Grundfos GENIbus Driver for Tridium Niagara

User Guide

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niagara4

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1 Introduction

The Grundfos[1] GENIbus driver for Tridium Niagara provides direct digital integration with Grundfos pump systems for comprehensive monitoring and control. It communicates via the proprietary GENIbus protocol over RS-485 at 9600 baud, supporting up to 32 pumps per network segment.

The driver eliminates the need for expensive protocol gateways ($500–1000 per pump) and hardwired I/O connections, reducing integration costs by up to 75% while providing access to over 100 parameters per pump. Grundfos, founded in 1945 in Denmark, is the world's largest pump manufacturer, producing 19 million pumps annually. GENIbus is now the third-generation embedded communication standard across Grundfos commercial pumps.

2 Requirements

- Niagara-powered device with software v4.8 or later, such as JACE, Supervisor, or any OEM version
- GENIbus driver module and license
- RS-485 serial port on the JACE, or a serial-to-IP converter
- GENIbus-enabled Grundfos pumps (e.g., MAGNA, UPE, TPE, CUE, or Multi-E)

3 Quick Start

1. Copy genibus-rt.jar module to Niagara /modules folder and restart the software.
    a. If the driver is hosted on PC: restart Supervisor station.
    b. If the driver is hosted on JACE: restart JACE from the platform.
2. Open the station in Workbench.
3. Open the **Palette** and locate the **genibus** palette.
4. Drag and drop **GenibusNetwork** from the palette onto the **Drivers** container in the station.
5. Enter license code in **License** property under **GenibusNetwork**.
6. Configure the serial port settings (RS-485, 9600 baud, 8N1).
7. Right-click on the network and select **Discover** to find all connected pumps.
8. Select the desired pumps and press **Add** to import them into the station.
9. Expand a device, right-click on the point manager, and select **Discover** to find all points.

[1] All trademarks or registered trademarks are the property of their respective owners

4 GENIbus Network

The GENIbus Network manages the RS-485 connection to the pump network. One network can address up to 32 pumps.

Network properties:

- **License** – the code that allows the driver to run on your host.
- **Serial Config / Port Name** – COM port name (e.g., “COM1”).
- **Serial Config / Baud Rate** – communication speed, fixed at 9600 bps for GENIbus protocol.
- **Poll Frequency** – interval between point read cycles.

In most cases only **License** and **Serial Config / Port Name** values need to be changed.

5 GENIbus Devices

Each discovered pump appears as a device under the network. The driver auto-discovers all GENIbus-enabled pumps with automatic addressing.

Device properties:

- **Address** – GENIbus address of the pump on the RS-485 bus (1–32).
- **Poll Frequency** – polling rate for this device.

Supported models:

MAGNA 1	MAGNA 3	UPE	UPS
TPE	TPED	MGE	CUE
Multi-E	Multi-B	DDA	CU 351
MP 204			

6 GENIbus Points

Points are automatically discovered with their original names, engineering units, and enumeration values. The driver exposes over 100 parameters per pump, organized into the following categories:

Monitoring:

- Flow rate, differential pressure, and power consumption

- Motor temperature, operating hours, and efficiency
- Bearing status and vibration levels

Control:

- Setpoint adjustment and mode selection
- Start/stop commands and manual speed override
- Multi-pump sequencing

Diagnostics:

- Alarm and warning notifications with diagnostic codes
- Pump operating state and fault history

Control points (setpoints, start/stop commands) are writable. To write to a point, change its type to writable (e.g., **Numeric Writable** or **Boolean Writable**) before or after adding it to the station. Monitoring and diagnostic points are read-only.

7 Advanced Features

The driver supports advanced pump management capabilities:

- **Intelligent Sequencing** – rotates lead/lag pumps to extend equipment life and distribute wear evenly.
- **Demand-Based Operation** – adjusts pump speed based on actual demand, reducing energy consumption by 30–50%.
- **Efficiency Monitoring** – tracks pump efficiency over time, identifying degradation trends.
- **Predictive Maintenance** – monitors key parameters to predict maintenance needs before failures occur.

8 FAQ

8.1 What cable do I need for GENIbus communication?

GENIbus uses standard RS-485 wiring. A twisted-pair cable with a ground wire is recommended. The maximum cable length is 1200 meters. The bus must be terminated with 120-ohm resistors at both ends.

8.2 Can I mix different pump models on the same RS-485 bus?

Yes. Any combination of GENIbus-enabled Grundfos pumps can coexist on the same RS-485 segment, up to 32 devices.

8.3 I cannot discover any pumps

- Check RS-485 wiring and termination resistors at both ends of the bus.
- Verify the COM port name is correct and the port is not in use by another application.
- GENIbus uses 9600 baud – this is fixed by the protocol and cannot be changed.
- Ensure pumps are powered and GENIbus communication is enabled in the pump settings.
- Check that the license is valid.

8.4 How do I verify a pump supports GENIbus?

Check the pump nameplate or product data sheet for “GENIbus” or “GENIbus RS-485”. Most Grundfos MAGNA, UPE, TPE, and CUE series pumps support GENIbus. Older pumps with analog-only interfaces do not.