



PROCESS DATA ACQUISITION

Machine data, energy consumption, retrofit



SPS



I/O

IPF ELECTRONIC

High-End in High-Tech.



**SCAN QR CODE
AND READ FLYER DIGITALLY**

IF YOU WANT TO KNOW...

how high the actual capacity utilization of a production facility is and also wants to achieve sustainable energy cost savings, needs to look at process data acquisition.

There is no need to worry, neither large initial investments nor high follow-up costs are required. And for the important first steps, ipf electronic is always at your side as a partner with a manufacturer-independent system platform and a great deal of know-how

HIGH TRANSPARENCY THROUGH REAL-TIME DATA

Almost all companies today are under enormous cost pressure. Therefore, a permanently high level of process transparency in real time is absolutely essential. The continuous collection, storage and analysis of process data provides the decisive basis for:

- / greater process stability*
- / recording and storage of process values independent of operations and production orders*
- / storage of process values*
- / exact cost allocation at all levels faster and more targeted reactions to production bottlenecks and production downtimes*
- / more effective maintenance strategies*
- / sustainable cost reductions*

FITNESS TREATMENT FOR OLD SYSTEMS

This also applies to old systems, which can be made “fit” for digitalization through process data acquisition as part of a retrofit in order to obtain valuable data for greater process transparency in real time, even from systems without modern control and network architecture.

ENERGY MONITORING: A REAL ADDED VALUE

If process data acquisition is combined with energy monitoring, real additional benefits are created, as not only can energy consumption be calculated and documented more accurately in terms of energy management in accordance with ISO 50001, but CO2 costs can also be determined precisely down to plant and process level in order to meet the requirements of the Corporate Sustainability Reporting Directive (CSRD), among others.

IS EVERY NEW START DIFFICULT? NOT WITH US!

With the ipf gateway BY000002, the energy measurement module AB000008 and optionally the I/O module AB000009 as well as other sensor solutions from ipf electronic, it is now very easy to achieve these goals step by step - without time-consuming conversions and high investment costs! And the manufacturer-independent system solution is flexibly scalable at any time, so that it always grows with your requirements.

Valid data on capacity utilization in production, continuous energy monitoring and sustainable cost savings are now part of everyday practice. In your company too!

IPF GATEWAY. COMMUNICATIVE. FLEXIBLE.

The powerful ipf gateway with ARM processor impresses with its high connectivity and enables individual, continuous monitoring by connecting to a controller, directly connecting up to six digital and four analog sensors or any number of sensors, e.g. via Modbus.

The simple to set up operating system is already “onboard”, as is a web client solution that processes and provides the measurement data directly and visualizes it via the dashboard.



ADVANTAGES AT A OVERVIEW	BY000002
Processor	2 x ARM Cortex-A7 CPU 1 x Cortex-M4 CPU Cores
Large internal store	1GBD DDR3L RAM 4GB eMMC
Multiple interfaces	100MbE USB2.0 Host USB2.0 Device CAN RS485 GPIO 4x analog input (4...20 mA/0...10 V) 6x digital I/Os Back-Plane-Bus-Connector for AddOn-Module
Multifaceted minutes	Modbus CAN MQTT HTTP Cloud of Things OPC U/A DB/SQL
Optional Wi-Fi Module	802.11b/ g/ n.150 Mbits/s über Wi-Fi stick
Optional LTE-Stick	AB000002



Many display options for dashboards based on freeware

MULTIFUNCTIONAL AND POWERFUL THROUGH PROVEN APPS

WEB CLIENT DASHBOARD WITH EXTENSIVE FUNCTIONS

The clear, dynamic dashboard visualizes all measured values on PCs or mobile devices and is based on open source software. The highly flexible visualization solution can therefore be individually configured in a variety of ways and offers a quick overview of the most important key figures and variables with numerous display options.

