



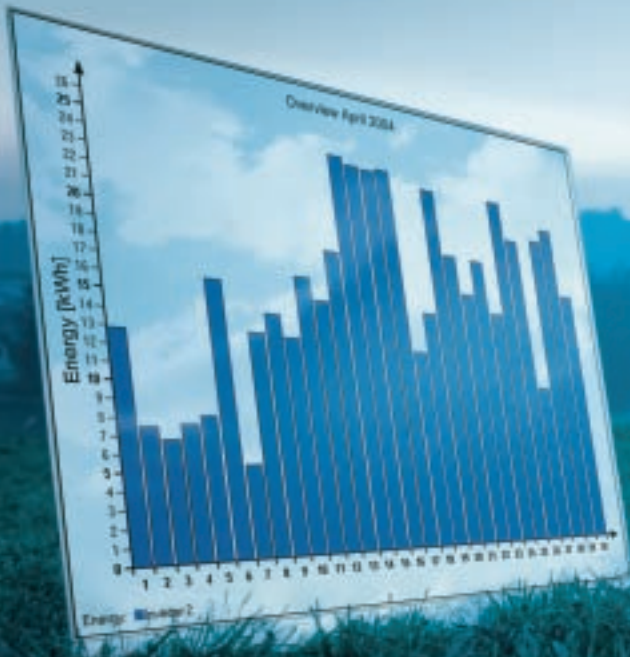
PV System Monitoring

for the FRONIUS **IG** Inverter Series



POWERING YOUR FUTURE

COMMUNICATION-FRIENDLY



MONITORING AND VISUALISATION OF THE PV SYSTEM

The field of photovoltaics is exciting, dynamic and financially attractive. Comprehensive and uninterrupted monitoring of the system plays a very important role. Operators of large systems and private owners of PV systems alike want to know whether, when and how their investment in the system is working out.

As always in such cases, it's better to play it safe: Fronius has created monitoring systems that are remarkably easy to operate and deliver accurate data. The FRONIUS IG Signal Card for example, which warns the operator both audibly and visually in the event of malfunctions, or the FRONIUS IG Personal Display, which delivers the most important data to your living room by way of a wireless radio connection, or FRONIUS IG DatCom, the professional solution for high-quality analysis and control.

FRONIUS IG SIGNAL CARD

Safety due to Audiovisual Alarm Function.

The FRONIUS IG Signal Card is the watchdog of your PV system. A plug & play plug-in card, which transmits audible and visual warnings when status changes occur on the inverter. The Signal Card works autonomously, requiring none of the components of the FRONIUS IG DatCom system. Of course both systems can also be operated in parallel. The mode of operation is as follows: the Signal Card becomes active if a malfunction occurs and is signaled to the inverter. A floating contact is made and a warning signal sounds. A warning light can also be connected to send out a visual signal. The Signal Card can be retrofitted at any time: simply insert it into the FRONIUS IG plug-in slot – and off you go. This is what makes it so cost-effective and practical.



FRONIUS IG PERSONAL DISPLAY

The wireless display for your living room.

Anyone who wants to keep up to date with the output data of his installation but does not want to run to the inverter to read off the values every time, can now use the Personal Display. Simply place it in the desired room at home and you can read off all the current data from up to 15 inverters at any time. At night the Personal Display presents the collected data from the previous day of sun. Just with a little more convenience and greater user-friendliness.

Installation is easy: insert the Personal Display Card into the FRONIUS IG inverter, attach the aerial on or close to the inverter, set up the Personal Display in the house and away you go. No holes and sealing, no costly laying of cables – just plug & play. The wireless radio link makes it possible regardless of whether you use DatCom or not.



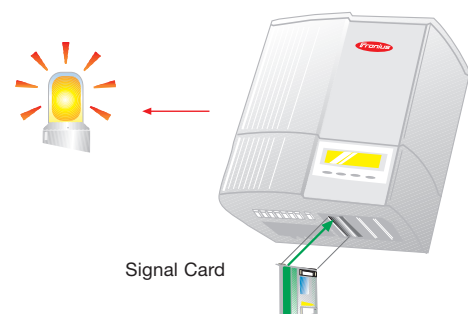
Up-to-date. The Personal Display, placed in the room of your choice, displays the parameters of your inverter at any time.

PERSONAL DISPLAY



Installation is remarkably easy: insert the plug-in card in the inverter, attach the aerial, and the card immediately begins transmitting the data to the Personal Display by wireless connection. Pure convenience.

