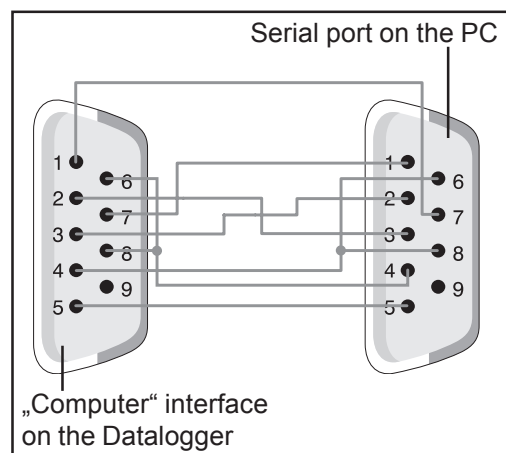
- Card: Two RS-232 interfaces with 9-pin sub-min connections
- Box: One USB and one RS-232 interface

The connections are used for data transmission

- directly to the PC
- for looking up data on a remote PC via modem and telephone line

The Datalogger & Interface has an additional RS 232 interface across which operating data is transmitted in another format. Further details can be found in the „Interface card/box“ section.

Terminal assignment on the connecting cable between the Datalogger card and PC:



NOTE: The 9-pin cable must not be longer than 20 m.

Important! The interface cable is not supplied with the Datalogger. A 1.8 m interface cable is available from FRONIUS (43,0004,1692).

Important! If there is only one free USB port, you can use an industry standard USB/RS-232 converter to connect the Datalogger card.

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

Use the cable supplied with the modem for the connection between the Datalogger and modem. Please take the terminal assignment for this cable from the operating instructions for your modem.

The general connections and displays are described in the „Connections and displays“ section.

Modem

General

You can connect various different modems to the Datalogger in order to read the system data by modem. All of the modems described below have been tested by FRONIUS. The modem can be easily configured using the FRONIUS IG.access software.

You can also connect other 56K modems that support the V.90 standard. Please note the following point, however:


- Only the modems listed below are guaranteed to work correctly with the compound
- If other modems are used, then it may be necessary modify the initialisation string (see „FRONIUS IG.access“ section)

1. Tixi message modem

The Datalogger supports various message modems from the Tixi brand. Message modems are used to send service messages as either faxes or e-mail. There is also an ISDN variant of this modem that is also compatible with the Datalogger.

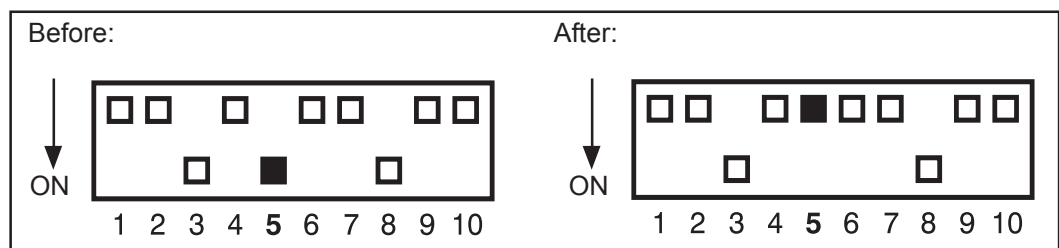
IMPORTANT! If the ISDN message modem is connected to the Datalogger, then it will only be possible to dial in with an ISDN modem.

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

 **NOTE:** A modem can only be guaranteed to work correctly with the Datalogger if automatic call acceptance is activated on the modem.

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



Modem (continued)

3. Siemens TC35i Terminal

We recommend this modem for GSM applications (EGSM 900 MHz, GSM 1800 MHz). Given the lower data rate, however, communication between the Datalogger and FRONIUS.IG access software is likely to be slower, particularly during data transfers and when making settings.



Note: Deactivate the PIN prompt on the SIM card before inserting the SIM card into the GSM modem.

Configuring the Datalogger

If a modem is connected to the Datalogger, then a special Datalogger configuration is possible. In this configuration, the Datalogger sends an SMS (text) message to up to 3 mobile telephones. To do this, the Datalogger automatically dials into a special service offered by the telecoms provider. This service is called an SMS Centre (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

These services do not all offer the same features, however. Some can only be called from within the country, while others only allow a text message to be sent.

Overview of the features:

- „D1“: can be dialled from Germany and Austria
Number of texts: 3
Costs (as at: September 03): approx. 0.2 Euro / text
- „A1“: can be dialled from Austria
Number of texts: 3
Costs (as at: September 03): approx. 0.7 Euro / text
- „Vodafone“: can be dialled from United Kingdom and Austria
Number of texts: 1
Costs (as at: September 03): approx. 0.2 Euro / text

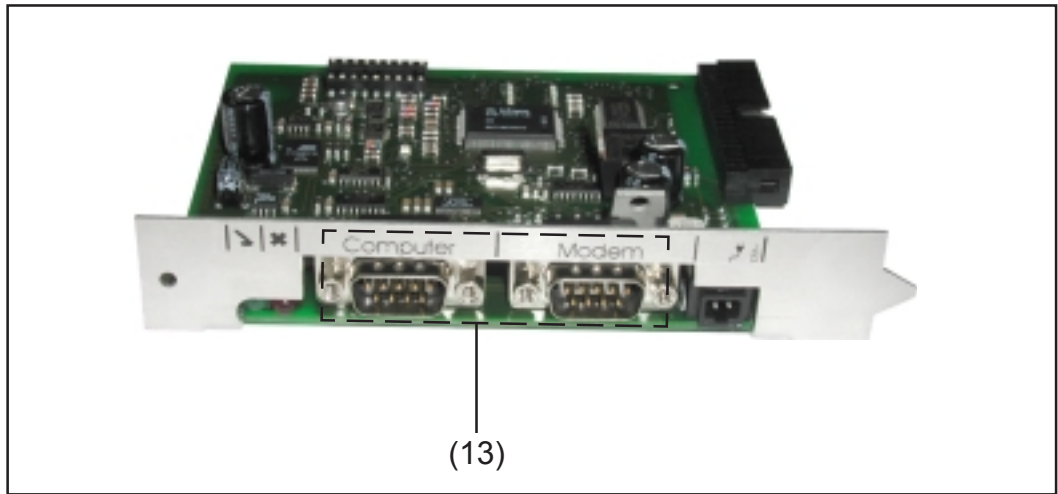
Modem (continued)

- „One 2 One“: can be dialled from United Kingdom, Germany, Austria and Spain
Number of texts: 1
Costs (as at September 03): approx. 0.2 Euro / text

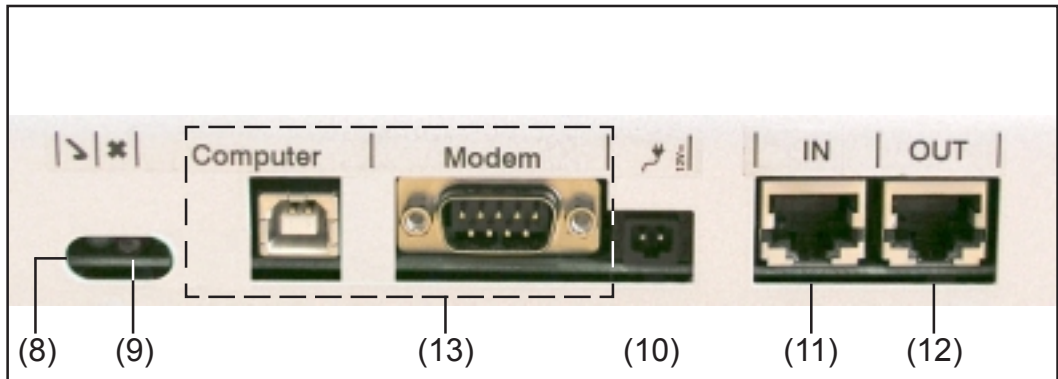
Tip: The A1 service is more expensive than D1 (as at: September 03), so FRONIUS recommends using the D1 service for PV systems in Austria. Further information on the settings needed to send text messages can be found in the „FRONIUS IG.access“ section.

Important! Further information on configuring the modem can be found in the „FRONIUS IG.access“ section.

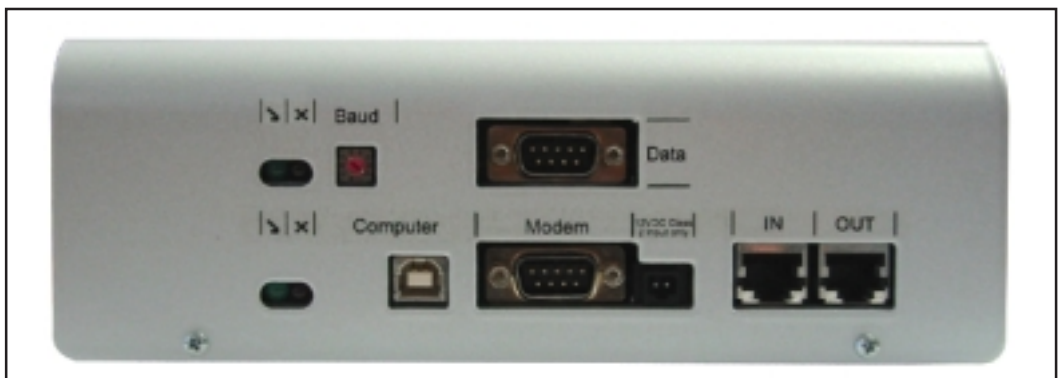
Datalogger Card



Datalogger Box



Datenlogger & Interface



Saving Data

The Datalogger saves the current data for all FRONIUS IG units and sensor cards / boxes linked into the PV system at set intervals. The save interval can be set to between 5 and 30 minutes using the FRONIUS IG.access PC software.

The stored data must be downloaded using the PC for further processing. The FRONIUS IG.access software provides a clear and efficient way to prepare, archive and visualise the data.

If the PV system only contains one inverter, the Datalogger has a storage time of up to 3 years (around 1000 days). The storage time of the Datalogger varies according to the number of FRONIUS IG units or sensor cards / boxes integrated into the PV system. If the LocalNet contains 10 FRONIUS IG units or sensor cards / boxes, the storage time is reduced to a tenth (= 100 days).

Important! Even when the maximum number of 100 FRONIUS IG units and 10 sensor cards is used, the storage time of the Datalogger is still $1000/110 =$ approximately 9 days (for a storage interval of 30 minutes).

Please note the following when you shorten the storage interval using the FRONIUS IG.access software: If the storage interval is reduced from 30 to 15 minutes, for example, the storage time will be halved (e.g. from 1000 days to 500 days).

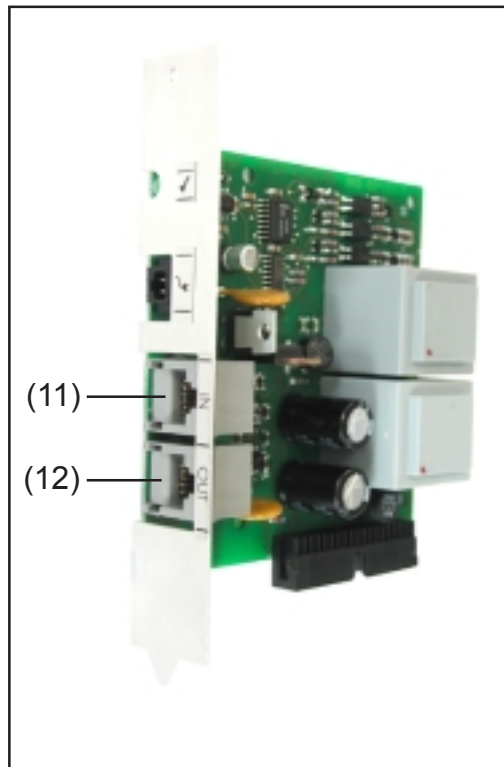
Important! If the Datalogger memory is full, the data will not all be deleted immediately. The oldest data will be overwritten by the latest data on an ongoing basis. The latest data at the last PC download will therefore remain in the Datalogger over the entire storage time.

Datalogger Power Consumption

The average power consumption of a Datalogger is around 1.2 W when used within a PV system.

COM Card

General



The COM cards provide the data link between the FRONIUS IG and the LocalNet, and thus to the Dat-Com components connected to this network. For this reason, the COM cards are only available as plug-in cards. A COM card is required in each FRONIUS IG unit.

Connections

The COM card has two RS-485 interfaces for data transmission
(11) Data communication input „IN“
(12) Data communication output „OUT“

Precise details of the connector and cable versions for data transmission can be found in the „LocalNet - Installing the System Components“ section.

The general connections and displays are described in the „Connections and displays“ section.

Power Supply

COM cards are equipped with an integral power pack to supply power to the DatCom components. The integral power pack of such a COM card is powered via special contacts in the slot. These contacts carry mains voltage even when the inverter is not feeding power into the grid. A COM card with integral power pack can supply three additional DatCom components.

Power Supply (continued)

Important! Additional DatCom components can be supplied even if they are located in a different FRONIUS IG unit or in an external box.

Each DatCom component has an LED that lights up green to indicate that it has a sufficient power supply. With the COM cards described here, the LED lights up green to signal that the integral power pack is working.



NOTE: If a COM card is used and the FRONIUS IG is connected on the AC side, the green LED must light up.

If this is not the case, the error may be one of the following:

- The COM card is not being used correctly..
- The FRONIUS IG is not connected on the AC side.
- A short-circuit has occurred in the connecting cables to the other system components.
- The COM card has to supply more than three DatCom components.

If too many DatCom components

- Attach a plug-in power supply unit to a DatCom component on which the green LED does not light up.



NOTE: If a PV system has just one FRONIUS IG, but more than three DatCom components, the COM card in the FRONIUS IG may not supply enough power for all the DatCom components. This means that the green LED would not light up on all the DatCom components. In this case, plug the additional power supply unit into one of the DatCom components on which the green LED does not light up.

Further information on the COM cards can be found in the „Power Supply“ section.

Power of a COM card

The maximum output power of a COM card with integral power pack for supplying additional DatCom components is around 3 W (depending on the mains voltage).



NOTE: At particularly weak points on the network (where the AC voltage is less than 200 V), a COM card may only be able to supply two DatCom components.

Sensor Cards

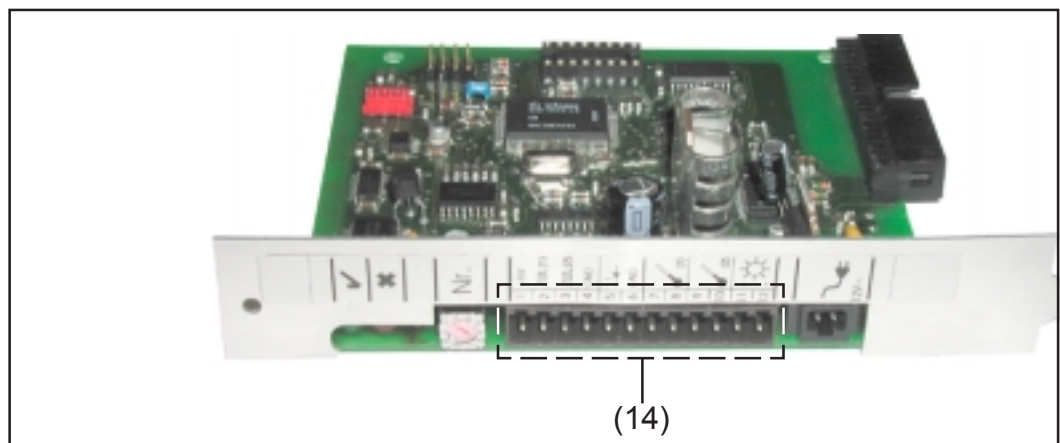
General

The sensor card is available as a card and as a box. The sensor card / box as inputs for a total of six measuring signals for connecting a number of sensors:

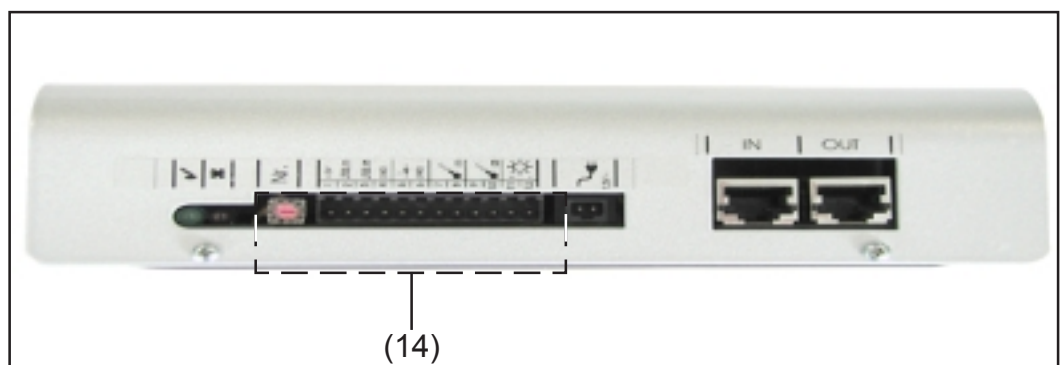
- Two analog inputs for two PT1000 temperature sensors
- One analog input for analysing a voltage signal from an irradiance sensor
- Two digital inputs, e.g. for a power consumption sensor and a wind speed sensor
- One analog input for analysing a current signal (0 to 20 mA; 4 to 20 mA)

The FRONIUS IG.access software is used to visualise the data collected from all sensors connected to the sensor card / box. Some parameters on the sensor card / box can also be displayed on the FRONIUS IG display.