HIGHLIGHTS:

- /** Wide range of display options
(e.g. speedometer charts, bar charts, curve charts, heat maps, histograms, etc.)
- /** Simple selection of individual detailed views with higher resolution of individual representations
- /** Fast automatic alarms, e.g. based on rules, conditions or thresholds
- /** Easy data transfer via email or messenger services
- /** Efficient teamwork via platform autonomous VNC connection

MONITORING PRODUCTIVITY AND SYSTEM DOWNTIMES

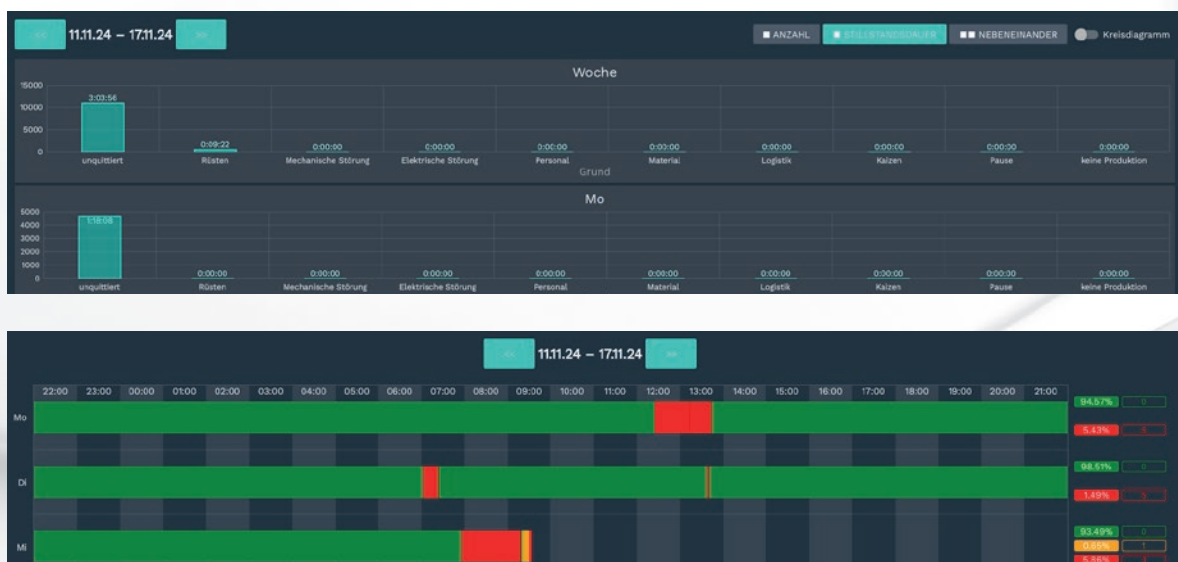
High availability of machines and systems is essential, e.g. for high productivity, for the optimal use of all production capacities and for simple planning and implementation of the entire production organization, to list just a few arguments. It is undisputed that recording runtimes, capacity utilization and plant availability, for example, not only provides the most important key figures for overall equipment effectiveness (OEE), but also significantly increases the transparency of production.

Using an additional app for the IIoT gateway, all systems and processes can be continuously monitored, the most important information visualized and therefore immediately identified and processed. This enables, among other things, an early response to production shortages or even production downtimes.

HIGHLIGHTS:

- / Illustration of the entire production process
- / Recording of reasons for system downtimes (e.g. maintenance, break, repair, etc.) and consequently accurate data on the downtimes of systems and/or processes
- / Immediate information on system downtimes without unnecessary loss of time
- / Display of actual quantities during productive times
- / Continuous monitoring and visualization of system availability
- / High transparency regarding runtimes, capacity utilization and availability, etc.
- / Minute-by-minute display
- / Individually configurable hall plan layout with all connected devices
- / Targeted recording of the most important key figures for overall system effectiveness
- / Simpler and better planning based on the actual number of available manufacturing capacities
- / Faster reactions to production shortages or production downtimes
- / Greater delivery reliability thanks to better adherence to deadlines
- / Individually configurable display via app with flexibly selectable system parameters and observation periods

