

# Communication interface for **GSM/GPRS**

## – for remote wireless control and monitoring

The CIM/CIU 250 is a standard interface for data transmission between a GSM/GPRS network and a Grundfos pump or controller and can be used as follows:

- As an SMS interface it enables users to control and monitor Grundfos pumps and pump systems from a mobile phone. It is possible to get a message whenever a warning or an alarm occurs, to request the status or to do simple control like START, STOP and adjusting of setpoint.
- The GSM/GPRS module can work as a SCADA Interface enabling a SCADA system or a PLC controller to establish a remote connection either via GSM Call-up using the Modbus RTU protocol or via a GPRS using the Modbus TCP protocol connection.

Extensive amounts of datapoints are available from each product via the CIM/CIU 250. The interface offers uncomplicated wireless data transmission and remote control of Grundfos pumps systems. 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 GSM/GPRS, Grundfos CIM/CIU interface modules are also available for the wired fieldbusses GENIbus, BACnet, Profibus, LON and Modbus.

### CIM 250 add-on-module

The CIM 250 is an add-on communication module installed internally in 11-22kW Grundfos E-Pumps or Dedicated Controls or Hydro Multi-B.

### CIU 250 wall-mounted/DIN rail unit

The CIU 250 with internal power supply is for Grundfos products that do not support the add-on module.

### Supported Products

- > Dry running E-pumps: CRE/CRNE/CRIE, MTRE, CHIE, CME, TPE Series 1000/2000, NBE/NKE
- > CUE Motor drive for pumps
- > Multi Pump Controller: Control MPC\*
- > Boosters: Hydro Multi-E and Hydro MPC\* and Hydro Multi-B
- > CR Monitor\* condition monitoring for CR pumps
- > Dedicated Controls for sewage pumps (separate datasheet)
- > Motor Protector MP 204
- > Circulators: MAGNA\*/UPE
- > Sewage AUTO<sub>ADAPT</sub> pump (separate datasheet)
- \* Additional add-on GENIbus module required

### Advantages at a glance

- > Supports a wide range of Grundfos products
- > Simple configuration via SMS commands
- > Modular design
- > 24-240 VAC/VDC power supply in CIU
- > Wireless remote control and monitoring
- > Status request and control via SMS
- > GSM call-up
- > GPRS connection
- > Built-in battery backup possible



## Using CIM/CIU with Grundfos products

### General CIU 250 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
Operation 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 (CIU 250)

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

### GSM/GPRS communication

Protocol	SMS GSM call up (Modbus RTU) GPRS (Modbus TCP)
GSM antenna	Available as an option
Battery	Included with CIU 250 Optional for CIM 250
SIM card	To be supplied by user/ installer

### SMS features:

Read product status	E.g. pressure, power, temperature etc. (depends on product type) Request active alarms/warnings
Read network status	E.g. signal level, battery status, GSM/GPRS status and data statistics.
Get messages	Alarm/ warning event messages Heart beat messages
Control	Set operating mode (e.g. Start/ stop) Set control mode (e.g. constant pressure) Set Setpoint Reset Alarms
Configuration	SMS access control via PIN code Configuration of SMS functions Configuration of GSM options Configuration of GPRS connection

### Data points

CIM 250 GSM/GPRS	MAGNA/UEPE	"E-Pumps 0.25-7.5 kW"	CUE/E-Pumps 11-22 kW	Hydro Multi-E	Hydro MPC/Control MPC	MP204	CR Monitor	Hydro Multi-B
s = available with sensor 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 G= only for MGE model G								
<b>Control</b>								
Operating Mode	✓	✓	✓	✓	✓	✓	✓	✓
Setpoint	✓	✓	✓	✓	✓		✓	✓
Control Mode	✓	✓	✓		✓		✓	
Relay Control		✓	✓			✓		
Tank filling control								✓
<b>Status</b>								
Operating Mode status	✓	✓	✓	✓	✓	✓	✓	✓
Control Mode status	✓	✓	✓	✓	✓		✓	✓
Feedback	✓	✓	✓	✓	✓		✓	✓
Alarm/warning information	✓	✓	✓	✓	✓	✓	✓	✓
Bearing Service Information		G	✓				✓	
Tank filling status 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		G+s	s					
Inlet Pressure <sup>1</sup>		G+s	s		s		s	s
Remote Pressure <sup>1</sup>		G+s	s		s			
Level		s	s		s			s
Motor Temperature		G	✓			s	✓ <sup>3</sup>	
Remote Temperature		s	s		s			
Pump Liquid Temperature	✓	G+s	s				s	
Bearing Temperatures			s					
Auxiliary Sensor Input		s	s				s	
Operation Time (Run Time)	✓	✓	✓	✓	✓	✓	✓	✓
Total on time	✓	✓	✓	✓		✓	✓	
Number Of Starts		✓	✓			✓	✓	
Ambient Temperature					s			
Inlet and Outlet Temperatures					s			
Temperature Difference					s			
Outlet Pressure <sup>1</sup>					✓ <sup>2</sup>		s	s
Feed Tank Level					s			s
Phase Voltages						✓		
Line Voltages/Currents/Frequency						✓		
Start/Run Capacitor						✓		
Voltage Angles + Cos phi						✓		
Insulation resistance						✓		
Starts/h and auto restarts/24h						✓		
Calculated/Measured Efficiency							✓	
Available/required NPSH							✓	
Cavitation Margin							✓	
<b>Subpump Data</b>								
Alarm/Status information				✓	✓			✓
Operation Time (Run Time)				✓	✓			✓
Speed					✓			✓
Line current/ power consumption								✓
Motor temperature								✓
Number of starts								✓
Control pump: force to stop/ auto								✓

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