

# Communication interface for **Profibus**

## – for automation

The CIM/CIU 150 is a standard interface for data transmission between a Profibus DP network and a Grundfos pump or controller. It makes data exchange possible between Grundfos pumping systems and a PLC or SCADA system.

No custom programming is needed to integrate the CIM/CIU 150 in a Profibus network. System integration is very straight-forward with standard GSD files and support for the standard profile “intelligent pumps” from Profibus International.

The interface module can be installed as an internal add-on or as a wall-mounted unit where internal connection is not supported. The wall-mounted unit is equipped with a 24-240 VAC/VDC power supply.

In addition to Profibus DP, interface modules are also available for GENIbus, BACnet, Modbus, LON, GSM and other systems.

### CIM 150 add-on module

The CIM 150 is an add-on communication module installed internally in 11-22 kW Grundfos E-pumps.

### CIU 150 wall-mounted/DIN-rail unit

The CIU 150 with internal power supply is for Grundfos products that do not support the add-on module.

### Supported products

- > MAGNA/ UPE circulators \*
- > Dry-running E-pumps: CRE/CRNE/CRIE, MTRE, CME, TPE Series 1000/2000, NBE/NKE
- > CUE Motor drive for pumps
- > Multi Pump Controller: Control MPC\*
- > Motor Protector MP 204
- > Boosters: Hydro Multi-E and Hydro MPC\*

\* additional add-on GENIbus module required

### Advantages at a glance

- > Supports a wide range of Grundfos products
- > Supports standard intelligent pump profile from Profibus International
- > Modular design – prepared for future needs
- > 24-240 VAC/VDC power supply in CIU
- > Easy installation and commissioning



# Using CIM/CIU with Grundfos products

## General CIU 150 data

|                        |                                              |
|------------------------|----------------------------------------------|
| Supply voltage         | 24-240 VAC/VDC, -10% / + 15%                 |
| Frequency              | 0 - 60 Hz                                    |
| Power consumption      | Max. 11 W                                    |
| Cable size             | IEC: 0.2 - 4 mm <sup>2</sup> , UL: 24-12 AWG |
| Enclosure class        | IP 54, according to IEC 60529                |
| Cable entry            | 6 x M16 Ø4 - Ø10                             |
| Operating temperatures | -20 °C to +45 °C (-4 °F to +113 °F)          |
| Storage temperatures   | -20°C to +60°C (-4°F to +140°F)              |
| Dimensions (H/W/D)     | 182 x 108 x 82 mm                            |

## GENIbus Communication

|                        |                               |
|------------------------|-------------------------------|
| Protocol               | GENIbus                       |
| Recommended cable type | Screened, double twisted-pair |
| Maximum cable length   | 1200 m/ 4000 ft               |