Continuous monitoring of machines and processes



THE SYSTEM SOLUTION

FLEXIBLE USE, SCALABLE AT ANY TIME

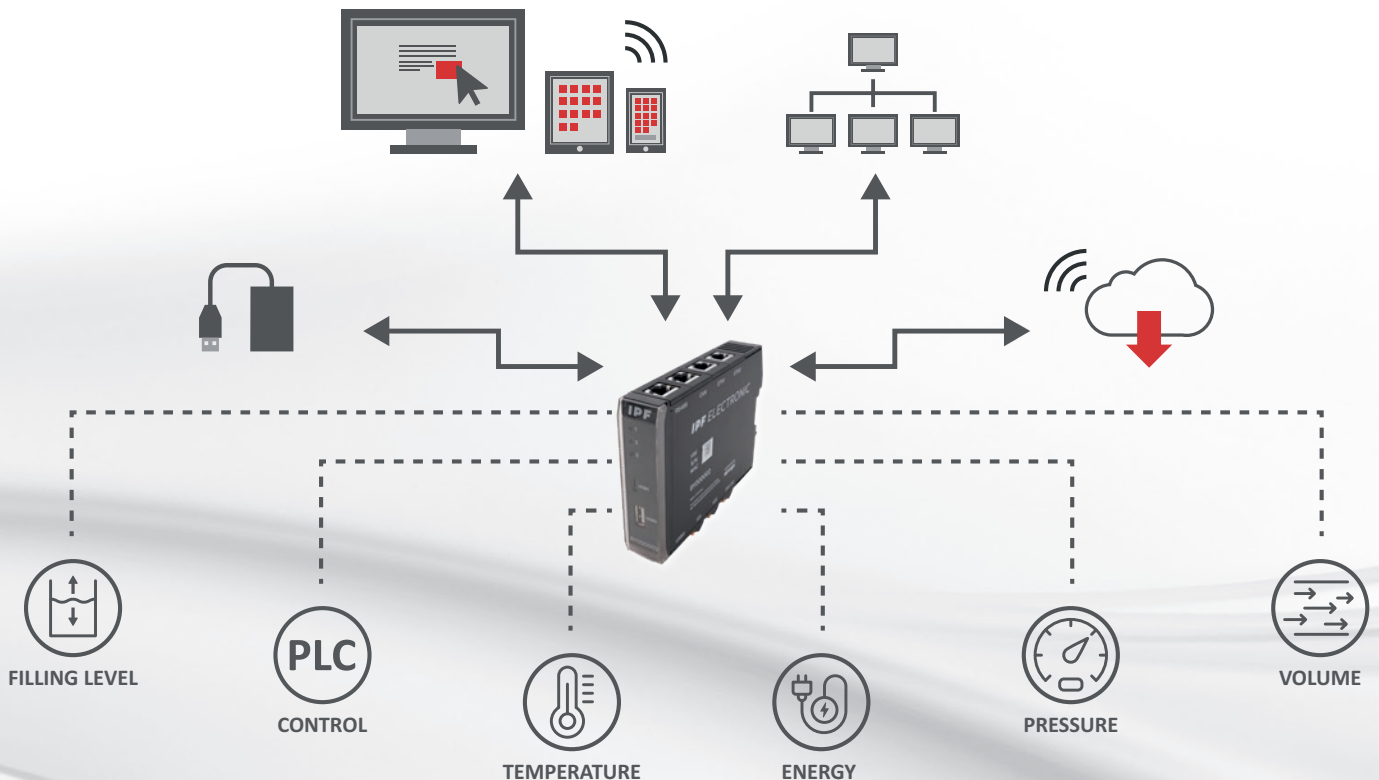
The ipf gateway enables either the monitoring of a single system or can be implemented as a networked, factory wide solution.

The ipf gateway can be connected directly to a PLC via the integrated OPC U/A interface in order to obtain a wealth of information in a first step, e.g. on the running times of a machine, on faults in the course of production or on the quantities produced within a predefined time, to give just a few examples.

If further data is to be used for analysis and evaluation, the ipf gateway can be flexibly expanded with additional sensors, whereby ipf electronic provides a whole range of different technologies for decentralized consumption measurements of gaseous and liquid media, operating and auxiliary materials as well as for recording a wide range of other process data (page 11-15).

The recorded data and measured values can be stored in the ipf gateways internal memory or transferred to a local server or optionally stored in a cloud via a secure VPN connection.