FRONIUS IG SIGNAL CARD



The easy way to play completely safe.

The FRONIUS IG Signal Card is an easy solution to monitor your system. Let it alert you to changes in system status by means of audible and visual signals.



SYSTEM CONTROL WITHOUT REMOTE MONITORING

The basic solution is system control without remote monitoring. It is suitable for systems that are controlled on site by the operator himself. The FRONIUS IG DatCom system – like everything at FRONIUS IG – is of modular construction. This means you can choose exactly the components you need. Whether you are considering purchasing a FRONIUS IG now or at a later date – all components can be retrofitted at any time. This makes the system very lean, flexible and of course, cost-effective.

Only a few professional tools are needed for this monitoring system: one FRONIUS IG Datalogger, one COM Card per inverter and the FRONIUS IG.access software.

The COM Card is the network card that every inverter needs for communication. The Datalogger stores the data from the devices. The FRONIUS IG.access software is the nerve centre: visualisation, system administration and further processing of the data from the comfort of your PC. In addition you can also set up your own weather station with special sensors and/or connect the Public Display. The necessary hardware is constructed to be user-friendly with the plug & play system. No wonder: intuitive operation and convenient use are always the standard at Fronius.

THE DATABASE FRONIUS IG.ACCESS

The Brain of the FRONIUS IG DatCom System.

FRONIUS IG.access is the intelligent software for recording all your PV data. For perfect and professional visualisation and monitoring. Analyse all the values with ease to check the performance of your system or optimise it if necessary.

It is possible to manage, analyse and monitor up to 100 FRONIUS IG inverters in one system using clearly laid out diagram variations, graphics and visualisation tools.

New: automatic data download

FRONIUS IG.access version 4.0 has been expanded with several practical new features. Now it is no longer necessary to call up the data yourself since it is read off automatically.

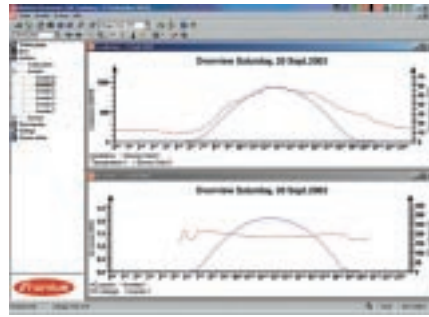
Also the “Energy comparison”, to compare the output of different inverters, is very informative. FRONIUS IG.access compares the daily outputs of the inverters for you immediately after the data download. You are alerted automatically in the event of deviations.

However, we have saved the best till last: FRONIUS IG.access is for free. It is included with the Datalogger.

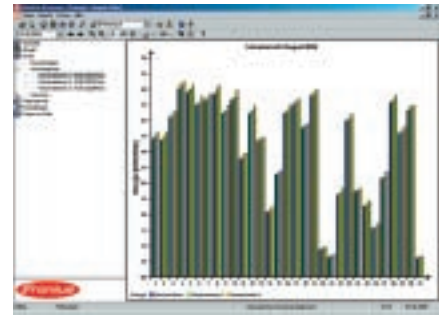
The most up-to-date version can be downloaded from the Internet at www.fronius.com in the field Solar Electronics > Downloads.



Contact-friendly. Naturally, all values that can be called up on the display can also be clearly display in FRONIUS IG.access.



Comparison checking. Top: Comparison between module temperature (red) and irradiance (blue). Bottom: in this case the AC power (blue) is contrasted with the DC voltage (red).



Output comparison. The ability to compare the output of several inverters is new in FRONIUS IG.access 4.0. You have the system fully under control at a glance!

COM CARD

The Interface on the Inverter.

The COM Card is the network card of the individual inverters. A plug-in card is required by every inverter in a system using DatCom in order to send data to the Datalogger. Easy to install, high in performance.

DATALOGGER

The Heart of the FRONIUS IG DatCom System.

The Datalogger is the system's information collector. It is the interface between inverter (via COM Card) and PC. Here the data is bundled and pre-processed for the FRONIUS IG.access software. The Datalogger is available either as a plug-in card or a box. Both are simply plugged into the inverter using the plug & play principle. The card is recommended for distances of up to 20 m between the Datalogger and the PC; the box can bridge a distance of up to 1 km. The Datalogger stores every detail of the PV system for a period of up to 3 years.

Datalogger easy: perfect for one inverter

The Datalogger easy was created for small systems with only one FRONIUS IG. It has the same functions as its big brother – Datalogger *profi* – but is restricted to one inverter. Low-cost and high-power.