Sensor Card



Sensor Box

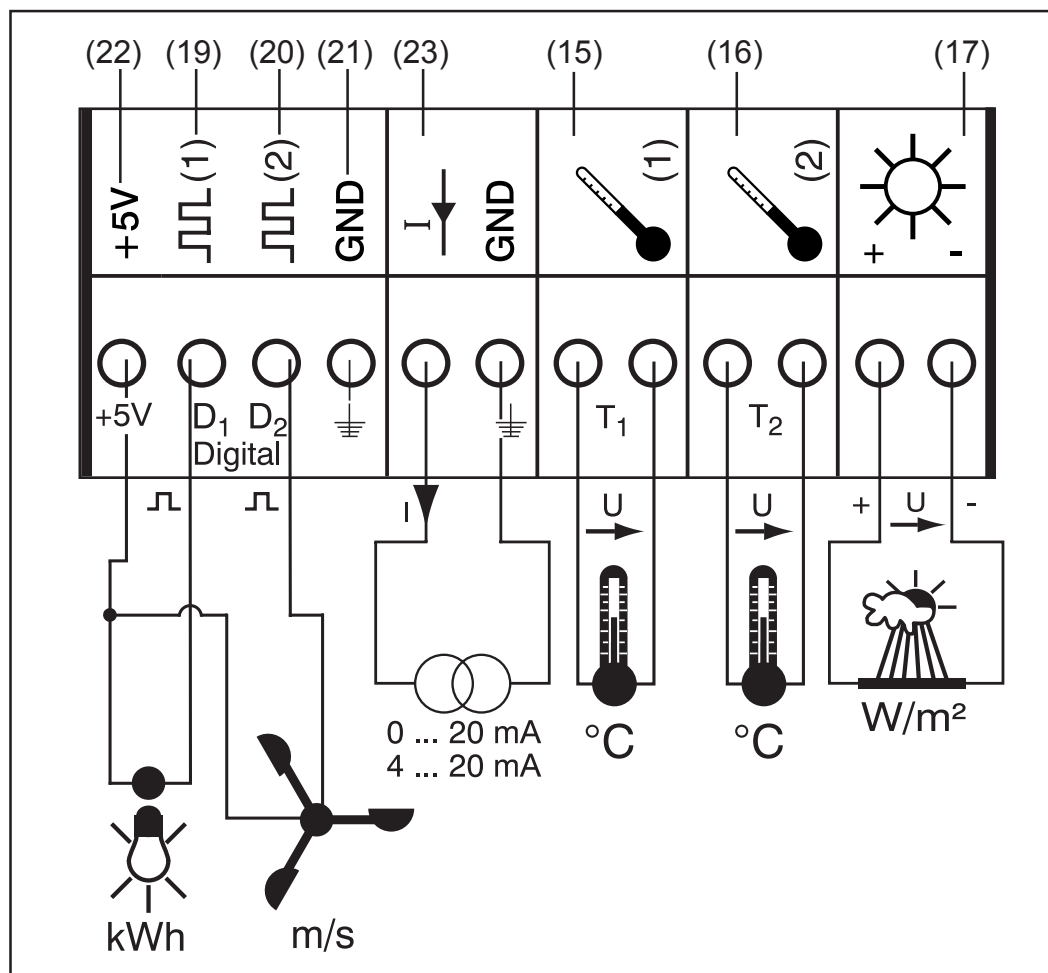


Connections

The general connections and displays are described in the „Connections and displays“ section.

(14) Connection area for the measuring signal inputs. The sensor cables are connected using screw-type terminal connectors.

NOTE: The maximum cross-section of the sensor cables at the screw terminals must not exceed 1.5 mm² (AWG 17).



Each measurement signal input in the connection area is described in detail below. FRONIUS can supply ready-made sensors for measuring ambient temperature, module temperature, irradiance, wind speed and energy.

NOTE: Each measurement signal input must first have been enabled and configured using the FRONIUS IG.access software. Enabled inputs must always be connected to the relevant sensor otherwise unassigned inputs will be detected by the Datalogger. This will result in a misleading value for the parameter that is not based on a measurement signal.

T1 / T2 Channels

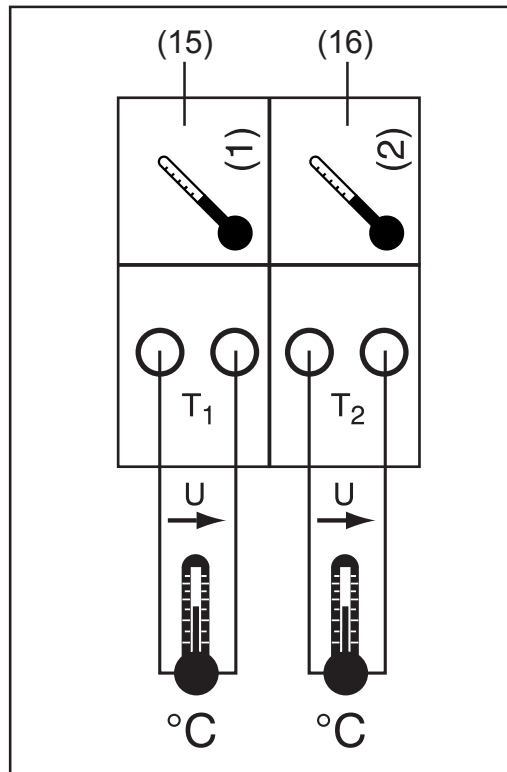
General explanation:

Channels T1 (15) and T2 (16) are used to measure the temperature using PT1000 temperature sensors.



NOTE: PT 100 temperature sensors are not permitted.

The readings may be analysed either on the FRONIUS IG display or using the FRONIUS IG.access software. Channel T1 is used for the module temperature and channel T2 for the ambient temperature.



Sample channel assignment:

- Channel T1 (15) for the module temperature
- Channel T2 (16) for the external temperature

Working principle:

- The temperature sensors consist of resistors that change their resistance value in response to changes in temperature.
- The sensor card / box measures the voltage drop at the resistor if a constant current is flowing through the resistor
- The sensor card calculates the temperature from this voltage drop

Erection and commissioning example:

Measuring the temperature at the solar modules using the PT1000 temperature sensor at terminal T1 (15).

- Fix the PT1000 temperature sensor to the solar module
- Connect the PT1000 temperature sensor to T1
- Use the FRONIUS IG.access software to activate channel T1 (15)
 - Enter the required channel name (e.g. „module temperature“)
 - Select a unit (°C / °F)

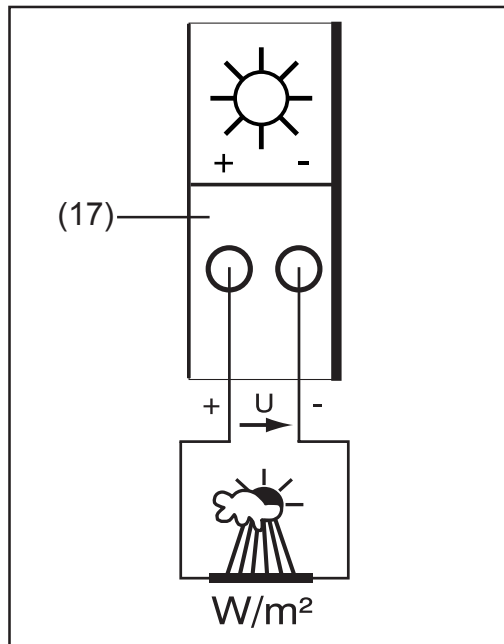


NOTE: The length of the sensor cable should not exceed 20 m to avoid falsifying the measuring results.

Analog Input for Voltage Signal

General explanation:

One analog input (17) is used to analyse a voltage signal from an irradiance sensor. The readings may be analysed either on the FRONIUS IG display or using the FRONIUS IG.access software.



Sample channel assignment:

- Irradiance sensor in the solar module level

Working principle:

- An irradiance sensor with voltage signal is an active sensor that outputs a voltage that rises as the insolation increases.
- The sensor card / box measures the voltage between the two terminals of the analog input (17).
- The irradiance can be derived directly from the measured voltage.

Characteristic values:

The sensor card has three measuring ranges at the analog input (17). Use the FRONIUS IG.access software to select one of the measuring ranges.

- 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 IG.access software so that the sensor card can convert from mV into 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/m²).

Erection and commissioning example:

Measuring the irradiance at the solar modules using the irradiance sensor at the analog input (17).

- Fix the irradiance sensor so that it is parallel to the solar modules
- Connect the irradiance sensor to the analog input (17)
- Use the „FRONIUS IG.access“ software to activate the analog input (17)
 - Enter the required channel name (e.g. „irradiation“)
 - Set the measuring range
 - Specify the conversion factor



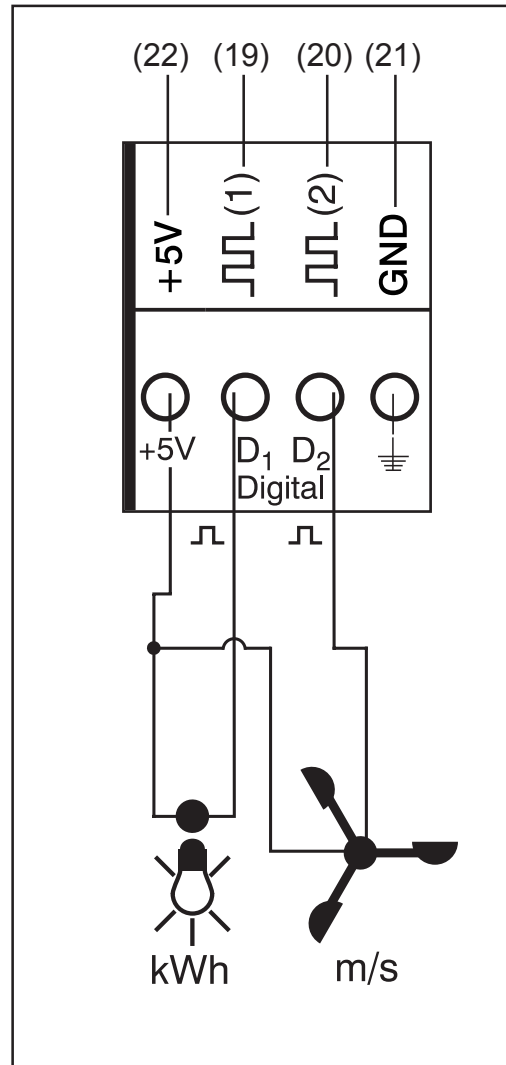
NOTE: The length of the sensor cable should not exceed 30 m to avoid falsifying the measuring results.

Digital Inputs

General explanation:

Digital inputs D_1 (19) and D_2 (20) are used to analyse voltage pulses (e.g. from an electricity meter). Use the FRONIUS IG.access software to analyse the sensor data.

If there is a sensor connected to one of the digital channels (19), (20) of the sensor card / box, the signal can also be analysed on the FRONIUS IG display.



Sample channel assignment:

- Channel D_1 (19) for an electricity meter
- Channel D_2 (20) for a wind speed sensor

Connect sensors without their own power supply to:

- D_1 (19) or D_2 (20)
- „+ 5 V“ (22)

Connect sensors with their own power supply to:

- D_1 (19) or D_2 (20)
- „GND“ (21)

Working principle using an electricity meter as an example:

- The sensor card / box counts the pulses from the electricity meter
- The sensor card calculates the kWh consumed from the number of pulses.
- It is therefore necessary to specify the conversion factor using the FRONIUS IG.access software (e.g. 10240 pulses corresponds to one kWh)

Working principle using a wind speed sensor as an example:

- The sensor card / box counts the pulses from the wind speed sensor
- The sensor card calculates the wind speed from the number of pulses per second.
- It is therefore necessary to specify the conversion factor using the FRONIUS IG.access software (e.g. 7 pulses/second corresponds to one km/h)

Digital Inputs (continued)

First erection and commissioning example:

Measurement of the energy consumption using an electricity meter on channel D₁ (19).

- Install the electricity meter on the appropriate AC lines
- Connect the pulse output of the electricity meter to channel D₁ (19) and „+5V“
- Use the FRONIUS IG.access software to activate channel D₁ (19)
 - Enter the required channel name (e.g. „power consumption“)
 - Select a unit (e.g. 'kWh“)
 - Specify the conversion factor

Second erection and commissioning example:

Measurement of the wind speed using a wind speed sensor on channel D₂ (20).

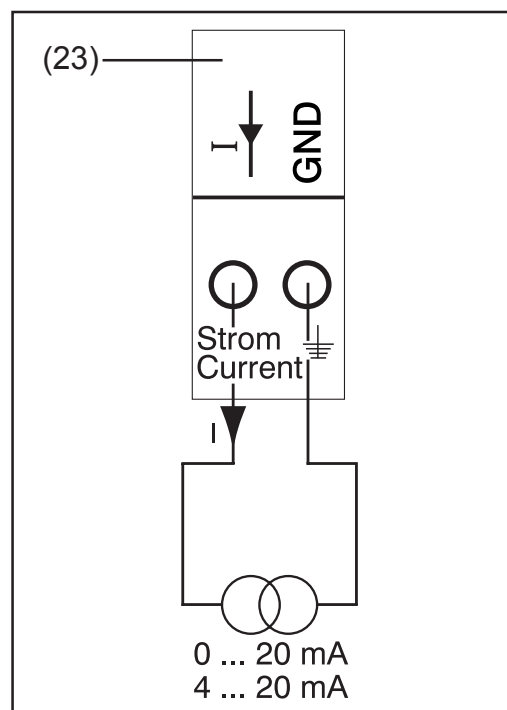
- Fit the wind speed sensor at a suitable position
- Connect the wind speed sensor to channel D₂ (20) and „+5V“ or „GND“
- Use the FRONIUS IG.access software to activate channel D₂ (20)
 - Enter the required channel name (e.g. „wind speed“)
 - Select a unit (e.g. 'km/h“)
 - Specify the conversion factor



NOTE: The length of the sensor cable should not exceed 30 m to avoid falsifying the measuring results.

Analog Input for Current Signal

The analog input (23) is used to connect a sensor using a standard 20 mA power interface. The analysis can only be carried out using the FRONIUS IG.access software.



Sample channel assignment:

- Connect a humidity sensor with current signal to the analog input (23)

Working principle:

- A humidity sensor with current signal is an active sensor that outputs a current that rises as the atmospheric humidity increases.
- The sensor card measures the current between the two terminals of the analog input (23).
- The atmospheric humidity can be derived directly from the measured current.

