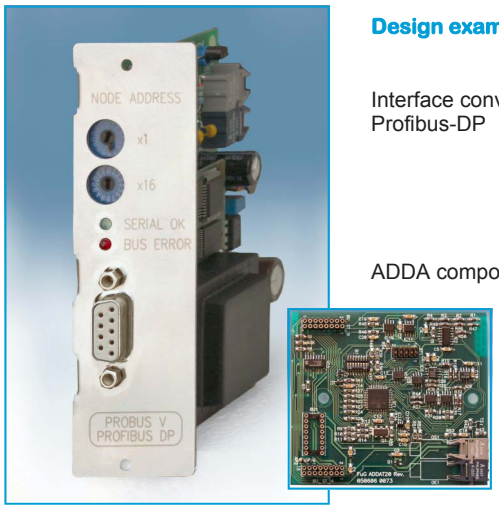
Options and modifications:
Probus V (digital interface system)



Design example

Interface converter
Profibus-DP

ADDA component

General:

The modular interface system **PROBUS V** allows to connect FuG- power supplies with various interfaces and bus-systems.

Available versions:

- IEEE 488
- RS 232 active or passive
- RS 422
- USB
- Profibus DP
- LAN (Ethernet)
- more on request

Every version can be integrated completely into the power supply or delivered with an external interface converter. In the last case the connection is connected via optical fiber cables.

Features:

- Easy programming with SCPI-like syntax; Standard set of commands compatible to previous version PROBUS IV.
- Extended set of commands for special functions.
- Most modern RISC-Microcontroller techniques with SMD.
- Completely digitally adjusted for highest precision.
- Isolation between interface converter and ADDA component via optical fiber, though extremely immune against interferences.
- more than one ADDA components addressable in one optical fiber chain.

Technical data:

- Instruction processing time approx. 300µs (without serial data transfer time)
- at 625kBd at least 1000 settings per second programmable (typ. 2000/sec)
- up to 100 measurements per second
- two outputs 0..+/-10V, effective resolution 14 to 20 bit incl. sign (depending on integration time), theoretical resolution 24 bit.
- setting time of outputs <500us
- Tc < $1x10^{-5}$/K, typ. 3ppm/K, better Tc on request
- two inputs 0..+/-10V, programmable resolution, max. 22 bit incl. sign, input impedance >1GΩ
- several digital I/Os for control of the power supply
- Optical connectors: Standard Agilent (HP) HFBR-0500 series. Optionally HFBR-0400 series.

Design:

The **PROBUS V** system consist of two assemblies respectively:

- Intelligent analog-digital and digital-analog converter: (short: ADDA).
  This part always is in the power supply and communicates by a serial ASCII protocol via optical fibers. It evaluates the programmed commands, controls the power supply by reference voltages and makes available serially the feed back data of the power supply .
- Interface converter
  This part converts the optical signals to the respective bus- or interface standard. The converter can be installed into the rear of the power supply unit or delivered as a separate module.

  The external interface converters are Euro-cassettes of 71mm (14TE) width, 133mm (3HE) height and 170mm depth.
  For the passive RS 232– connection, the interface converter has the shape of a Sub- D– connector.
  The length of the optical fiber from the external interface converter to the power supply may be up to 30m. (Synthetic material fiber) resp. more than 1000m with special design (glass fiber).

IEEE 488:

- Delay time of the data transfer: <100us.
- Baud rates on the serial side of the optical link: 38400Bd or 625kBd selectable.
- SRQ (Service Request) programmable.
- LED indicators for "addressed" und "SRQ" conditions.
- together with ADDA commonly compatible to the IEEE-488 mode of the predecessor PROBUS IV.
- Optical connectors: Standard Agilent (HP) HFBR-0500 series. Optionally HFBR-0400 series.
- IEEE-488 address selectable by switch near the IEEE-488 connector (outside the unit).

RS 232 electrical (active):

- own power supply, 3-wire connection sufficient (Rx, Tx, GND).
- Baud rates up to 115200Bd possible.
- Connector: 9-pol. Sub-D.
- together with ADDA commonly compatible to the RS-232 mode of the predecessor PROBUS IV.
- Optical connectors: Standard Agilent (HP) HFBR-0500 series. Optionally HFBR-0400 series.

RS 232 optical (passive):

- Like RS 232 active, but:
- Power supply by interface signals:
- Optical connectors: Direct sticking connection for standard 1mm POF optical link.
- Guaranteed distance to the power supply: up to 30m (typical up to 50m).
- The complete interface converter is housed in a Sub-D-connector-like case.

RS 422:

- Baud rates up to 625kBd possible.
- Optical connectors: Standard Agilent (HP) HFBR-0500 series. Optionally HFBR-0400 series.

USB:

- Control via virtual COM-Port or directly via USB-driver. (Virtual Com-Port driver for the most common operation systems available, very simple programming, no USB-programming knowledge necessary.)
- Optical connectors: Standard Agilent (HP) HFBR-0500 series. Optionally HFBR-0400 series.
- Delay time typical approx. 1ms due to USB principle.