SENSOR BOX (CARD)

Your Personal Weather Station.

It is possible to install various sensors into the FRONIUS IG DatCom system. These permit an in-depth look into the way the PV system works and make it possible to draw informed conclusions about the overall performance. As usual, this option is available either as a plug-in card or as box. Plug-in cards are recommended for a maximum distance of 20 – 30 m between the inverter and sensor(s). Greater distances can be bridged using the box. The following sensors can be connected to the Sensor Box (Card): irradiance, ambient temperature, module temperature, energy counter and wind speed.



FRONIUS IG Datalogger Box



The FRONIUS IG Public Display. A large-format display for visualising selected PV system values.



FRONIUS IG PUBLIC DISPLAY

Large-Format Display for Outdoors.

PV systems in the public arena are gaining increasing importance. You can professionally display the most significant data using the FRONIUS IG Public Displays. For this you need an interface (plug-in card or box) for the PV system and a suitable large-format display. As usual, all FRONIUS IG Public Displays are constructed on the plug & play principle. Just insert the plug-in card or box and any cables supplied, select the display values and away you go. We can supply:

- The FRONIUS IG Public Display: the complete package comprising interface and alphanumeric large-format display (650 x 450 x 50 mm). All the values of the entire PV system, which can cover up to 100 inverters, can be selected for the rotating display. One value in the group is picked as the favourite and is then displayed every second time the value changes.
- The FRONIUS IG Public Display Box (Card): this is the interface of the PV system that is compatible with all large-format displays made by the RiCo Company. Simply connect the box or card to the display and inverter. Add on up to 100 inverters and display all the values you want from FRONIUS IG.access. Create your own individual large-format display. Any line, variable or number of figures can be supplied

SYSTEM CONTROL WITH REMOTE MONITORING

The expanded solution is system control with remote monitoring. Utilise the advantages of the latest information technologies (Internet and telephone) for more comfort and even faster access to the system plus the ability to control the system and make adjustments remotely.

You can monitor your system yourself or have it monitored by professionals. Many installers offer this service. It's child's play with the kind of remote professional monitoring offered by FRONIUS IG DatCom.

In principle the same modules are needed as for system control without remote monitoring plus a few additional components which enable access.

There are several possible versions of remote monitoring. Select the best one for you. You can, of course, also combine several types of monitoring.



VIA FRONIUS **IG.ACCESS** AND MODEM

If you connect a modem to the Datalogger, you can also use FRONIUS **IG.access** for remote monitoring. This will connect you to the display of each inverter in real time. This will provide you with up-to-date information about your PV system at any time as if you were standing directly in front of it. In this way you can carry out all desired analyses, such as automatic comparison of the energy output of all inverters plus much more, regardless of how far away the system is. Furthermore, you can check daily output curves, energy data, etc. from the comfort of your PC.

On request, FRONIUS **IG.access** will transmit regular energy reports by e-mail. You can use this function to create additional energy statistics. In this case both the data covering the performance of the entire system and also of individual inverters is listed clearly and concisely.

You can use even further services with the modem: for example, to secure a rapid response in the event that customer service is required, the Datalogger itself can become active: it sends a service message by SMS text which is picked up by you and/or your installer. The service message can also be delivered by fax or e-mail using the so-called Message Modem.

VIA DATALOGGER AND MESSAGE MODEM

Anyone placing value on rapid service messages would do well to take advantage of the Message Modem. The Message Modem is connected to the Datalogger; it sends you a text message, e-mail or fax in the event of service messages whether the cause of the error lies in the PV system, the inverter or the grid. These messages can also be sent simultaneously to third parties (e.g. your installer).

VIA FRONIUS **IG.MESSAGE** AND MODEM

FRONIUS **IG.message** is service software for PV professionals, e.g. PV installers. In the service case, the Datalogger transmits a service message to FRONIUS **IG.message** via modem and stores it. You profit from a central database on your PC, in which you can store and manage all your service messages. This applies not only for one but for a large number of systems. The service messages are displayed for you immediately on screen and are automatically forwarded from your PC to the respective system operator or other desired recipient by e-mail, SMS text or fax (depending on your personal settings).

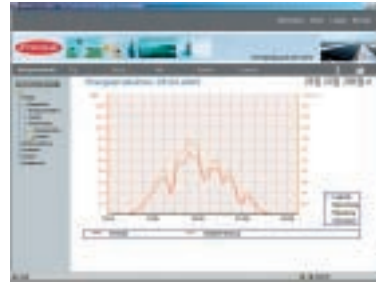
Would you also like to use graphic evaluations and output comparisons? No problem. Just install FRONIUS **IG.access** on your PC as well since you can, of course, use both monitoring tools on the same PC.