Analog Input for Current Signal (continued)

Characteristic values:

The sensor card / box has two measuring ranges at the analog input (23). Use the FRONIUS IG.access software to select one of the measuring ranges.

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

Important! Enter the conversion factor using the FRONIUS IG.access software so that the sensor card / box can convert from mA into the desired unit. The conversion factor depends on the sensor and is specified in the sensor datasheet.

Erection and commissioning example:

Measuring the atmospheric humidity using a humidity sensor at the analog input (23).

- Fit the humidity sensor in a suitable location
- Connect the humidity sensor to the analog input (23)
- Use the FRONIUS IG.access software to activate the analog input (23)
 - Enter the required channel name (e.g. „atmospheric humidity“)
 - Select a unit (e.g. ‘%‘)
 - Set the measuring range
 - Specify the conversion factor

Power Consumption of the Sensor Cards

The average power consumption of a sensor card / box is around 1.1 W when used within a PV system.

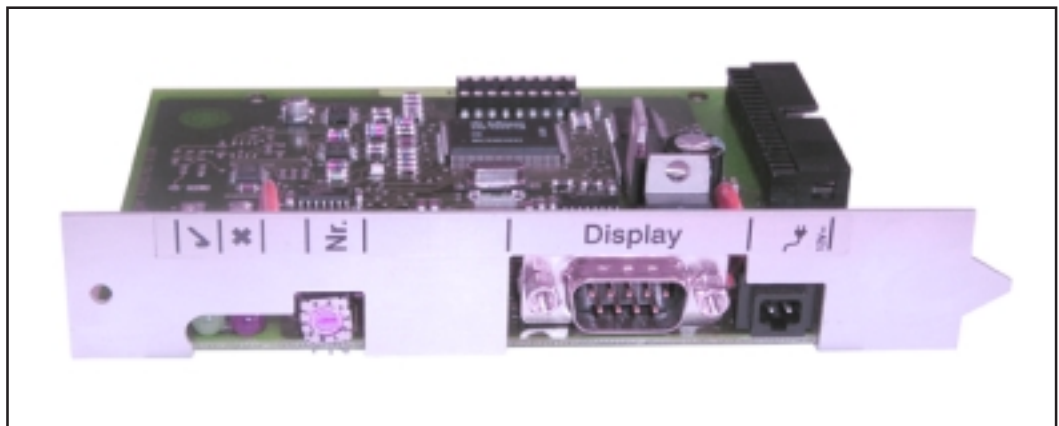
Public display card / box

General

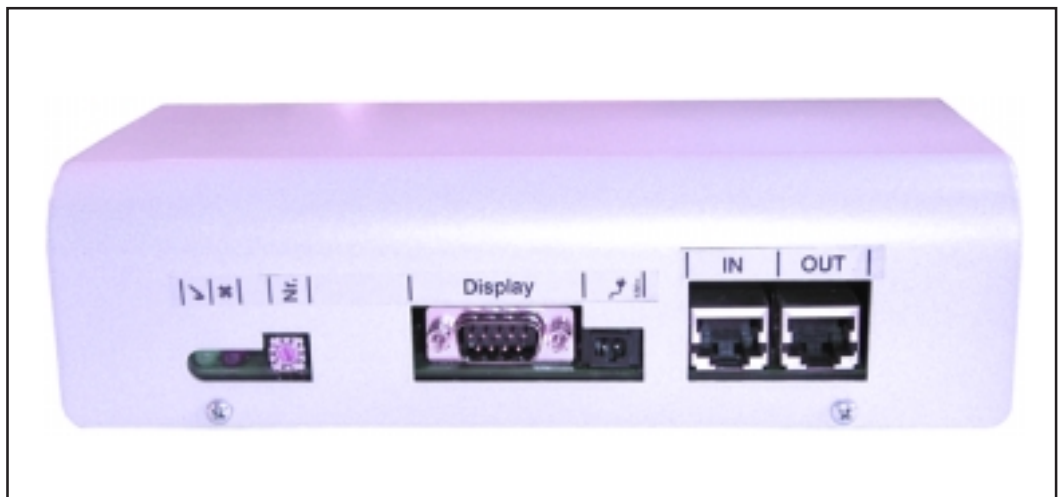
The public display card is available as a card and as a box. The public display card / box is used to connect various large displays. The general connections perform the same functions as for the other DatCom components (setting wheel for addressing, socket for plug-in power pack, LEDs)

The public display card / box has an RS-232 interface that uses a 9-pin submin male connector. The 9-pin submin male connector is used to connect a large display. A photovoltaic system may have up to 10 public display cards / boxes. This means that a system may contain up to 10 different large displays.

Public Display Card



Public Display Box



Configuring

The FRONIUS IG.access software is used to configure the public display card / box for two different display types.

Display type A:

If the FRONIUS alphanumeric display or a Rico display is connected to the display card / box, then the setting is „Display type A“. The public display card / box is programmed to automatically detect the connected display. No further settings are required.

Important! If the irradiance, module temperature or external temperature values are to be displayed, then the corresponding sensors must be connected to the sensor card / box with address 1.

There are some additional (but not absolutely necessary) settings that can be made via FRONIUS IG.access, however. Detailed information on these possible settings can be found in the „FRONIUS IG.access“ section.

Important! With the FRONIUS public display, the public display card is already integrated into the display, which greatly reduces the wiring required.

Display type B:

If the „Display type B“ setting is selected, the public display card / box outputs a defined record via the serial port.

Interface parameters:

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

The record contains the following values:

- Energy total (kWh)
- Today's energy (kWh)
- Current output (kW)
- Irradiance (W/m²) only available if the appropriate sensor is connected to the sensor card / box with address 1.

The record is output in the following format:

- Energy total: 6 digits, no decimal places, in kWh
- Today's energy: 4 digits, no decimal places, in kWh
- Current output: 4 digits, two before and two after the decimal point, in kW (the decimal point is not transferred since it is always in the same place)
- Irradiance: 4 digits, no decimal places, in W/m²

Configuring
(continued)

The record is made up of ASCII characters (97 bytes) and has the following structure:

- Start: #
- Energy total: 6 bytes
- Today's energy: 4 bytes
- Output: 4 bytes
- Empty field: 16 bytes, 20 hex
- Empty field: 2 bytes, 30 hex
- Irradiance: 4 bytes
- Empty field: 2 bytes, 30 hex
- Empty field: 56 bytes, 20 hex
- End : CR LF

Leading zeros are not suppressed.

Important! For „Irradiance“: If there is no suitable sensor, then this value is treated like a „0 W / m²“ measured value.

The average power consumption of the public display card is around 1.2 W.

Interface card/box

General remarks

The interface card/box is available as a card and as a box, and is used to transmit various system data in a freely accessible format. The communications interface complies with RS 232 and is a 9-pin sub-D plug.

The following can be integrated into one system:

- an interface card/box or
- a Datalogger & Interface (function already integrated)

Transferable data (serial interface),

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

Sensors: The temperature, insolation and digital channels of every sensor card/box in the system

For a detailed description of the protocol please visit www.fronius.com

Adjustable baud rates made using „baud“ adjuster on the machine:

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.

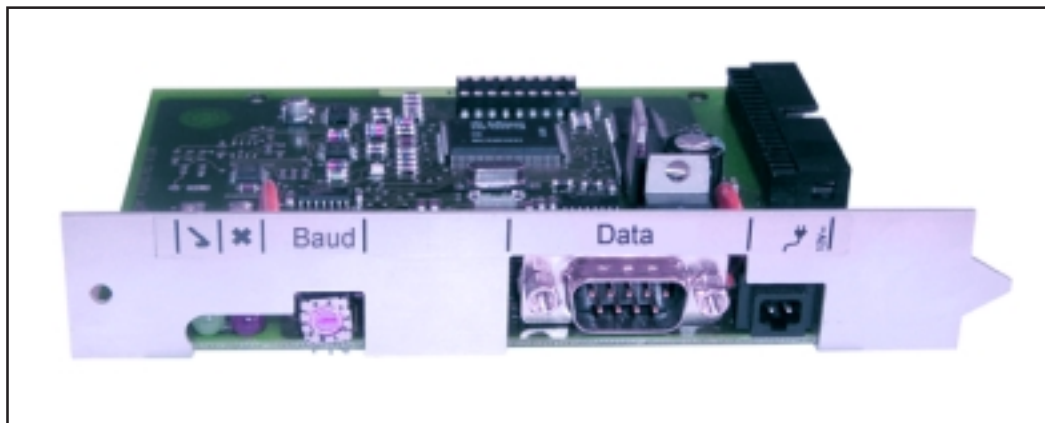
RS 232 pin assignment

2: RxD

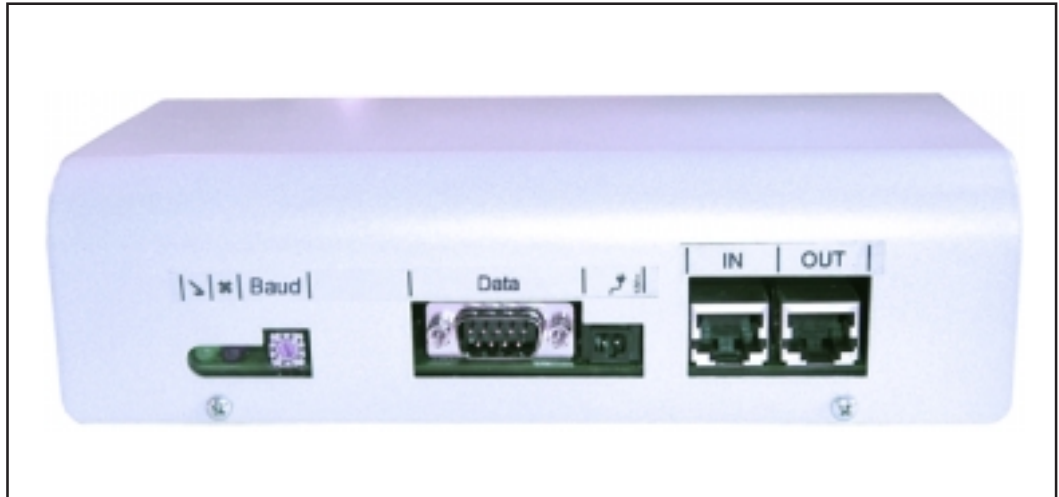
3: TxD

5: GND

Interface Card



Interface box



FRONIUS IG.access software (version 5.1)

General

The readings may be analysed either on the FRONIUS IG display or using the FRONIUS IG.access software.

The FRONIUS IS.access communication software can be used to monitor the precise changes in the operating parameters of your PV system. This allows both statistical analysis of all the operating parameters and rapid diagnosis of operating faults.

For customised recording of the operating data, FRONIUS IG.access will both activate the necessary channels on the sensor card and set the measuring ranges and conversion factors for the sensors concerned.

System Requirements

FRONIUS IG.access has the following hardware requirements:

Minimum requirements:

- PC with Pentium processor (266 MHz)
- 64 MB RAM
- 15 MB free hard disk space
- CD-ROM drive
- Monitor with graphics card
- Free RS-232 interface
- Windows-compliant mouse
- The following operating systems are suitable:
 - Microsoft Windows 98 with Y2K update 2 and Internet Explorer 4.01 service pack 2 (SP2 - or later)
 - Microsoft Windows 98 Second Edition
 - Microsoft Windows Millennium
 - Microsoft Windows NT® 4 service pack 6 (SP6 - or later) and Internet-Explorer 4.01 service pack 2 (SP2 - or later)
 - Microsoft Windows 2000
 - Microsoft Windows XP

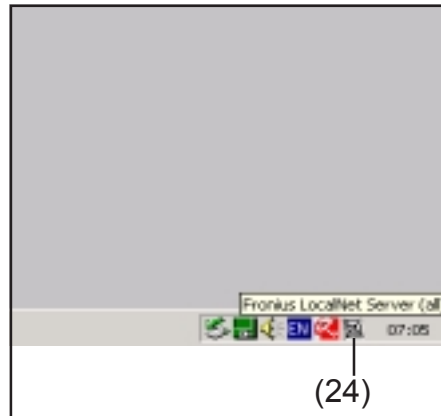
Recommended:

- PC with Pentium III (700 MHz)
- 256 MB RAM

Installing the Modem

If you you want to download from your Datalogger by modem, you will have to install and analog modem on your PC. If you have already installed and analog modem on your PC that is suitable for the Datalogger, then ignore this step.

Exception: If there is an ISDN message modem connected to your Datalogger, then you will have to install an ISDN modem on your PC.



- NOTE:** If you have already installed FRONIUS IG.access, then
- Close FRONIUS IG.access
 - Right-click on the icon (24) for the LocalNet Server and close LocalNet Server

Important! Once you have installed a modem, you will be able to use all the FRONIUS IG.access functions - even from a remote location.

Updating FRONIUS IG.access

If you already have an older version of FRONIUS IG.access installed and want to update it to version 5.1, then repeat the procedure exactly as for the initial installation.

A description of the initial installation can be found in the „Installing FRONIUS IG.access“ section.

- NOTE:** During installation, make sure that you save version 5.1 to the same directory as the older version.

Important! Personal data and entries will be retained after the update.

- NOTE:** If you wish to use all the functions of FRONIUS IG.access 5.1, then you will also have to update the Datalogger to version 5.1. The necessary software and associated instructions can be found in the „Datalogger update“ directory on your CD-ROM or on our home page „www.fronius.com“.

Important! More detailed information can be found in the „Information about the database during the update“ section below.

Information to the Database during the Update

FRONIUS IG.access 1.0 to 3.0.

These versions of FRONIUS IG.access save all the data for the PV system to a single database. This is called „PV system“ (e.g. „Solar 1.fig“). On your data medium, this database can be found in the „IG.access data“ folder.

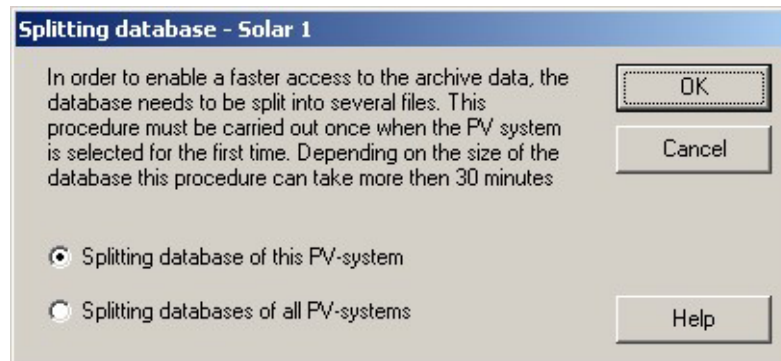
FRONIUS IG.access 4.0

From version 4.0 onwards, the database is split into several smaller databases. This storage method guarantees fast access to the data, even with large volumes of data. On your data medium, the data can be found in the „IG.access data“ folder. The data is split between smaller databases. The „systemname.fig“ file contains all the data needed to display the bar charts. There are also the „annualfigures.igr“ files containing detailed data for the relevant years.

Updating from version 3.0 to version 4.0 or higher

Updating the „FRONIUS IG.access“ software to version 4.0 or higher requires the databases to be split when you start FRONIUS IG.access for the first time. You can either split them immediately for all systems or run the split for individual systems. The procedure can take 30 minutes or more depending on the volume of data and the PC speed.

Important! Splitting the database is very processor-intensive. If you have large volumes of data, then we recommend that you split the database while the PC is not in use (e.g. overnight).



Installing FRONIUS IG.access

The FRONIUS IG.access software is installed largely automatically and requires no particular knowledge.

Close all applications and programs on your PC

- start Windows
- insert the CD-ROM supplied with the Datalogger into the drive
- select the folder with the required language
- run the „setup.exe“ file from that folder
- follow the steps in the setup wizard
- restart the PC once the installation is complete

Establishing a Connection between Datalogger and PC

- Connect the Datalogger to a serial or USB port on your PC, depending on the type of Datalogger

Important! If you wish to connect the Datalogger to the USB port, you will first have to install the USB driver.