APPLICATION AT MACHINE LEVEL



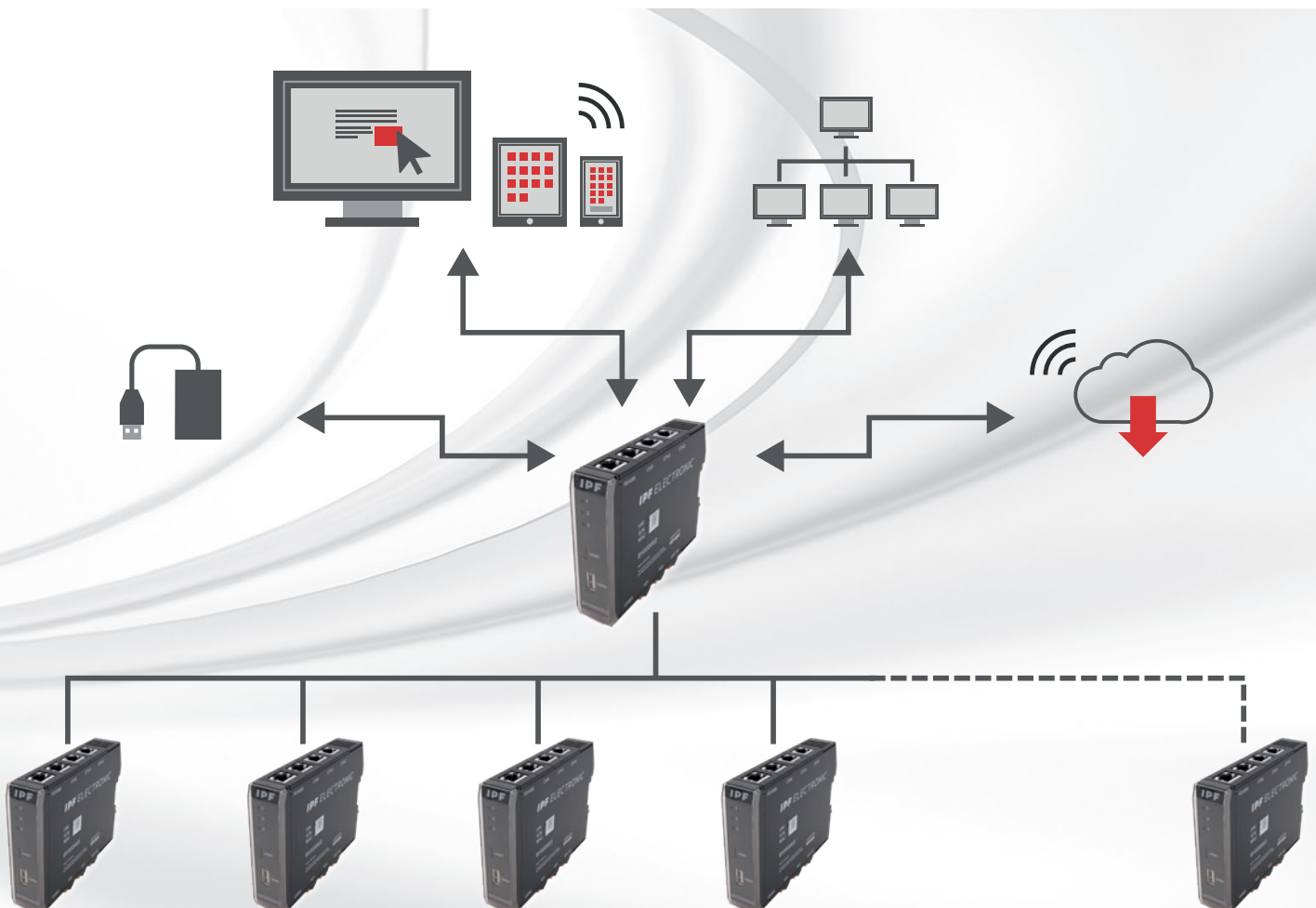
THE SYSTEM SOLUTION

As a factory-wide solution, the ipf gateway can also be easily integrated into an existing network structure at operating level and scaled as required. The ipf gateway supports numerous common protocols such as Modbus, CAN, OPC U/A, etc. for the transfer of inventory data and problem-free communication.

In case that the number of analog and digital sensor interfaces of the ipf gateways is not sufficient at the decentralized level, the ipf electronic I/O module can also be used to flexibly expand them.

A superior ipf gateway serves as a central communication node in a factory wide topology, in which the information and measured values of all decentrally distributed gateways converge for analysis, evaluation and storage on a local server or in a cloud.