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Options and modifications:
Probus V (digital interface system)

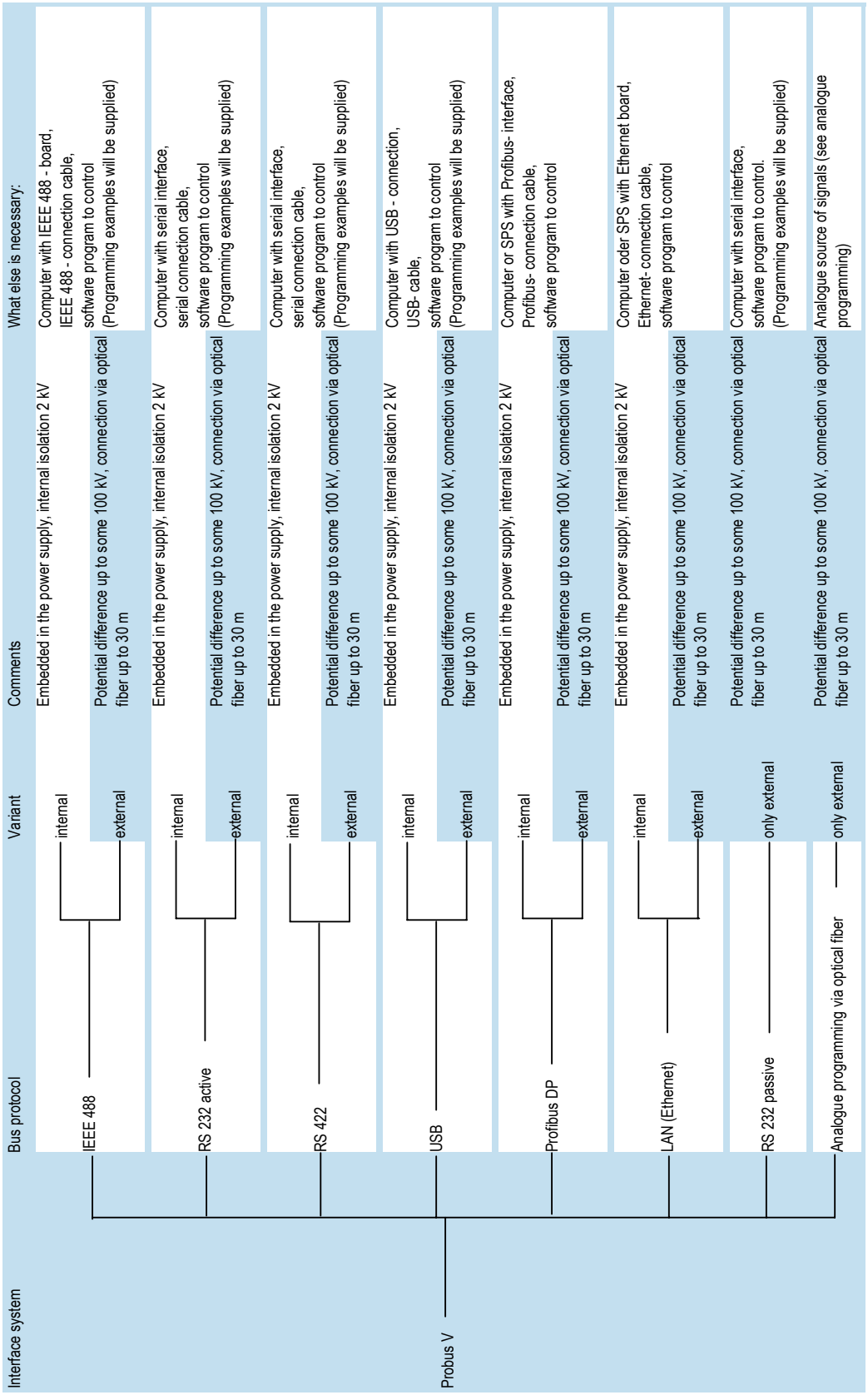
Profibus DP:

- An initial data block is made available on the Profibus-DP side. Into this the primary SPS writes the required set points and control commands.
- This initial data block is transferred cyclically by the converter via optical link to the ADDA part.
- The feedback data (e.g. measurements) of the ADDA part is questioned cyclically and provided n the exit data block of the converter to the primary SPS.
- Cycle time 40ms.
- Profibus address selectable by code-switch outside the unit.
- Mode indication for Profibus connection (red Error-LED).
- Mode indication for optical link.

LAN (Ethernet):

- Control via virtual COM-Port or directly by TCP/IP-programming.
  (Virtual Com-Port driver for the most common operation systems available, very simple programming, no profound knowledge of TCP/IP-programming necessary.)
- Optical connectors: Standard Agilent (HP) HFBR-0500 series. Optionally HFBR-0400 series.
- Delay time approx. 20ms.

Application notes for Probus V



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