- If the Datalogger is connected to the USB port, the „New Hardware Found“ window appears.
- Follow the instruction in the wizard for looking up new hardware.
- The USB driver for the Datalogger is included with „FRONIUS IG.access“.

If you have installed FRONIUS IG.access in the predefined folder, then you will find the USB driver under „C:\Programs\FRONIUS\Austria\IG.access\Driver\USB“.

- Enter this path in order to install the driver and follow the rest of the steps in the wizard.

The USB port is set up and the FRONIUS IG.access software is ready to start.

Starting FRONIUS IG.access

- Start the „FRONIUS IG.access“ software
 - „FRONIUS IG.access“ can be found under „Programs\FRONIUS Product Group\IG.access“ from the Start menu.

Selecting a Serial Port Connection

Once you have started „FRONIUS IG.access“, the „Select Interface“ dialog box appears.

If your PC is not directly connected to the Datalogger and you wish to read from the Datalogger via a modem, then please read the „Selecting a Modem Connection“ section.



- Select the interface on your PC at which the connecting cable for the Datalogger was connected.
- Click on the „OK“ button

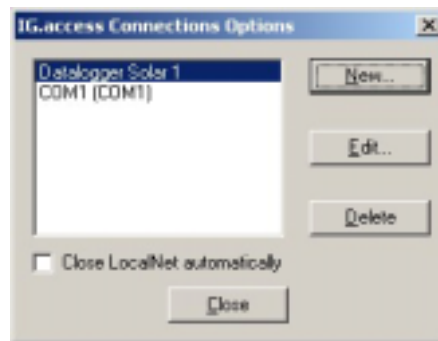
COM Port

If the COM port is selected in the „Select Interface“ dialog box (e.g. „COM1“), the „Net settings“ dialog box appears.



- In the „Name“ box, enter a name for the selected port or retain the suggested name (e.g. „COM1“).
- Click on the „OK“ button

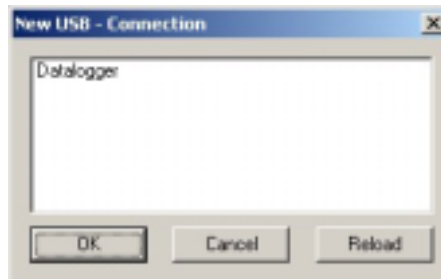
The „IG.access Connections Options“ dialog box opens. This dialog box allows you to create further interfaces. You would need to do this if you wish to connect a separate Datalogger to each port.



- In the example described here, there are no additional interfaces to be created
- So click on the „Close“ button

USB Port

If the USB port is selected in the „Select Interface“ dialog box (e.g. „USB connection“), the „New USB Connection“ dialog box appears.



- Highlight the „Datalogger“ entry
- Click on the „OK“ button



The „Netzeinstellungen“ dialog box opens.

- Change the name of the Datalogger in the „Name“ box, if necessary

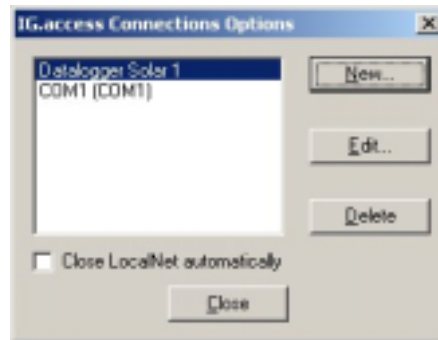
Important! We recommend that you change the name if there are several Dataloggers connected to the USB ports.

- Click on the „OK“ button



USB Port (continued)

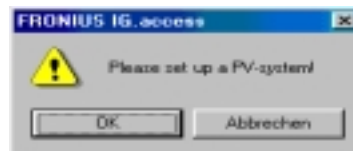
The „IG.access Connections Options“ dialog box opens. This dialog box allows you to create further interfaces. You would need to do this if you wish to connect a separate Datalogger to each port.



- In the example described here, there are no additional interfaces to be created
- So click on the „Close“ button

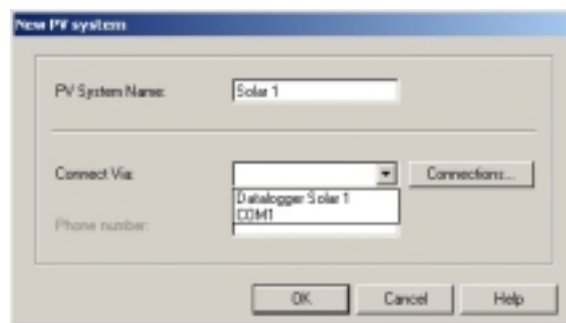
Setting up the Solar System

When you start the „FRONIUS IG.access“ software for the first time, you are prompted to set up a new PV system.

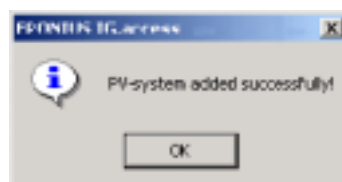


- Click on the „OK“ button

The „New PV system“ dialog box opens.



- In the „PV system name“ box, enter a name for your solar system (e.g. „Solar 1“)
- In the „Connect Via“ box, select the port on your PC to which the connecting cable for the Datalogger is connected (e.g. „COM1“ or „Datalogger Solar 1“)
- Click on the „OK“ button



You have now created your solar system and „FRONIUS IG.access“ is ready for use.

- Click on the „OK“ button

- The starting page of the „FRONIUS IG.access“ software appears.

Selecting a Modem Connection

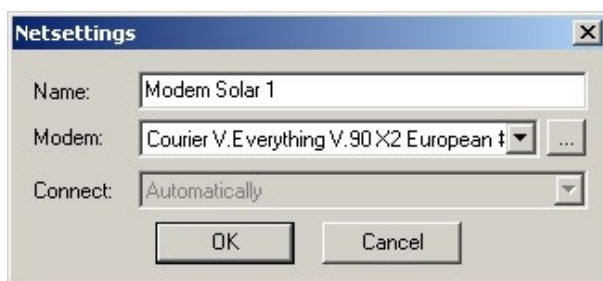
Important! Some changes have been made in this area in version 4.0 to make it easier to set up modem connections.

Once you have started „FRONIUS IG.access“, the „Select Interface“ dialog box appears:



- Select the „Modem connection“ entry
- Click on the „OK“ button

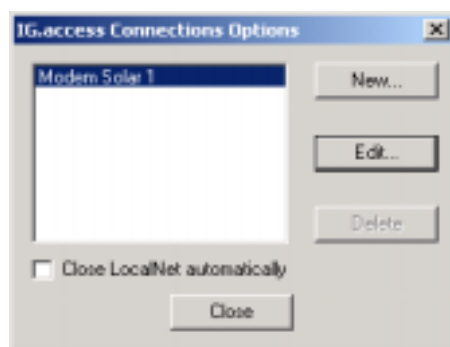
The „Net settings“ dialog box opens.



- Enter a name for the modem (e.g. „Modem Solar 1“). This will allow you to download from your PV system using different modems.
- Select the modem that you have installed on your computer.

Click on the „OK“ button.

The „IG.access Connections Options“ dialog box opens.

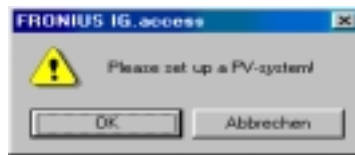


- In the example described here, there are no additional connections to be created
- So click on the „Close“ button



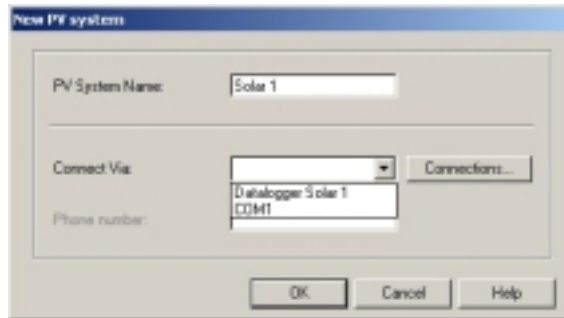
Selecting a Modem Connection (continued)

When you start the „FRONIUS IG.access“ software for the first time, you are prompted to set up a new PV system.



- Click on the „OK“ button

The „New PV system“ dialog box opens.



- In the „PV System Name“ box, enter a name for your solar system (e.g. „Solar 1“)
- Enter the modem connection in the „Connect Via“ box (e.g. „Modem Solar 1“).
- Enter the telephone number of the Datalogger modem in the Phone number box.



NOTE: If the modem is connected to your PC via a telephone system, you must enter a comma („,“) after the „0“. In this case, disable the „Wait for dial tone before dialling“ option on your PC.

- Click on the „OK“ button

The „Connect“ dialog box opens.



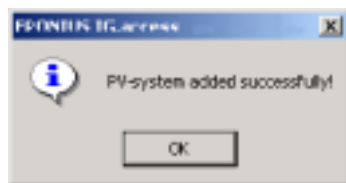
- You must now call your solar system in order to identify the Datalogger. Click on the „Dial“ button.



Important! The line is automatically disconnected once the Datalogger has been identified successfully.

Selecting a Modem Connection (continued)

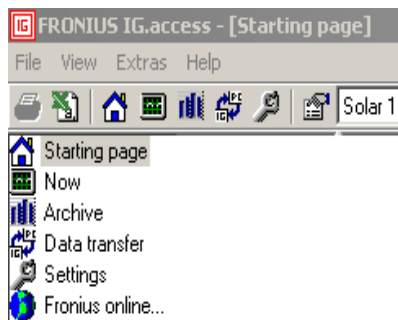
The following window then appears:



When you click on the „OK“ button, the starting screen for the „FRONIUS IG.access“ software appears:

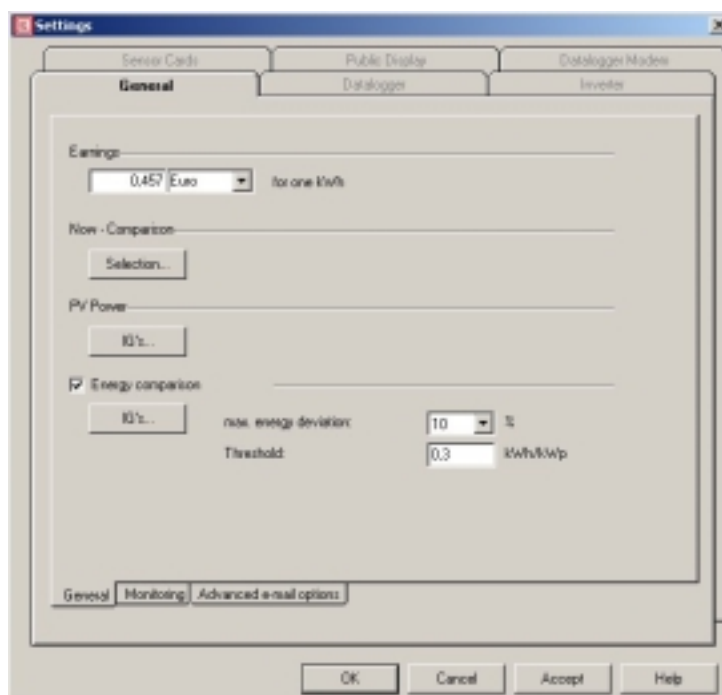
Settings

The „Settings“ section covers the general system settings.



- Select the „Settings“ menu option

The „Settings“ dialog box appears.



The following sections describe the tabs in the „Settings“ dialog. These are:

- „General - General“
- „General - Monitoring“
- „General - Advanced e-mail options“
- „Datalogger“
- „Datalogger Modem“
- „Inverter“
- „Sensor Cards“
- „Public Display“



„General - General“

The „General - General“ tab is selected by default.

- Under „Earnings“, enter the feed-in tariff for one kWh (e.g. „0.457 | „Euro“)

Energy comparison - general information

After each data transfer, „FRONIUS IG.access“ can automatically analyse the energy generated by your photovoltaic system. If an error is detected, then a warning will be output. It is also possible to have this warning forwarded by e-mail.

Make the following settings for the „Energy comparison“:

- Click on the „IGs...“ button
- Define which inverter you wish to use to check your PV system.
- Also specify the PV power connected to the FRONIUS IG, if you did not do this under „PV Power“.

How does „FRONIUS IG.access“ analyse the data?

After each data transfer, „FRONIUS IG.access“ automatically calculates the energy fed into the grid on that day in kWp. This is done for each inverter for which the monitoring was activated.

„FRONIUS IG.access“ calculates an average of the day’s energy fed in for each FRONIUS IG. If one or more FRONIUS IG units reveals an unacceptable deviation from this average, „FRONIUS IG.access“ generates an error message.

Important! This calculation is not carried out on PV systems with just one FRONIUS IG. In this case, an error message is output if the inverter does not feed any power into the grid over the course of a day.

Energy deviation

The reference variable for the maximum energy deviation is the average of the day’s energy for all FRONIUS IG units per kWp. The maximum energy deviation determines the maximum extent to which a FRONIUS IG can deviate from the average. The maximum permitted energy deviation may be set to 1 - 100 % for each FRONIUS IG.

Important! Avoid setting the tolerance too low (< 5 %) since this can increase the number of false alarms.

Threshold

The threshold indicates the minimum value from which the energy fed in should be calculated. If the average for the fed-in energy per kWp falls below this threshold, then no energy comparison is carried out. An error message is still output, however, if the energy fed into the grid from a FRONIUS IG remains totally below this value for a whole day.

Entering the threshold prevents false alarms on days with very low irradiance or if the modules are partly covered with snow. A value of 0.3 kWh / kWp could have the following significance for the energy fed into the grid on the day concerned:

- Full power for just 0.3 hours
- Operation for 3 hours with a power of just 10 % This is equivalent to a very cloudy winter's day.

Energy comparison example

The following example is intended to illustrate how „FRONIUS IG.access“ carries out an energy comparison. On one day, four FRONIUS IG inverters (IG nos. 1 to 4) supply the following feed-in values (energy/day):

IG no.	IG type	PV power (Wp)	Energy/day (kWh)	Energy/day (kWh/kWp)
1	IG 60	5500	33	6
2	IG 30	2750	16.5	6
3	IG 30	2750	11	4
4	IG 30	2750	16.5	6
Average				5.5

The following settings were made in „FRONIUS IG.access“:

- Max. energy deviation: 10 %
- Threshold: 0.3 kWh/kWp

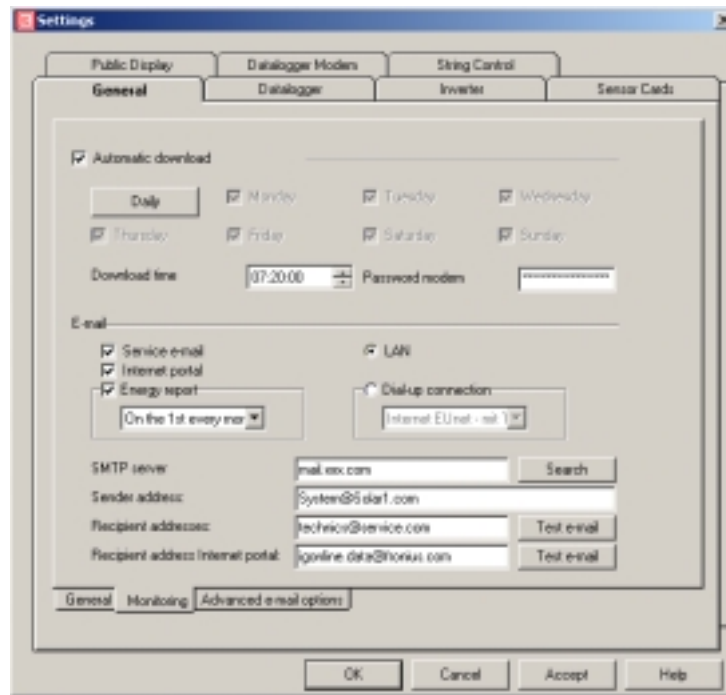
The average of 5.5 kWh/kWp is clearly above the threshold of 0.3 kWh/kWp. An energy comparison is thus carried out.