APPLICATION AT COMPANY LEVEL



GATEWAYS AND EXTENSION MODULE



GATEWAY BY000002

- / Gateway for data acquisition from Energy flows and process data
- / Integrated data memory
- / Visualization software preinstalled (Freeware)
- / Up to 4 analog inputs
- / Digital I/Os
- / Supports various protocols: Modbus, CAN, MQTT, HTTP, Cloud of Things, OPC U/A, DB/SQL
- / Back-plane bus connection for the connection of extension modules





ENERGY MEASUREMENT MODULE AB000008

- / Module with current transformer for measuring and evaluating energy consumption
- / Ideal for monitoring machines, systems and air compressors
- / Simple connection to the ipf gateway via Ethernet or backplane bus
- / Can also be used as an optional stand-alone solution
- / Acquisition of e.g. active, reactive and apparent power, effective values of current and voltage, etc.
- / Simple integration in various networks



I/O-MODULE AB000009

- / Simple expansion of digital and analog sensor interfaces
- / Inputs: 12 x digital and 6 x analog, Outputs: 6 x digital and 2 x analog
- / Up to 10 extension modules connected to one ipf gateway possible
- / For use as a stand-alone device and “data collector”
- / Simple integration into various networks

ACCESSORIES FOR GATEWAY, EXTENSION MODULE AND I/O-MODUL

AB000002 / AB000006

/ LTE stick (AB000002) for ipf gateway

/ RTC stick (AB000006) buffer battery for
ipf gateway



VK100U44 / VK100U46

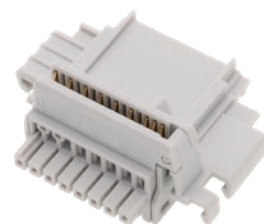
/ USB connection cable (USB 2.0 micro) 1 m

/ USB extension cable 1 m



AB000011

/ Backplane bus connector



VERSATILE SOLUTIONS - FLEXIBLE USE - SUSTAINABLE COST REDUCTIONS

In addition to the gateway and the energy measurement and I/O modules, ipf electronic has a large selection of high performance sensors for temperature and consumption measurements of gaseous and liquid media, for consumption measurements of operating and auxiliary materials and for recording production data (e.g. determination of produced quantities or IO and NOK parts, fill level monitoring, etc.) Here is an overview of the main functions and features.



SENSOR VARIATIONS

SERIES SM

- / Flow, volume and temperature measurement of electrically conductive liquids
- / Media e.g. water, coolants, pastes etc.
- / Dosing function
- / 2 x analog output, switching, pulse and frequency output
- / Measuring range up to 650 l/min



SERIES SL

- / Flow, consumption, temperature measurement, velocity of technical gases
- / Media e.g. compressed air, natural gas, nitrogen, carbon dioxide etc.
- / Analog output, Modbus Ethernet TCP, M-Bus

SERIES FK / FM / UT

- / Level measurement of liquids and pasty media
- / Media e.g. process water, cooling/heating water, lubricants, cleaning emulsions
- / Analog and switch output
- / Measuring range up to 6000 mm



SERIES FY

- / Wear and maintenance free solutions
- / Level measurement via hydrostatic pressure
- / Analog output (4...20 mA)
- / Simple installation thanks to "suspended mounting"
- / Ideal for particularly deep containers (special length 10.000 mm)





**SERIES DW3 / DT16 /
DW16 / DW06**

- / Pressure measurement of gaseous and liquid media
- / Media e.g. compressed air, nitrogen, cooling water
- / Analog and switch output
- / Measuring range up to 600 bar



SERIES YT3 / YT4

- / Temperature measurement of technical gases and liquids
- / Media e.g. compressed air, coolant
- / Analog and switch output
- / Measuring range up to 350° C

SENSOR VARIATIONS

SERIES NZ

- / Power consumption measurement of components, systems and operating sites
- / Mounting on conductor rail or round conductor
- / Analog output
- / Measuring range up to 600 A



SERIES IY / YM5 / OH

- / Recording of quantities as well as IO and NIO parts
- / For metallic and non metallic objects
- / Static and dynamic resolution for stationary, moving and fast moving parts





SERIES FR

- / Non-contact level control especially for demanding environments
- / Very long range up to 5 m (ex works), adjustable up to 10 m
- / Short response time of 0.3 ms
- / Very high measuring accuracy
- / Level control also of media, on which foam or gas stratifications can form



SERIES VD5892X

- / Continuous determination of the production quantity of strip materials
- / Length measurement in very fast processes
- / High speed of up to 6,000 rpm
- / Can be parameterized on site to the required number of pulses



SERIES VO33

- / Parameterizable position measuring system with many functions
- / Optical, slip free path and angle measurement of all moving objects regardless of material and color
- / Switching distance 15 to 60 mm
- / High sampling rate of 0.9 ms
- / Display of travel speed and travel distance
- / Configurable zero point or alarm output

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Discover more flyers!

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