## Profibus Communication

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

## Profibus DP



## Data points

| CIM/CIU 150 Profibus                                     |             |                        |                         |         |                           |                |        |
|----------------------------------------------------------|-------------|------------------------|-------------------------|---------|---------------------------|----------------|--------|
| s = available with sensor                                | MAGNA / UPE | E-Pumps<br>0.25-7.5 kW | CUE/E-Pumps<br>11-22 kW | Multi-E | Hydro MPC/<br>Control MPC | CR Monitor     | MP 204 |
| s* = available with sensor or TPE 2000                   |             |                        |                         |         |                           |                |        |
| <sup>1</sup> differential or absolute, depends on sensor |             |                        |                         |         |                           |                |        |
| <sup>2</sup> Not standard for Control MPC                |             |                        |                         |         |                           |                |        |
| <sup>3</sup> Not supported for all pump variants         |             |                        |                         |         |                           |                |        |
| <b>Control</b>                                           |             |                        |                         |         |                           |                |        |
| Operating Mode                                           | •           | •                      | •                       | •       | •                         | •              | •      |
| Setpoint                                                 | •           | •                      | •                       | •       | •                         | •              | •      |
| Control Mode                                             | •           | •                      | •                       | •       | •                         | •              | •      |
| Relay Control                                            |             | •                      | •                       |         |                           |                | •      |
| <b>Status</b>                                            |             |                        |                         |         |                           |                |        |
| Operating Mode Status                                    | •           | •                      | •                       | •       | •                         | •              | •      |
| Control Mode Status                                      | •           | •                      | •                       | •       | •                         | •              | •      |
| Feedback                                                 | •           | •                      | •                       | •       | •                         | •              | •      |
| Alarm and warning information                            | •           | •                      | •                       | •       | •                         | •              | •      |
| Bearing Service information                              |             |                        | •                       |         |                           | •              |        |
| <b>Measured Data</b>                                     |             |                        |                         |         |                           |                |        |
| Power/Energy Consumption                                 | •           | •                      | •                       | •       | •                         | •              | •      |
| Pressure (Head) <sup>1</sup>                             | •           | s*                     | s*                      | •       | • <sup>2</sup>            | •              |        |
| Flow                                                     | •           | s*                     | s*                      | •       | • <sup>2</sup>            | •              |        |
| Relative Performance                                     | •           | •                      | •                       | •       | •                         |                |        |
| Speed and Frequency                                      | •           | •                      | •                       |         |                           | •              |        |
| Digital Input/Output                                     |             | •                      | •                       | •       | •                         | •              |        |
| Motor Current                                            |             | •                      | •                       |         |                           | •              | •      |
| DC Link Voltage                                          |             | •                      | •                       |         |                           |                |        |
| Motor Voltage                                            |             | •                      | •                       |         |                           | •              | •      |
| Remote Flow                                              |             |                        | s                       |         |                           |                |        |
| Inlet Pressure <sup>1</sup>                              |             |                        | s                       |         | s                         | s              |        |
| Remote Pressure <sup>1</sup>                             |             |                        | s                       |         | s                         |                |        |
| Level                                                    |             | s                      | s                       |         | s                         |                |        |
| Motor Temperature                                        |             |                        | •                       |         |                           | • <sup>3</sup> | s      |
| Remote Temperature                                       |             | s                      | s                       |         | s                         |                |        |
| Pump Liquid Temperature                                  | •           |                        | s                       |         |                           | s              |        |
| Bearing Temperatures                                     |             |                        | s                       |         |                           |                |        |
| Auxiliary Sensor Input                                   |             | s                      | s                       |         |                           | s              |        |
| Operation Time (Run Time)                                | •           | •                      | •                       | •       | •                         | •              | •      |
| Total on time                                            | •           | •                      | •                       |         |                           | •              | •      |
| Torque (N/A on 1-phased motors)                          |             | •                      | •                       |         |                           |                |        |
| Number Of Starts                                         |             | •                      | •                       |         |                           | •              |        |
| Ambient Temperature                                      |             |                        |                         |         | s                         |                |        |
| Inlet and Outlet Temperatures                            |             |                        |                         |         | s                         |                |        |
| Temperature Difference                                   |             |                        |                         |         | s                         |                |        |
| Outlet Pressure <sup>1</sup>                             |             |                        |                         |         | • <sup>2</sup>            | s              |        |
| Feed Tank Level                                          |             |                        |                         |         | s                         |                |        |
| Phase Voltages                                           |             |                        |                         |         |                           |                | •      |
| Line Voltages/Currents/Frequency                         |             |                        |                         |         |                           |                | •      |
| Start/Run Capacitor                                      |             |                        |                         |         |                           |                | •      |
| Voltages Angles + Cos phi                                |             |                        |                         |         |                           |                | •      |
| Insulation resistance                                    |             |                        |                         |         |                           |                | •      |
| Starts/h and auto restarts/24h                           |             |                        |                         |         |                           |                | •      |
| Calculated/Measured Efficiency                           |             |                        |                         |         |                           | •              |        |
| Available/required NPSH                                  |             |                        |                         |         |                           | •              |        |
| Cavitation Margin                                        |             |                        |                         |         |                           | •              |        |
| <b>Subpump Data (for each sub pump in the system)</b>    |             |                        |                         |         |                           |                |        |
| Status information                                       |             |                        |                         | •       | •                         |                |        |
| Alarm information                                        |             |                        |                         | •       | •                         |                |        |
| Operation Time (Run Time)                                |             |                        |                         | •       | •                         |                |        |
| Speed                                                    |             |                        |                         | •       | •                         |                |        |

Note: E-Pumps = CRE/CRNE/CME, MTRE, CHIE, TPE Series 1000/2000, NBE/NKE