

SMART Digital – DDA with Profibus DP / Modbus RTU / PROFINET IO / Modbus TCP

– for industrial automation

The SMART Digital dosing pump range DDA is available with an E-box which hold a CIM 150 Profibus -DP interface. This is a standard interface for data transmission between a Profibus DP network and a Grundfos pump. It makes data exchange possible between Grundfos DDA and a PLC or SCADA system.

An E-Box version for Modbus enable a communication with the Modbus RTU protocol. With the external CIU 500 module it is possible to communicate via PROFINET IO or Modbus TCP protocol to the DDA.

No custom programming is needed to integrate the CIM 150 in a Profibus network. System integration is very straight-forward with standard GSD file.

The communication box (E-box) can be installed later (retrofit installation). When connecting the DDA to the E-box you only have to connect the internal GENibus by wire between pump and E-box. Via the Display on the DDA you can easily set the bus address. For each DDA an own E-box is required.

Supported products

- > DDA Control variant FCM
- > DDA Control variant FC
- > DDA Control variant AR

Advantages at a glance

- > Remote control and monitoring of DDA SMART Digital dosing pump
- > Integration into industrial automation systems (PLC; SCADA)
- > Modular design – prepared for future needs
- > Retrofit of E-box possible
- > Easy installation and commissioning
- > The IP65 data cable inputs ensures reliable protection in harsh environments



DDA E-Box

Profibus -DP Communication (E-box 150)

| | |
|----------------------|------------------------------|
| Protocol | Profibus DP |
| Implementation Class | DP-V0 |
| Transmission speeds | 9600 bps to 12 Mbps |
| Slave address | 1 – 126, set via DDA display |

The DDA has to be mounted directly on the top of the E-box and a bus cable has to be connected between DDA and E-box.

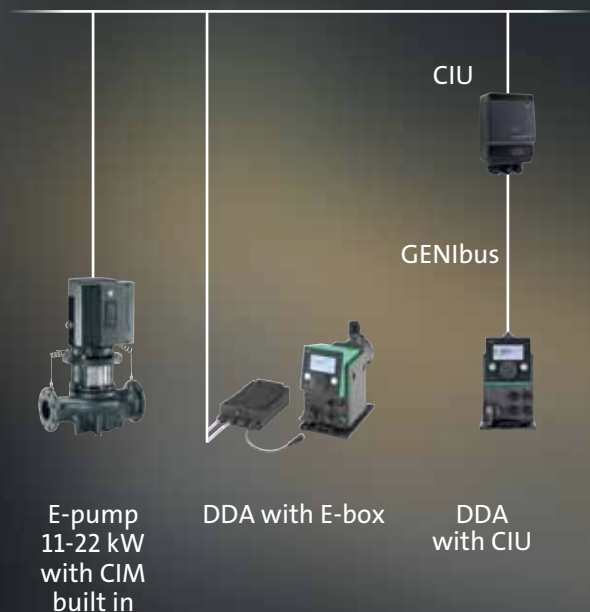
Modbus RTU Communication (E-box 200)

| | |
|---------------------|--|
| Protocol | Modbus RTU |
| Transceiver | RS-485 |
| Transmission speeds | 1.2, 2.4, 4.8, 9.6, 19.2, 38.4 kbits/s |
| Slave address | 1-247, set via DDA display |

PROFINET or Modbus TCP Communication (CIU 500)

| | |
|----------------------------|--|
| Protocol | PROFINET IO Modbus TCP (set via rotary switch) |
| Transmission speed | 10 / 100 Mbits/s |
| Ports | 2 x RJ45 |
| PROFINET Conformance class | B |

Fieldbus example:



Data points

| DDA E-box 150/ 200 or CIU 500 | | | |
|---|------------------------|-----------------------|-----------------------|
| | Control variant FCM | Control variant FC | Control variant AR |
| Control | | | |
| Operating Mode (Start, Stop, Service, Calibrating), Functions (Slow mode, Viscosity selection), Deaerating mode | • | • | • |
| Function Enable/Disable (AutoDeaerating, FlowMonitor, Profibus Watchdog, AutoFlow, PulseMemory) | • | • | • |
| Pulse signal from bus | • | • | • |
| Reset Fault and Volume Counter | • | • | • |
| Control Mode (Manual, Pulse, Analogue, Timer, Batch) | • | • | • |
| Set Manual Flow Setpoint | • | • | • |
| Set Pulse Volume | • | • | • |
| Set Batch Volume | • | • | • |
| Set Batch Dosing Time | • | • | • |
| Set Flow Monitor Pressure Alarm Limit | • | • | • |
| Relay Control of Relay 1 and 2 | • | • | • |
| Set Analog Output | • | • | • |
| Set Date & Time | • | • | • |
| Status | | | |
| Operating Mode Status | • | • | • |
| Control Mode Status | • | • | • |
| Alarm/warning/dosing (running) Status | • | • | • |
| Actual Manual Flow Setpoint | • | • | • |
| Actual Pulse Volume Setting | • | • | • |
| Actual Batch Dosing Volume Setting | • | • | • |
| Actual Batch Dosing Time Setting | • | • | • |
| Actual Flow Monitor Pressure Alarm Limit Setting | • | • | • |
| Control Source (HMI, External, Bus) | • | • | • |
| Fault & Warning Code | • | • | • |
| Warning Status Bits | • | • | • |
| Actual Date & Time | • | • | • |
| Max Dosing Pressure | • | • | • |
| Max Dosing Capacity | • | • | • |
| Resulting Dosing Capacity Setpoint | • | • | • |
| Remaining Dosing Volume | • | • | • |
| Total Dosed Volume | • | • | • |
| Volume Trip Counter | • | • | • |
| Actual Analog Output Signal | • | • | • |
| Digital Outputs | • | • | • |
| Number Of Starts | • | • | • |
| Run Time | • | • | • |
| Total On Time | • | • | • |
| Stroke Counter | • | • | • |
| Time To Next Dosing | • | • | • |
| Measured Data | | | |
| Digital Inputs | • | • | • |
| Analog Input Signal | • | • | • |
| Pulse Input Frequency | • | • | • |
| Measured Dosing Capacity | • | • | • |
| Measured Dosing Pressure | • | • | • |

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