For FRONIUS IG no. 3, the table gives a fed-in energy of 4 kWh/kWp. This falls below the average (5.5 kWh/kWp) by around 27 %, which is significantly more than the specified energy deviation of 10 %.

This would result in an error message in „FRONIUS IG.access“. If required, a message would also be sent by e-mail.

„General - Monitoring“

- Select the „General - Monitoring“ tab



Automatic download

„FRONIUS IG.access“ supports automatic downloading from photovoltaic systems. The data transfer for each PV system takes place automatically, provided that the following requirements are fulfilled:

- „FRONIUS IG.access“ was running at the set download time.
- The connection to the PV system is maintained (for direct connections via COM ports).
- There is a free modem available for dialling (for a modem connection).
- Automatic download
If Automatic download is active, select the day of the week on which the download is to take place
- Download time
Enter the time at which you want „FRONIUS IG.access“ to carry out the download
- Password modem
If the PV system is protected with a modem password, then please enter it here.

Important! If „FRONIUS IG.access“ was not running at the set time, then the dial-up will take place as soon as the software is started.

It is also possible to start „FRONIUS IG.access“ automatically whenever you start up your PC. To do this, move the „access.exe“ file into the following menu option on your desktop:

- Start:\ Programs \ Autostart

E-mail (settings)

- Service e-mail
If the energy comparison identifies an unacceptable deviation, then a service e-mail can be used to notify up to 6 people. The service e-mail contains a .CSV file. This supports the popular spreadsheet programs (e.g. MS Excel) and contains information about the inverter deviation. The .CSV file is saved to the same folder as the database on your hard disk, regardless of how the e-mail is sent. Select the „File - Open service e-mail“ menu option to open the .CSV file.

Important! The „Service e-mail“ setting is only available if the energy comparison is active.

- Internet portal
If the PV system data is to be sent from „FRONIUS IG.access“ to the „FRONIUS IG.online“ Internet server:
Check the „Internet portal“ check box.
In the „Recipient address Internet Portal“ box, enter the e-mail address of the portal „igonline.data@fronius.com“.

Important! See the „FRONIUS IG.online“ operating instructions for more detailed information about sending the PV system data via „FRONIUS IG.access“.

- Energy report
The energy report is used to analyse the energy data for the PV system using „FRONIUS IG.access“. The analysis is carried out at regular intervals (daily, weekly, monthly) and the energy report is then sent by e-mail. The energy report is attached to the e-mail as a .CSV file. The file is also stored in the same folder as the database on your hard disk. To open, select the „File - Open energy report“ menu option.

LAN/Dial-up connection

- If your PC is part of a LAN, select the „LAN“ option for connecting to the Internet. If you select the „Dial-up connection“ option, „FRONIUS IG.access“ offers a list of dial-up connections installed on your PC.

SMTP server

- Enter the name of your SMTP server in this field. If you selected the „LAN“ option, then you can use the „Search“ function to search for the SMTP server. If you selected „Dial-up connection“, enter the name of your SMTP server. You were either given this address when you registered your e-mail account, or you can find it on the Internet. Examples of SMTP service providers are:
 - t-online: smtpmail.t-online.de
 - GMX: mail.gmx.net
 - Yahoo: smtp.mail.yahoo.de or smtp.mail.yahoo.com

**„General -
Monitoring“**
(continued)

Sender address

- Enter the sender of the service e-mail and energy report in this box.
- If you wish to monitor several PV systems using a PC, we recommend the following procedure:
Select the „Advanced e-mail options“ tab.
Enter the name of the PV system in the „Displayed name“ box.
This will allow any e-mails received to be clearly allocated to a specific PV system.

Recipient address

- Enter the recipient of the service e-mail and energy report in this box. If there are several recipients (up to 6), separate the addresses with semicolons „;“.

Important! Once you have made all the settings, we recommend that you send a test e-mail in order to check that all the settings have been accepted correctly.

**„General -
Advanced e-
mail options“**

Displayed name

- In this field, enter the name under which the e-mail will be displayed in your inbox.

Important! If this field is left blank, the e-mail will be displayed with the name entered under „Sender address“.

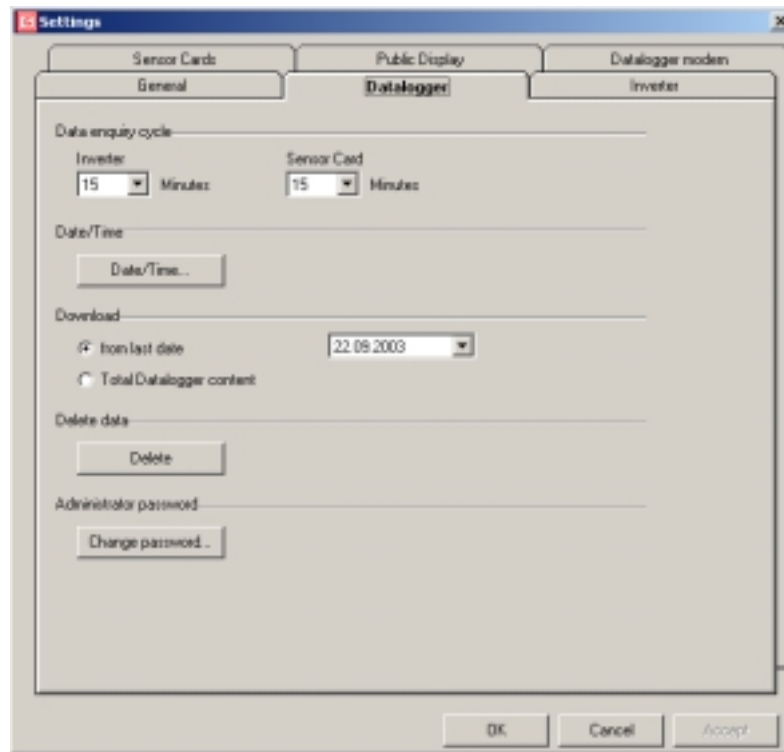
It is not necessary to change any of the other settings unless your e-mails are sent via a free mail account (e.g. gmx, hotmail, etc).


In this case, select the following options:

- Tick the „SMTP Login“ box
- Enter user name (= customer number on gmx) and password. You will have received this information when you registered for your free mail account.

All the other settings are already defined in „FRONIUS IG.access“. Changes to these settings are not necessary. If, however, you have any queries about the settings, contact the FRONIUS Service Hotline.


„Datalogger“ - Select the „Datalogger“ tab



 **NOTE:** Only changes to settings in the „General“ area can be made without connecting to the Datalogger.

„Data enquiry cycle“ area:

- In the „Inverter“ box, set the time intervals at which the Datalogger should save the data from your FRONIUS IGs.
- In the „Sensor cards“ box, set the time intervals at which the Datalogger should save the data from your sensors.

 **NOTE:** A shorter time interval will mean that the Datalogger takes longer to save the data.

Date/Time:

- Correctly set the system time of your solar system in the „Date/Time“ box. (A separate dialog box appears. Click on the „OK“ button to accept the set time).

„Download“ area:

- The „Download“ area is used to define whether the following should be called during a PC download:
 - the content of the Datalogger since the last download („from last date“)
 - the entire content of the Datalogger („total Datalogger content“)

Important! We recommend the „from last date“ setting so that the download will be faster and data that has already been archived does not have to be saved again.



„Datalogger“ (continued)

„Delete data“ area:

- In the „Delete data“ area, do not click on the „Delete“ button unless you really want to delete all the data stored in the Datalogger.



NOTE: You will not normally need to use the „Delete“ button.

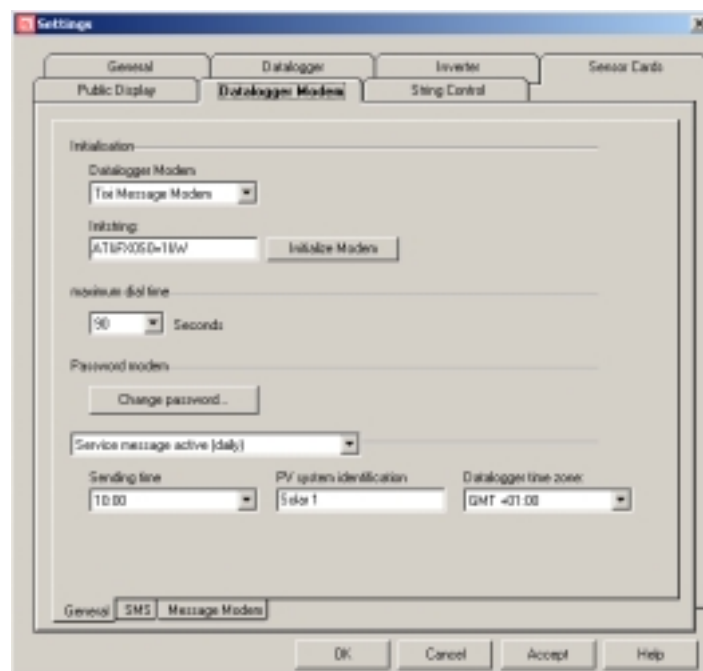
„Administrator password“ area:

- Under Administrator password, you can specify a password that will protect the „Settings“ area.
- This password is independent of the modems (see explanatory note for the „Datalogger modem“ tab).

Important! No password is set at the factory. If you wish to allow access to your photovoltaic system via modem, we recommend that you assign a password. This will prevent the settings being changed by unauthorised third parties.

„Datalogger Modem“

- Select the „Datalogger Modem“ tab



On the „Datalogger Modem tab, configure the modem that is connected to the Datalogger. This is only possible if you have a direct connection to the Datalogger (via the PC port).

- Select the modem that is connected to the Datalogger.
- If you are using the „USR VR.Everything“ modem, select your country: The initialisation string („Initstring“ dialog box) changes automatically for the set country.

„Datalogger Modem“ (continued)

Important! It is still possible to customise the initialisation string, however, by adding AT commands to the „Initstring“ dialog box or modifying the existing AT commands.

- The maximum dial time is preset to 90 seconds. FRONIUS recommends that you retain this setting. The setting determines the maximum time that the modem can take to dial in before the attempt is cancelled.
- Entering a password: You can protect your PV system by entering a password. You will be prompted to enter the password whenever you call the Datalogger by modem.
- Click on the „Initialize modem“ button
- Click on the „OK“ button

If a fault occurs in your photovoltaic system, you can be sent a text message (SMS) as notification. If you are using a message modem, the notification may also be sent by fax or e-mail. To activate the service message:

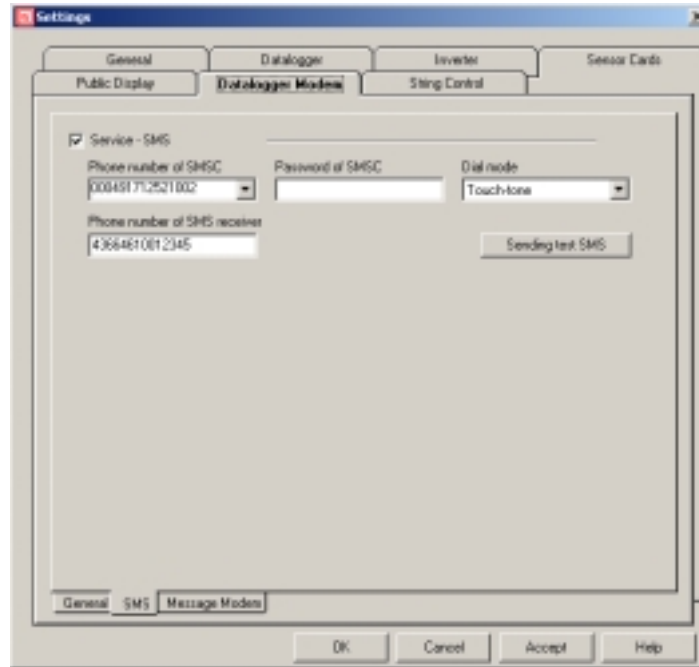
- Select the „Service message active (immediately)“ or „Service message active (daily)“ setting.
 - Immediately: The error messages are sent immediately after the fault occurs.
 - Daily: The error messages are sent once a day, at the specified time.
- For the „Service message active (daily)“ setting: For the sending time, set the time at which the Datalogger should send the service message.
 - The Datalogger checks daily at this time to identify whether an error has been signalled, and sends a service message if this is the case.
- In the „PV system identification“ box, enter the name of the photovoltaic system concerned (e.g. „Solar 1“).
 - In this way, if an SMS notification is sent it is possible to identify the PV system from which the SMS comes.
- In the „Datalogger time zone“, enter the time zone of your photovoltaic system.

„Datalogger
Modem“
(continued)

„FRONIUS IG.access“ offers two ways of sending service messages:

1. By SMS
2. By e-mail or fax using a message modem

If the service message is to be sent by text (SMS), select the bottom „SMS“ tab.



- Check the „Service SMS“ check box
- Select one of the specified services.
 - The recommended setting for your country can be found in the „Datalogger“ section
 - If necessary, you can also enter the telephone number (using a foreign service, modem is in a telephone system, etc)
Example: The D1 service (Germany) is to be used from Austria. It is therefore necessary to change the D1 telephone number from 0.... to 0049....

Important! If you are using the „IG.message“ software, rather than an SMS centre:

- Enter the telephone number of the connection dedicated to „IG.message“.
- If using one of the services recommended by FRONIUS, leave the „Password of SMSC“ field blank.
- If using some other service, ask for a password and enter it here
- If your telephone system requires it, change the dial mode to „Pulse dialling“

„Datalogger Modem“ (continued)

- Enter the number of the mobile phone that is to receive the SMS.
 - You may enter up to three phone numbers.
 - Use „;“ to separate the phone numbers, without any spaces.
 - Please note: Not all services allow you to send multiple SMS texts (see „Datalogger“ section)
 - If you are using a foreign service: Enter your own country prefix (0043xxx in the above example)

Check that your settings are correct:

- Click on the „Sending test SMS“ button to send a test SMS.

The Datalogger dials the SMS Service Centre (SMSC) via the modem. Within a few seconds, you will receive an SMS on the specified number. The SMS has the following content: „Solar 1: Test SMS“

Important! The test SMS will be sent regardless of the time that you set to send the SMS text. It normally only takes a few seconds for the SMS to arrive. However it can take a few minutes for the text to appear if the service is busy.

Important! In addition to the monitoring by the FRONIUS IG, the Datalogger is also able to detect errors and generate an SMS text.

Service code „State 998“:

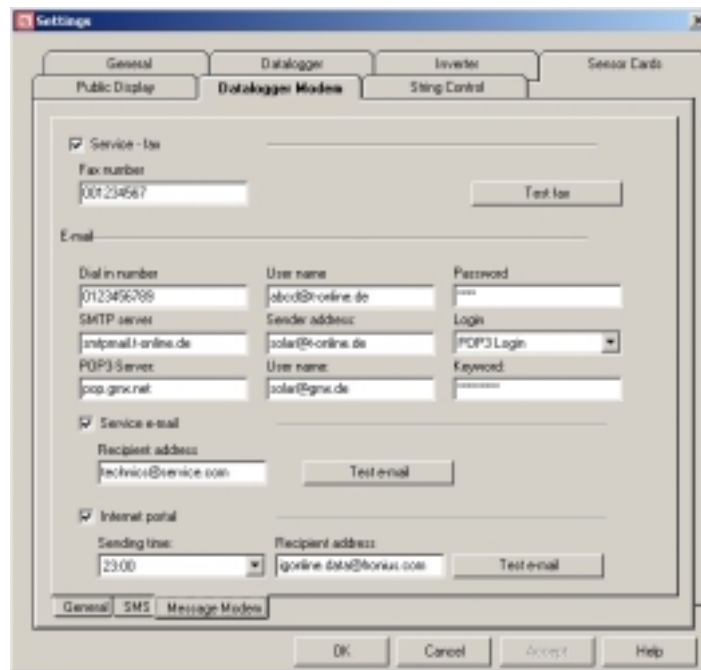
If the Datalogger detects that the DatCom system has not been working for 24 hours (e.g. broken cable), the monitoring system can no longer be guaranteed to work correctly. Service code „State 998“ is therefore used to monitor the self-diagnosis system.