The FRONIUS IG.*online* home page. Here it is possible to read off and change general PV system data.



The “**Environment**” view shows how much fossil energy and CO₂ the PV system has already been able to save.



The “**Energy yield**” graphic shows the energy obtained and compares the value with actual irradiance in combination with irradiance sensors.

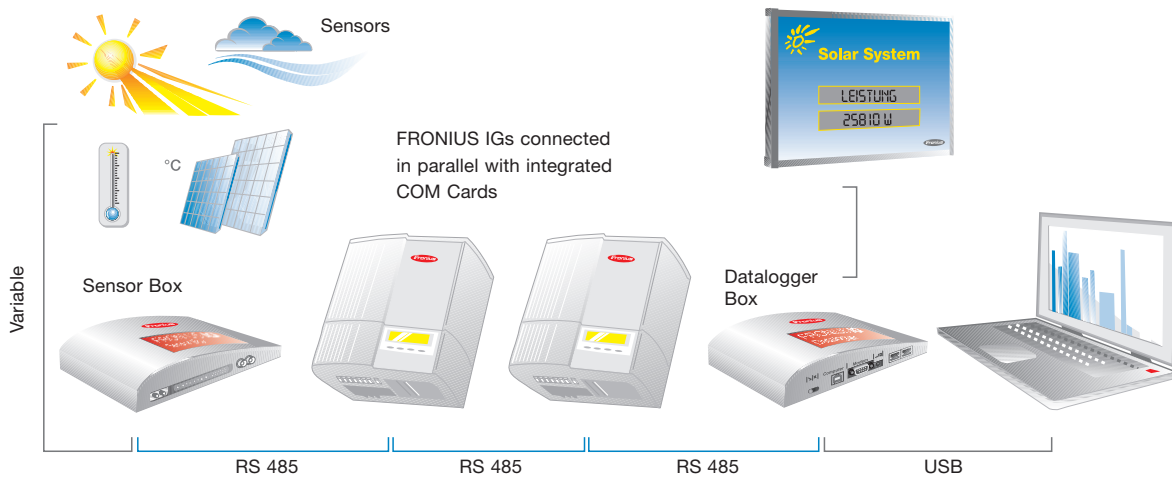
NEW: FRONIUS IG.ONLINE

Comfortable, Convenient Remote Internet Monitoring.

FRONIUS IG.*online* is a unique new feature from Fronius. The advantage: being able to read off your own system data via the Internet – from any web-enabled PC. The system operator can assign a password thus determining who has access to the system. Operators of civic participation systems for instance will appreciate the value of this option. Every authorised person will now be able to use it to find out how the system is running. Simply read off, analyse and manage the data using your preferred web browser (e.g. Internet Explorer) on your own PC.

Operation is simple: register your system information at www.fronius.com and your data can be fed into a central server immediately. As a result every user can carry out analyses, evaluations and inspections of his own plant from any web-enabled point in the world.

However, it is not only operators of civic participation systems who will be enthusiastic about this new function because now plant installers too will be able to present customers with their PV system on the company's home page. And the best news of all: the FRONIUS IG.*online* service is completely free of charge.



PV SYSTEM MONITORING

The Most Important Points about FRONIUS IG DatCom in Brief:

FRONIUS IG DatCom: the professional system for perfect analysis, monitoring, visualisation and control. The basic equipment consists of:

- COM Card. The network card for every FRONIUS IG.
- Datalogger Box or Card. The system's data collector for up to 100 inverters.
- FRONIUS IG.access. The free data processing software.
- Easy cabling with 8-pin data cable (RS 485) and network plug (RJ 45).

You can upgrade your FRONIUS IG DatCom system with additional components as an option:

- Modem. For remote monitoring and warning messages.
- Sensor Box or Card. For sensors that measure additional values and enable individual adjustments.
- For visualisation in the public arena. Consisting of the interface (Public Display Box or Card) and a large-format display.

Are you looking for detailed descriptions of configuration examples for system monitoring? These can be downloaded from:

www.fronius.com under Solar Electronics/Downloads /Configuration Examples for System Monitoring.



FRONIUS INTERNATIONAL GMBH
A 4600 Wels-Thalheim, Günter Fronius Straße 1
E-Mail: PV@fronius.com
www.fronius.com