

# Industrial Automation for Smart Digital GRUNDFOS E-BOX

The Grundfos DDA SMART Digital dosing pump is available with an E-box 150, which holds 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 200 for Modbus RTU enables a communication with the Modbus RTU protocol. An E-Box 500 supports Modbus TCP or PROFINET protocol.

Connecting a DDA XL requires a related CIU interface.

System integration is very straight forward with a standard GSD file, and no custom programming is needed to integrate the CIM 150 in a PROFIBUS network.

To connect to GENIbus, the DDA should be mounted directly on top of the E-box with a bus cable connecting the pump and E-box. On the display on the DDA you can easily set the bus address. Each DDA requires its own E-box, and retrofit installation of the E-box is possible.



## KEY FEATURES AND BENEFITS

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

## APPLICATIONS

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

**TECHNICAL DATA**

**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  
 GENIbus Communication

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 Profibus Communication

**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 (E-BOX 500)**

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

**FIELD BUS EXAMPLES**



**DATA POINTS**

**DDA E-Box 150/ 200 or E-Box 500  
 For Control Variant FCM, FC, AR**

\*DDA XL require a related CIU 150/200/500

**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

Visit [grundfos.us/pei](http://grundfos.us/pei) to learn more about Department of Energy (DOE) pump energy index (PEI) requirements and PEI ratings on specific Grundfos models.