Service code „State 999“:

If a FRONIUS IG is unable to communicate with the Datalogger for 24 hours (e.g. solar modules covered with snow), service code „State 999“ is sent as an SMS.

„Datalogger Modem“
(continued)

Only in conjunction with a message modem: If the service message is to be sent by e-mail or fax, select the „Message Modem“ tab.



For service messages sent by fax:

- Check the „Service fax“ check box
- Enter the phone number of the fax machine to which the service message is to be sent

Check that your settings are correct:

- Click on the „Test fax“ button to send a test fax

For service messages sent by e-mail:

- Enter the dial-in number
- Enter the user name
- Enter the password
- Enter the SMTP server
- Specify the sender's address of the e-mail account that is to send the e-mails via the Datalogger
- Check the „POP3 login“ check box if your provider requires a POP3 login
- If your provider requires an SMTP or pop3 login, select the appropriate login type and fill in the blank fields.
- If using a pop3 login, enter the name of the pop3 server
- Enter user name and password (your e-mail provider will provide your user details).

Important! Message modems do not support SMTP login.

9. To send service messages:

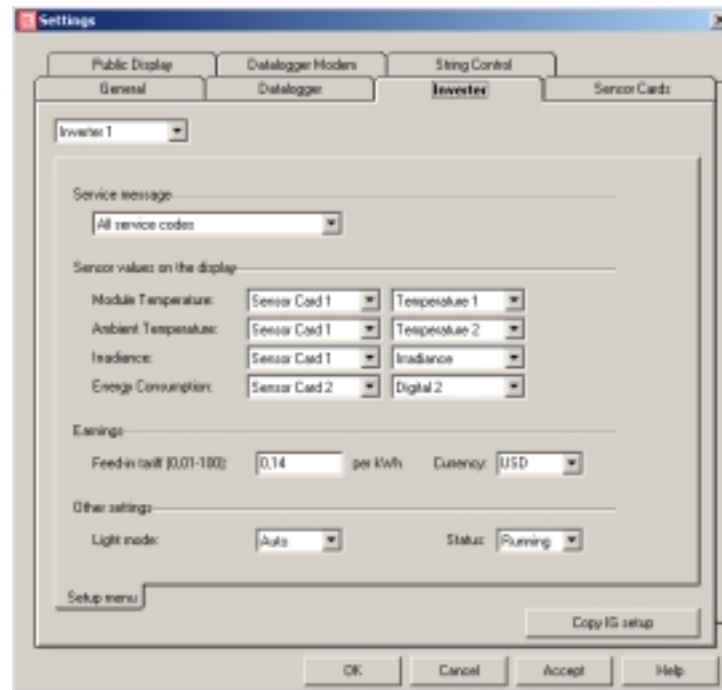
- Check the „Service e-mail“ check box
- Enter the e-mail address to which the message is to be sent
- Click on the „Test e-mail“ button to send a test e-mail to the specified e-mail address

„Datalogger Modem“
(continued)

10. If you want the Datalogger to send data to the FRONIUS IG.online web server:
 - Check the „Internet portal“ check box
 - Enter the time at which the data is to be sent (we recommend that you transfer the data at night)
 - Enter the e-mail address for FRONIUS IG.online („igonline.data@fronius.com“)

„Inverter“

- Select the „Inverter“ tab



Here you can make various settings as in the setup menu for the display on your FRONIUS IG.

- Select the FRONIUS IG for which you want to change the settings.

You can make the following settings for the notification by SMS:

- No service message
 - All service codes
(service message for temporary and permanent service codes)
 - Permanent service codes (service message for permanent service codes only)
- A. Temporary service codes:
- These service codes only appear temporarily and prevent feeding into the grid for a short time. Example: disconnection due to grid fluctuations
 - A service message is sent if a temporary service code occurs more than 50 times in one day.



„Inverter“ (continued)

- B. Permanent service codes:
- Service codes that concern at least one fault in the FRONIUS IG and cause the inverter to stop (e.g. hardware fault).
 - The service message is sent if a permanent service code is displayed for more than 4 hours 15 minutes.

Important! If there is no modem connected to your Datalogger and it is thus not possible to receive a service message from your photovoltaic system, we recommend that you use the „All service codes“ default setting.

Sensor values on the display:

If your PV system contains a sensor card / box, the display on your FRONIUS IG can show the following parameters:

- Two temperature values
- One irradiance value
- The value from another sensor

The factory setting is to display the values from sensor card / box with address 1.

Earnings:

Here you can set the feed-in tariff and the currency. The FRONIUS IG will use these values as the basis for calculating the earnings.

Important! The currency and earnings settings relate to the values that appear on the FRONIUS IG display and not to the values in the „FRONIUS IG.access“ archive.

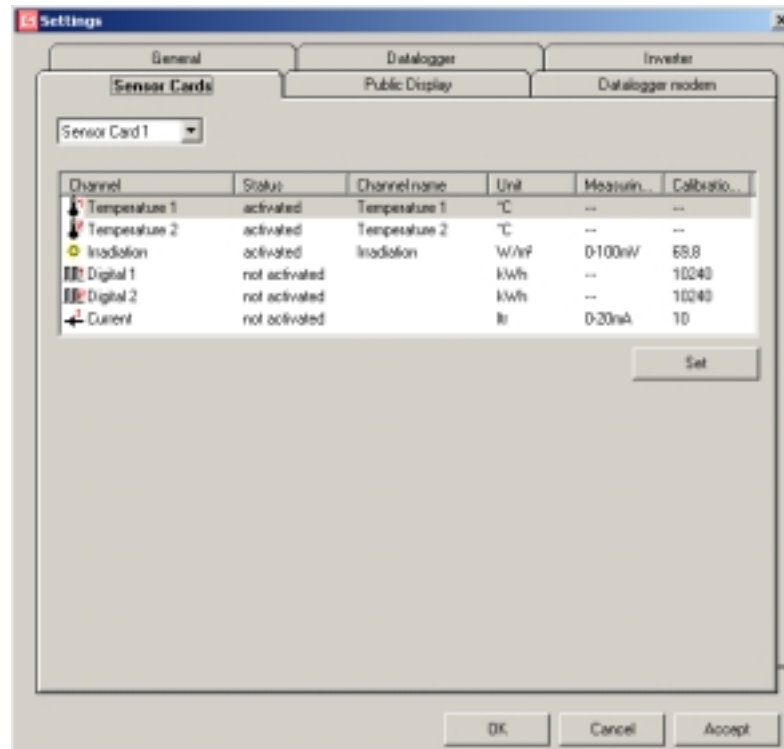
Other settings:

- You can set the display light to „ON“, „OFF“ or „Auto“ as described in the FRONIUS IG operating instructions.
- The „Status“ field is used to set the inverter to standby mode (e.g. for maintenance work).
- The „Copy IG setup“ button is used for photovoltaic systems with several FRONIUS IG units. To use the settings for one FRONIUS IG for other inverters, click on the „Copy IG setup“ button.
 - All the FRONIUS IG inverters that are currently active on the LocalNet appear on the right of the display box.
 - Use the „<“ and „>“ buttons to select and deselect individual FRONIUS IG inverters.
 - Click on „OK“ to transfer the settings you have just made to the selected inverters.

Important! When you use the „Copy IG setup“ function, only the settings you have just modified are accepted. Not all of the settings are transferred.

„Sensor Cards“

- Select the „Sensor Cards“ tab

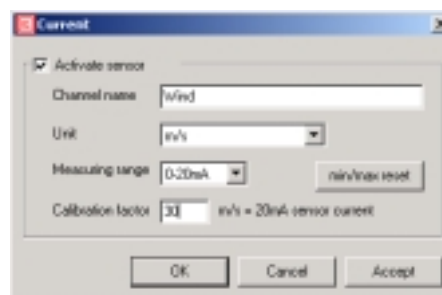


The sensor card transfers the data from the connected sensors to the Datalogger at regular intervals. The „FRONIUS IG.access“ software records any new data at every download.

The operating data diagrams are updated accordingly. Enable the relevant channels on the sensor card / box to ensure that only the operating data for which the relevant sensors are connected to the sensor card / box is recorded and displayed:

- Select the required sensor card / box from the small drop-down list box (e.g. „Sensor Card 1“)
- In the large list box, select the first channel to be enabled (e.g. „Current“)
- Click on the „Set“ button

A dialog box for the channel to be enabled appears (e.g. „Current“):



- Click on the „Activate sensor“ button
- In the „Channel name“ box, enter a name for the channel to be enabled (e.g. „Wind“)

**„Sensor
Cards“**
(continued)

- In the „Unit“ box, enter a name for the unit of the variable to be recorded by the sensor (e.g. „m/s“ for the wind speed)

The sensor card has several measuring ranges on some channels. The measuring range depends on which sensor is used. Select a measuring range that tallies with the range of the sensor output signal. This value must tally with the sensor datasheet. Choose between the measuring ranges as follows:

- In the „Measuring range“ box, specify the range of the sensor output signal (e.g. „0-20 mA“).

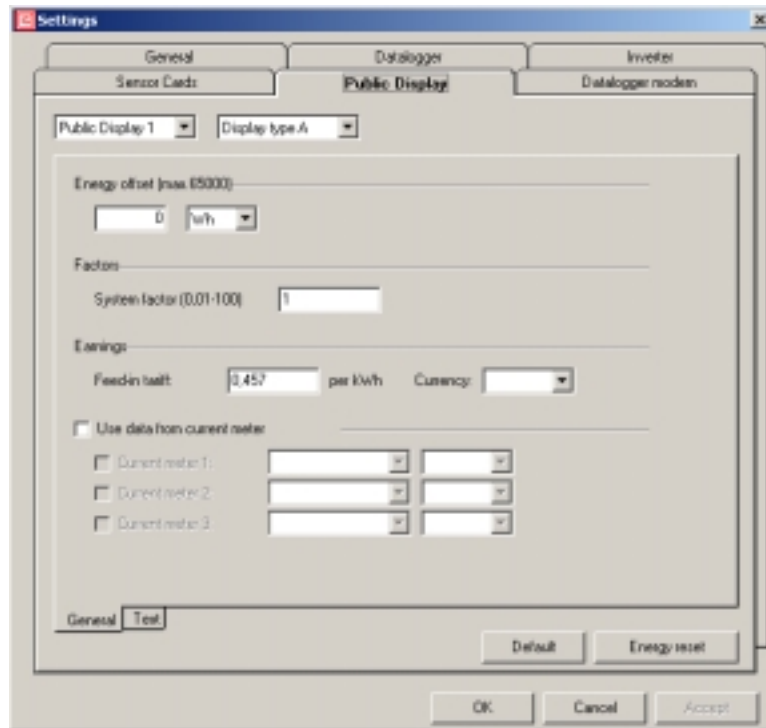
On some channels, the sensor card calculates the displayed value of a physical variable on the basis of a sensor measurement signal that, in turn, is based on another physical variable.

- It is therefore necessary to specify the conversion factor using the „FRONIUS IG.access“ software (e.g. „30“ m/s wind speed corresponds to 20 mA output current from the sensor)
- The conversion factor depends on the sensor and is specified in the sensor datasheet.
- In the „Calibration factor“ box, enter the conversion factor for the variable to be measured by the sensor (e.g. „30“ m/s = 20 mA sensor current)
- Click on the „OK“ button
- Repeat the procedure for the „Current“ channel in order to enable the other channels.
- Click on the „OK“ button in the „Settings“ dialog box

You have now made all the necessary settings and the DatCom system will work without any further settings.

„Public Display“

- Select the „Public Display“ tab.



„Display type“:

The „Display type“ setting defines the data transmission method between the public display card / box and the public display.

If a FRONIUS IG or Rico display is connected to the public display card / box:

- Select „Display type A“

If you want to use the output of the default record (see „Public Display Card“ section):

- Select „Display type B“

„Energy offset“:

„Energy offset“ allows you to set an offset in order to make corrections to the energy display. This applies to the total energy display for the photovoltaic system: The offset is added to the value that was determined by your FRONIUS IG.

The set offset is also used to correct the „Total earnings“ and „Total CO₂ saving“ display values. The offset is automatically added to the specified display values.

Important! Only positive values can be displayed.

„System factor“:

The „System factor“ multiplies all the energy and power data from the photovoltaic system (and the data calculated from these values, such as CO₂ saving and Earnings). In this way, the display can be limited to just a certain part of the photovoltaic system.

„Public Display“
(continued)

„Earnings“:

The public display card/box calculates the earnings for the entire photovoltaic system from the energy data for the individual FRONIUS IG inverters. You will have to enter the feed-in tariff. This feed-in tariff setting is independent of the tariff set on the FRONIUS IG and in „FRONIUS IG.access“.

If an alphanumeric display (text display) is used, you can also specify a currency unit in addition to the feed-in tariff. A one to three-character code may be used to specify the currency.

„Use data from current meter“:

If your photovoltaic system also includes sensor cards / boxes with connected current meters, then the public display can display the data from these meters. The energy and power data from up to three meters is added together and displayed.

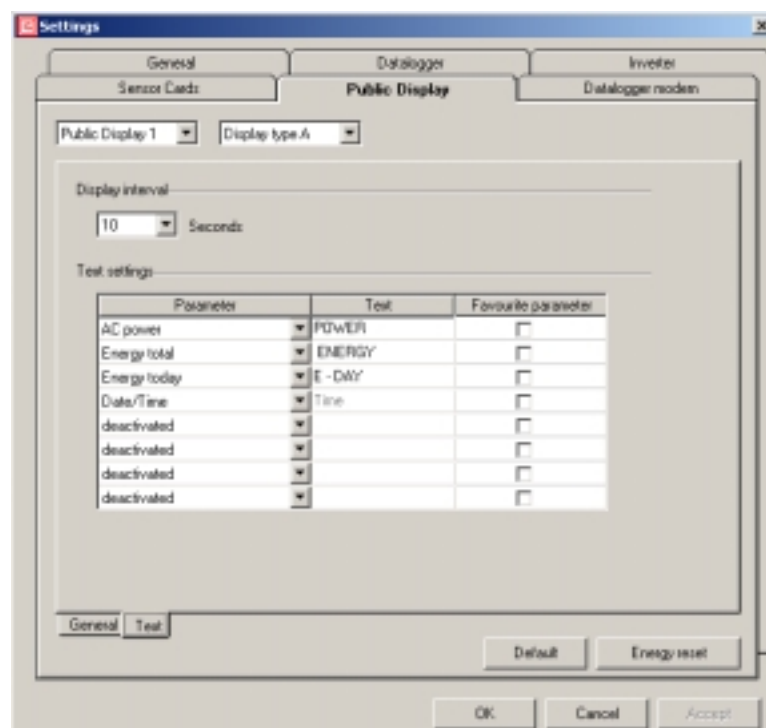
„Default“:

Resets the settings to their default values.

„Energy reset“:

The public display card / box determines the energy data by querying all the FRONIUS IG inverters in the photovoltaic system. If you want to remove a FRONIUS IG from the photovoltaic system or give it a different address, then the associated energy data (day, year, total energy) will be retained. An „Energy reset“ will delete the values of FRONIUS IG units not in the system.

There are further settings that can be made if the alphanumeric FRONIUS public display is connected to the public display card / box:



„Public Display“
(continued)

This tab appears when an alphanumeric display (text display) is connected to the public display card / box.

„Display interval“:

The alphanumeric display allows you to display several values in succession. The duration for which a value is displayed before the next value is displayed can be set to between 1 and 60 seconds.

„Text settings“:

There are 14 different values. Up to 8 of these values can be selected. The selected value and the associated unit (determined by the public display) appear on the second line of the display. The first line is used to display a text associated with the value (up to 8 characters long).

Important! No text can be displayed on the first line for the time and date. This is because the first line of the date and time display is already reserved for the date.

„Favourite parameter“:

One of these eight values can also be defined as the favourite parameter. This value will then be shown every other time the display changes.

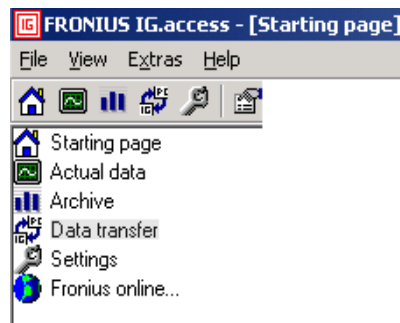
Example: The AC power is identified as the favourite parameter in addition to the other values of „Energy total“ and „Irradiance“. The sequence on the display is then:

- AC power
- Energy total
- AC power
- Irradiance
- AC power
- Energy total

Important! The module temperature, external temperature and irradiance values are only available if the corresponding sensors are connected to the sensor card / box with address 1.

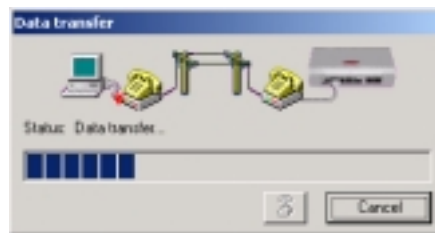
Downloading and Archiving the System Data

After a short time, the Datalogger contains a large volume of data that will have to be analysed on the PC.



- Select the „Data transfer“ menu option from the starting page of the „FRONIUS IG.access“ software.

The „Data transfer“ dialog box opens. The new data is then transferred to your PC and added to the data archive.



The data transfer takes place in 3 steps:

- „Data transfer“
- „Saving data“
- „Recalculating archive data“

Important! The process can take a few minutes, and essentially depends on the following factors:

- Type of connection (modem or direct connection)
- Size of PV system
- Data enquiry cycle
- PC speed

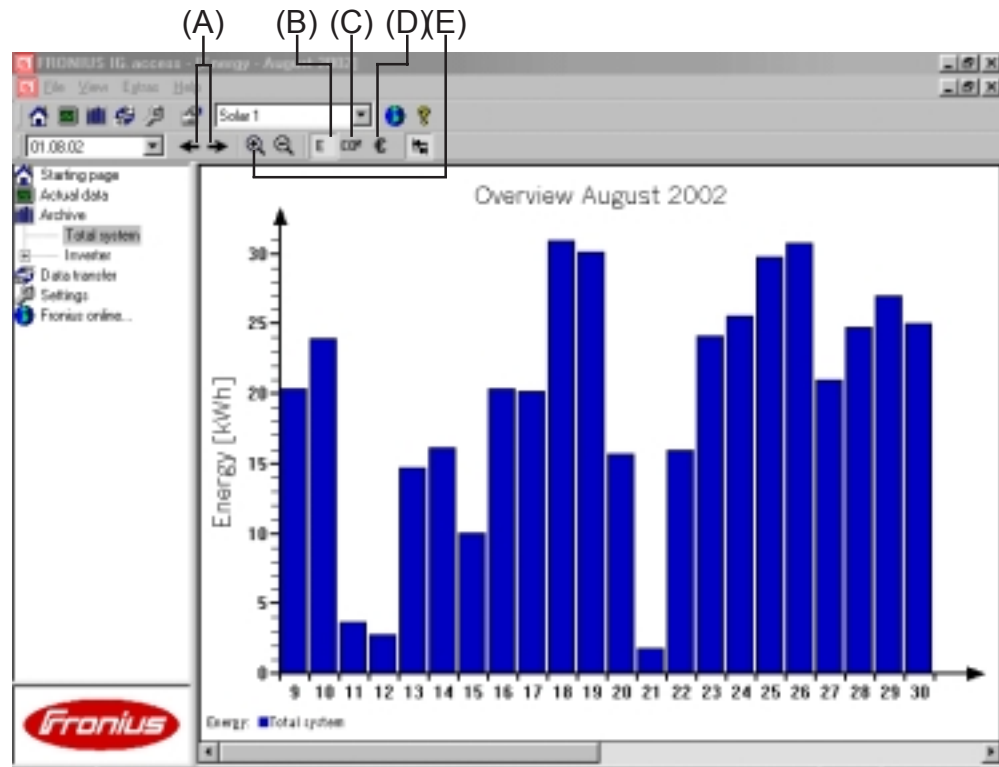


NOTE: For a modem transfer, you can save telephone costs as follows:

- Disconnect the modem after the first step
- To do this, click on the appropriate button in the „Data transfer“ dialog box.

Analysing the Data

Once the data transfer is complete, a bar chart showing the energy values appears in the monthly view for the entire PV system. Each day of the month concerned is represented by a bar that symbolises the energy fed into the grid.

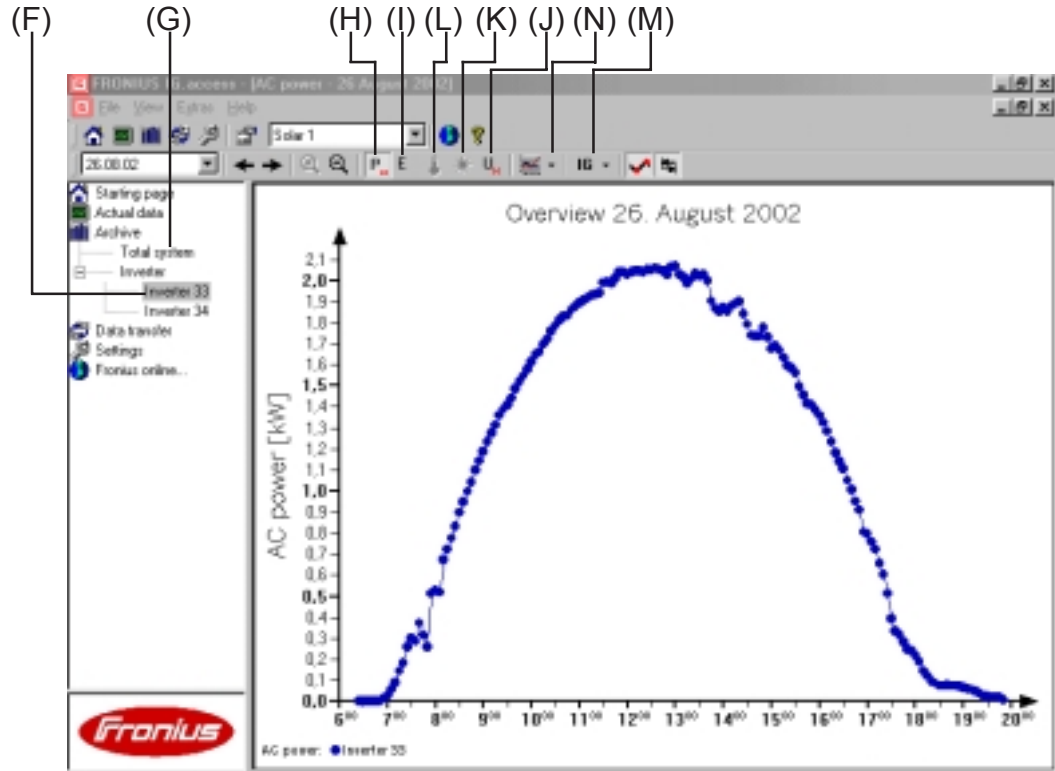


- Clicking on the „Scroll“ buttons (A) moves the view one month forward or back.
- Click on the relevant buttons to switch between the following display variables:
 - (B): Energy (kWh)
 - (C): CO₂ saving (kg)
 - (D): Earnings (in the set currency)
- Click on the „Zoom +“ button (E) to switch to the Day view showing the curve for the energy fed into the grid over the whole day
 - The Zoom function can also be applied using the right and left mouse buttons.

To convert the monthly energy graph into a detailed graph of the AC power on a certain day:

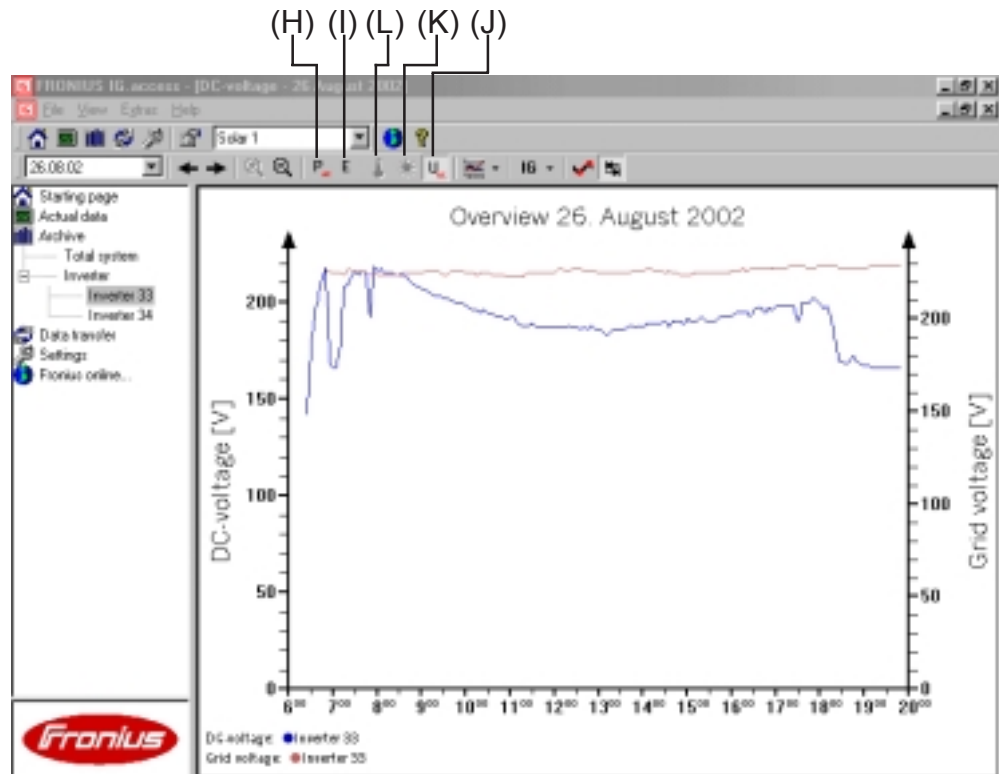
- Move the mouse onto one of the bars. The cursor changes into a magnifying glass. Left-click to change the bar chart into a curve:

Analysing the Data (continued)



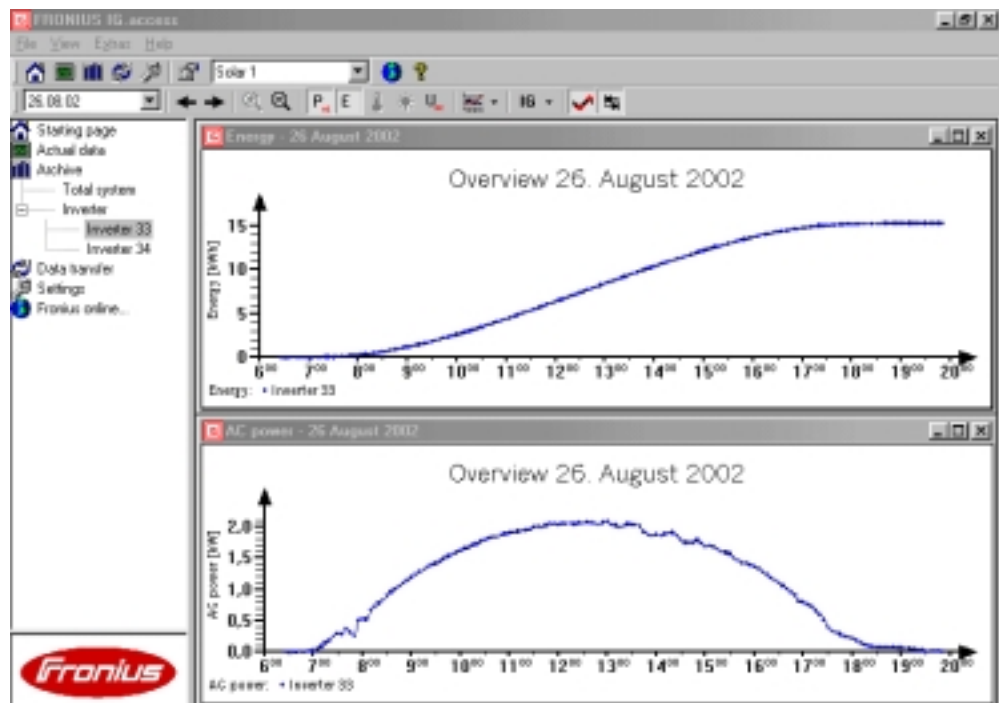
- The „Inverter“ menu option (F) is used to toggle between the graphs for two FRONIUS IG units, if present
 - e.g. select „Inverter 2“
- In the „Total system“ menu option (G), the graph applies to the entire PV system.
- Click on the relevant buttons to switch between the graphs for the following display variables:
 - (H): AC power
 - (I): Energy generated
 - (J): DC voltage from the solar modules
 - (K): Irradiance value from the analog voltage signal channel on the sensor card (if used)
 - this only applies to the sensor card with the lowest address
 - (L): Temperature value for channel T1 on the sensor card with the lowest address (if there is one)
- The menu (M) can be used to display the data for all the inverters at the same time, for example.
- Menu (N) is used to select other display variables to be added to the graph. The following screen shot shows an example in which two display variables are shown in a graph at the same time:
 - DC voltage
 - Grid voltage

Analysing the Data (continued)



Select several buttons (H) to (K) at the same time in order to display up to four graphs next to one another, e.g.

- a graph for the energy fed into the grid in kWh
- a second graph for the AC power fed into the grid in kW



Important! To delete devices from the database:

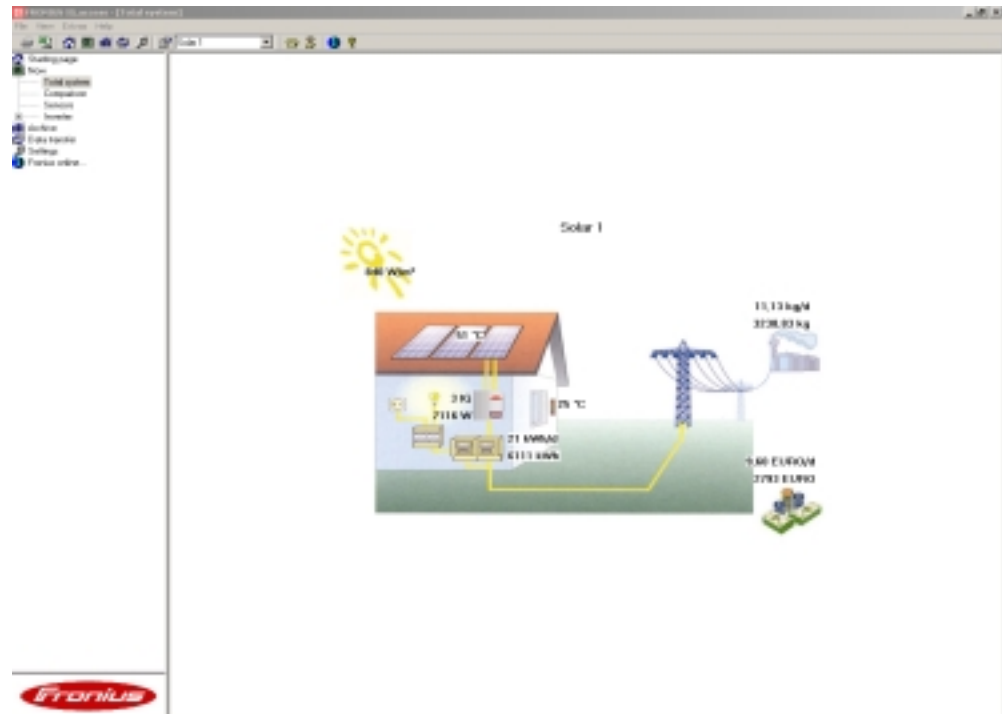
- Right-click on the device concerned
- Select the „Delete“ option

„Actual data“ menu

The „Actual data“ menu contains the following subdirectories:

- Total system
- Comparison
- Sensors
- Inverters

These four subdirectories allow you to access the current PV system data.



„Total system“ subdirectory

„Total system“ contains an overview of all the important power and energy data for your photovoltaic system. If the photovoltaic system has the relevant sensors, then the following values will also be available:

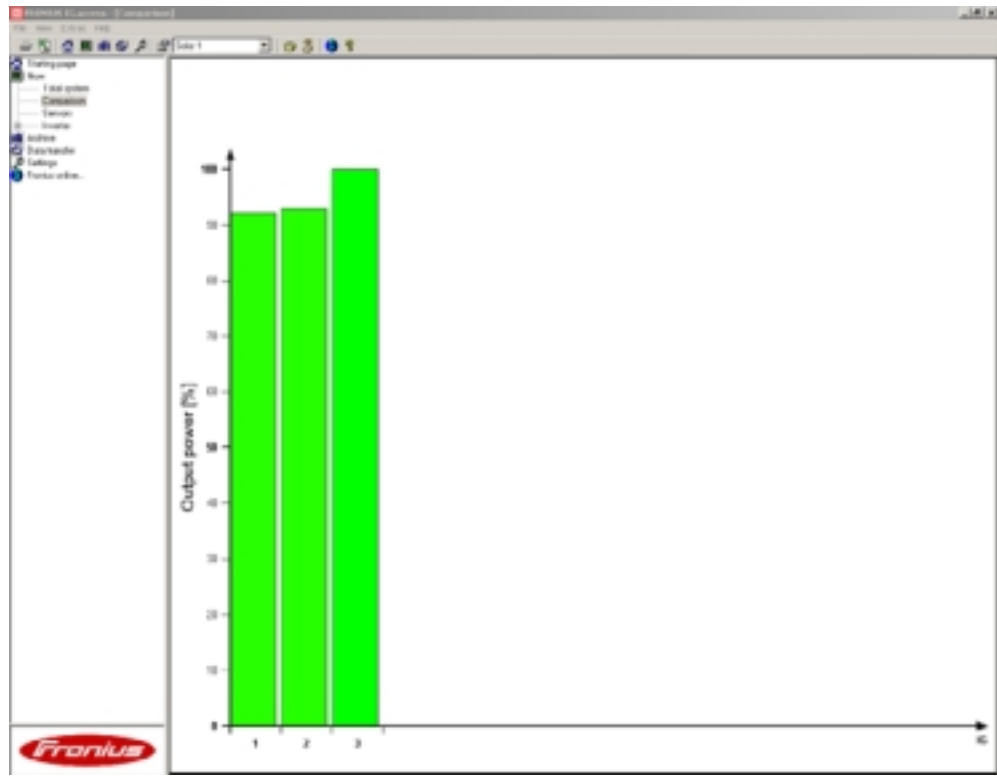
- Actual irradiance
- Module temperature
- External temperature

Important! The symbolised sensor positions show the sensor values for the sensor card with address 1.

**„Actual data“
menu
(continued)**

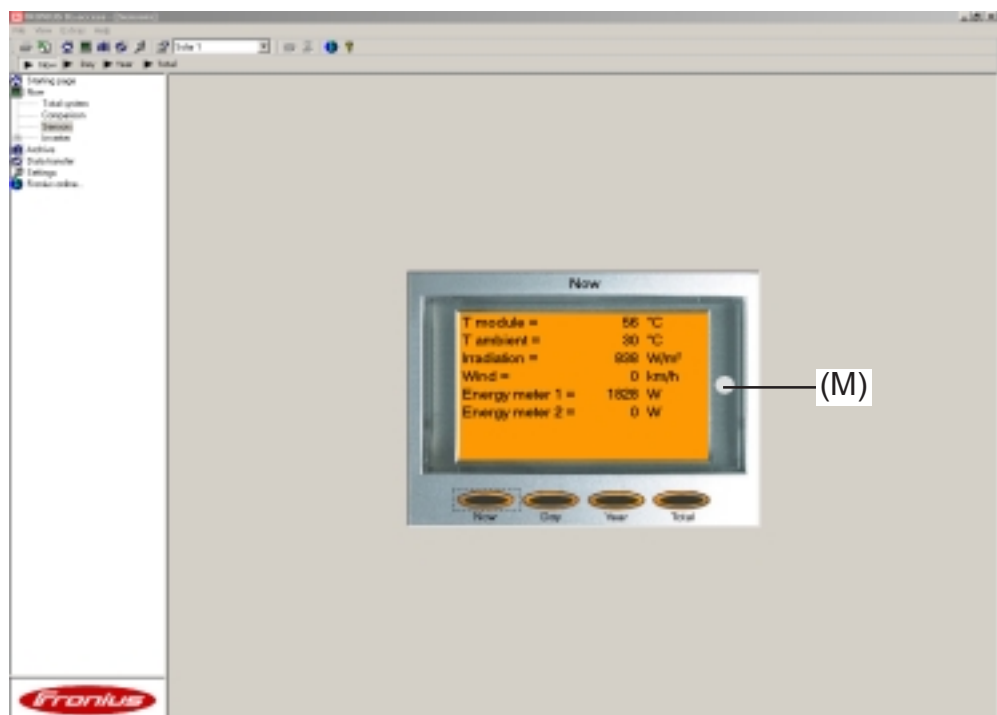
„Comparison“ subdirectory

The comparison view provides a rapid overview of the instantaneous output of each individual FRONIUS IG inverter in your photovoltaic system. Each bar indicates the output power as a % of the connected module power for the FRONIUS IG.



„Sensors“ subdirectory

The „Sensors“ subdirectory shows the current data for all the sensors in your photovoltaic system.



**„Actual data“
menu
(continued)**

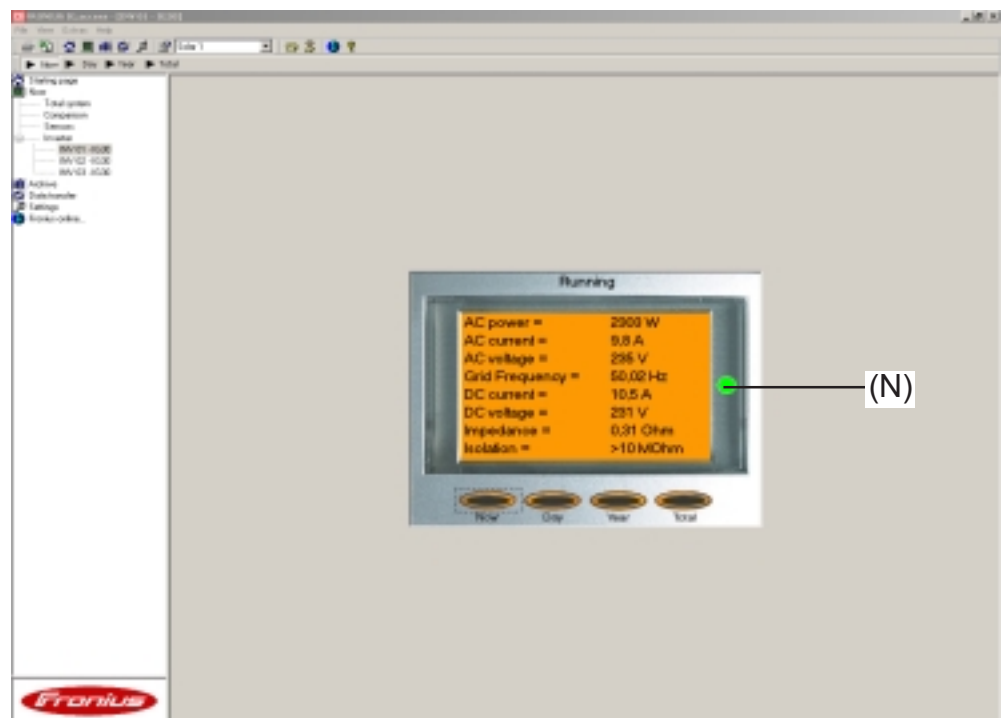
Click on one of the buttons „Now“, „Day“, „Year“ or „Total“ to display the corresponding data as:

- Maximum values
- Minimum values
- Total values

Important! The indicator (M) beside the symbolised display lights up green as the data is being updated.

„Inverter“ subdirectory

The „Inverter“ subdirectory is used to select a specific FRONIUS IG from your photovoltaic system (e.g. „WR 01 - IG 30“). This will allow you to access all the display data for the corresponding FRONIUS IG.



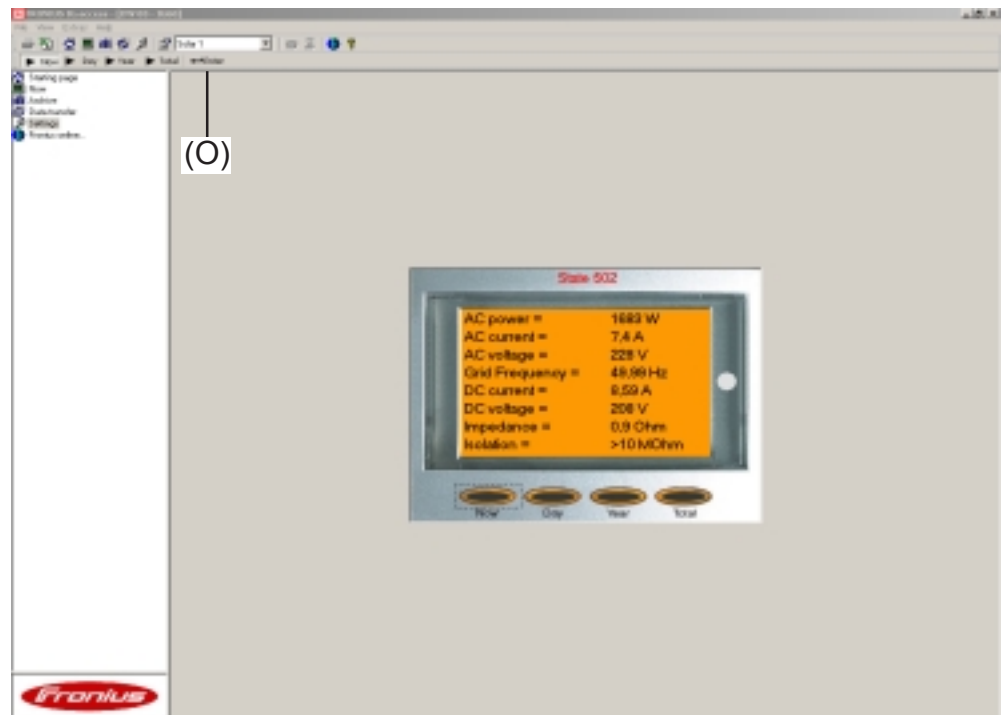
Click on one of the buttons „Now“, „Day“, „Year“ or „Total“ to display the corresponding data as:

- Maximum values
- Minimum values
- Total values

Important! The indicator (N) beside the symbolised display performs the same functions as the LED on the actual display. The indicator (N) indicates the operating state of the selected FRONIUS IG (see FRONIUS IG operating instructions).

**„Actual data“
menu
(continued)**

The „Inverter“ subdirectory is also used to display service codes. When a particular event occurs, the corresponding service code appears above the symbolised display (e.g. „State 502“).



The „Enter“ button (O) appears for service codes that normally have to be acknowledged on the FRONIUS IG. Click on the „Enter“ button to acknowledge the service code.

Important! A detailed list of service codes can be found in the FRONIUS IG operating instructions.

Afterword

The description of the software given here is intended to provide you with an overview of the features of your FRONIUS IG.access software with reference to a sample sequence. This will help you to quickly gain the necessary basic knowledge. Of course, there are more functions than this available, but these are either not described or are mentioned only briefly.

It has been shown in practice, however, that a certain level of basic knowledge will quickly become detailed knowledge as you start to use the software. This is why we have intentionally not described all of the special functions in depth. If you still have any outstanding questions, however, please use the Help function for the „FRONIUS IG.access“ software. Press function key „F1“ to call up the help topics on the section you are currently using. The help function will provide the optimum solution for most questions you might have. We hope that you enjoy getting to know the new and individual features of your own solar system.

Technical Data

Datenlogger Card / Box

Datalogger card / box		
Storage capacity	540 kByte	
Storage time (1 FRONIUS IG, 30 minute save cycle)	approx. 1000 days	
Supply voltage	12 V DC	
Power consumption		
- Datalogger Card:	approx. 1.2 W	
- Datalogger box:	approx. 1.6 W	
Degree of protection for box:	IP 20	
Dimensions (l x w x h)		
- Datalogger card:	140 x 100 x 26 mm	
- Datalogger box:	197 x 110 x 57 mm	
Interfaces	Socket:	Designation:
- RS-232:	9-pin submin	„Computer“
- RS-232:	9-pin submin	„Modem“
Datalogger box also has:		
- RS-485:	RJ-45	„IN“
- RS-485:	RJ-45	„OUT“

Datalogger & Interface

Datalogger & Interface (box)		
Storage capacity	540 kByte	
Storage time (1 FRONIUS IG, 30 minute save cycle)	approx. 1000 days	
Supply voltage	12 V DC	
Power consumption	2.8 W	
Protection for box	IP 20	
Dimensions (l x w x h)	210 x 110 x 72 mm	
Interfaces	Socket:	Designation:
- USB:	USB	„Computer“
- RS 232:	9-pin sub-D	„Modem“
- RS 232:	9-pin sub-D	„Data“
- RS-485:	RJ 45	„IN“
- RS-485:	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	
Degree of protection for box:	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 (sensor box only)	Socket:	Designation:
- RS-485:	RJ-45	„IN“
- RS-485:	RJ-45	„OUT“
T1 / T2 channels		
- Sensors:	PT1000	
- Measuring range	-25°C...75°C; -13°F...167°F	
- Accuracy:	0.5°C; 0.8°F	
- Resolution:	1 °C; -17.22 °C	
Irradiance channel		
- Measuring ranges:	0...100 mV 0...200 mV 0...1 V	
- Accuracy:	3 %	
D1 / D2 channels		
- Max. voltage level	5.5 V	
- Max. frequency	2500 Hz	
- Minimum pulse duration	250 us	
- Operating point „OFF“ („LOW“):	0...0.5 V	
- Operating point „ON“ („HIGH“):	3...5.5 V	
Current input channel		
- Measuring ranges:	0...20 mA 4...20 mA	
- Accuracy:	5 %	

COM Card

COM Card		
Supply voltage	230 V (+10% / -15%)	
Dimensions (l x w x h)		
- as plug-in card only:	140 x 100 x 33 mm	
Interfaces	Socket:	Designation:
- RS-485:	RJ-45	„IN“
- RS-485:	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	
Degree of protection for box:	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:	Designation:
- RS-232:	9-pin submin	„Display“
- Public display box also has:		
RS485	RJ-45	„IN“
RS485	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	
Protection for box:	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:	Designation:
- RS 232:	9-pin sub-D	„Data“
- Interface box also has:		
RS 485	RJ 45	„IN“
RS 485	RJ 45	„OUT“
Adjustable baud rates made using „baud“ adjuster:		
- 2400, 4800, 9600, 14400, 19200		

Warranty and Liability

Warranty Provisions and Liability

The warranty in the general terms of business applies to the FRONIUS IG DatCom components. During this period, FRONIUS guarantees that your DatCom components will work correctly. If there is a defect for which FRONIUS is responsible, then FRONIUS will repair the defect at the factory free of charge within the warranty period.

If you need to claim under the warranty, please contact your FRONIUS dealer.

Warranty claims will not be accepted as a result of:

- using your DatCom components for other than the intended purpose
- incorrect installation or installation not in compliance with the applicable standards, particularly by unlicensed electrical fitters
- incorrect operation
- unauthorised changes to the DatCom components
- damage by foreign objects or acts of God (force majeure)

Warranty claims will be repaired either by Fronius directly or locally by Fronius trained service partners. For return transportation, devices must be packed 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

The warranty only covers the DatCom components. The other components of your photovoltaic system are not covered by the warranty.

Warranty Period

24 months from the date of installation.

Proof of warranty

Purchase date on the invoice, date on which the device was handed over / commissioned and report from the electricity supply company.

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<http://www.fronius-usa.com>

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