

Biogas Plant

Application support for DG1



Powering Business Worldwide



Ideal for cases in which it all comes down to sheer power – screw conveyors

Extruders and screw conveyors require larger torques than most other applications. And when a machine is cold or the material being conveyed becomes compacted, extreme overloads are to be expected.

The sensorless vector control (SVC) function in DG1 variable frequency drives makes it possible to provide a torque of up to 200% briefly, making these devices perfect for applications with extreme overload requirements.



Robust	Fast	Simple	Service & support
<ul style="list-style-type: none"> • Conformal coated boards protect against aggressive ambient • Best-in-Class ambient temperature range from -30 °C up to +60 °C 	<ul style="list-style-type: none"> • Group motor rated with fuses and breakers for reduction in labor and material costs • 18 basic parameters, quick start wizard and PC tools for simpler commissioning • Programming samples to include DG1 into common used PLC's (Codesys, STEP) • Ethernet/IP assist tool for easy tag integration into RSLogix 5000 software 	<ul style="list-style-type: none"> • Shows the most important Parameters in a compact menu for fast access. All entries are user-configurable. That saves time finding the desired information • Pre-configured applications to simplify complex parameter sets, from standard to multi-pump configurations • Extensive on-board communications reduces cost and improves control capabilities 	<ul style="list-style-type: none"> • Standard two-year warranty with extensions available through certified commissioning • Dedicated team of application engineers and technical resources available to provide pre-sales and after-sales support • Aftermarket program providing spare parts, service and training classes

Application note

- **200% torque** - Independently of the fact that a DG1 can work with a 150% overload for 60 seconds every 10 minutes, it also offers a peak torque of 200% (for 2 seconds every 20 seconds) for critical situations. This makes it possible to reliably overcome even the toughest overload requirements. And when even this is not enough to keep driving the application, the DG1 unit will detect this and shut down with a fault message before it or the motor is damaged.

Application protection

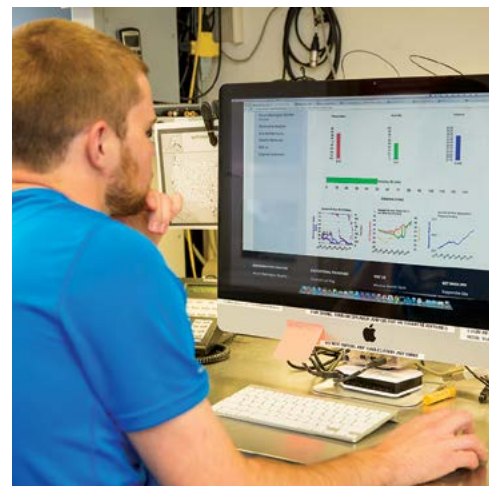
- **STO** - Designed in Safety typical yellow, simplifies integration in the required safety system according to the machine directive.
- **Automatic restart** - Brings biogas plant back online after a power failure in order to minimize downtimes and potential system faults.

Motor control

- **Stall protection** - Quicker response than overcurrent protection for instances of overweight and jammed conveyors or material handling systems to maintain a healthy system.
- **Motor-ID run** - Automatically determines the motor parameters required in order to maximize performance and efficiency as appropriate for the current pump configuration.

Motor protection

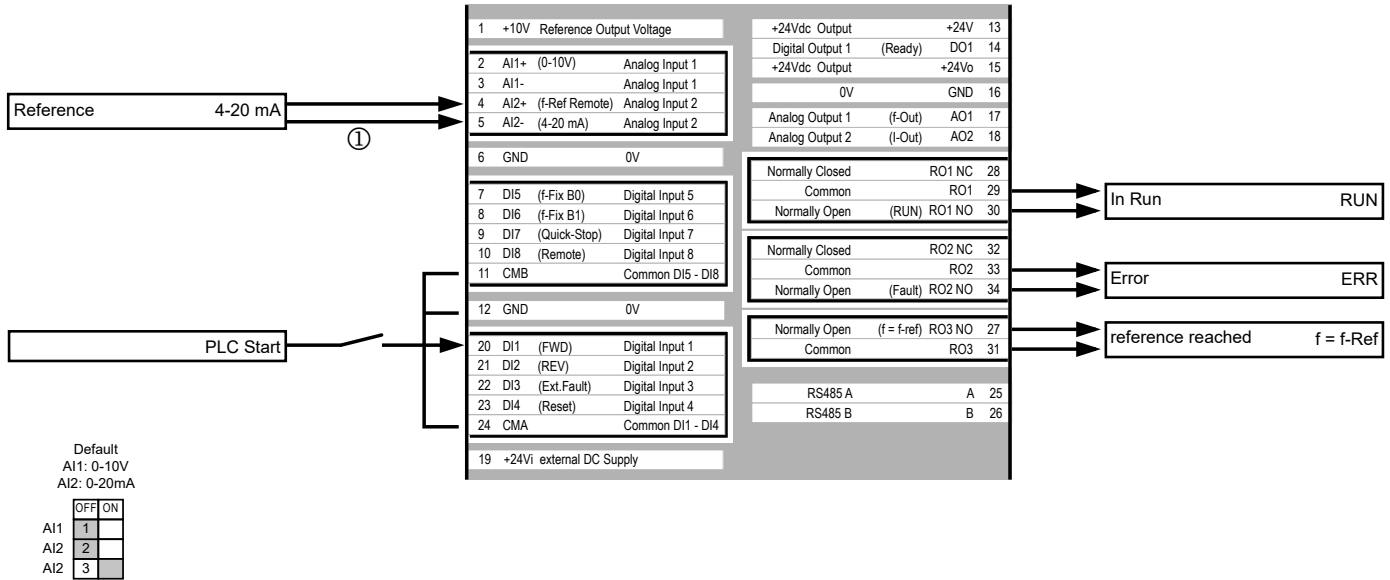
- **Electronic motor protection** - In order to efficiently prevent any motor damage, a perfect working motor protection is required. Accordingly, the protection function in DG1 variable frequency drives can be programmed flexibly.



Wiring diagram screw conveyor

Following a sample wiring diagram is shown for a screw conveyor.

Labels of the inputs/outputs are shown for default, eventually the need to be adapted to the desired function.



Further application notes

Common hints

- Electromagnetic compatibility (EMC) [AP040043EN](#)
- Dual Rating – What exactly does that mean? [AP040114EN](#)
- Connecting drives to generator supplies [AP040169EN](#)

DG1 specific hints

- Application manual DG1 [MN040004EN](#)
 - Communication Manual DG1 [MN040010EN](#)
 - Installation Manual DG1 FR 0-6 [MN040002EN](#)
 - Operating at low temperatures [AP040058EN](#)
 - DG1 in Pump- and Fan applications [AP040128EN](#)
 - Real Time Clock and use of the timers [AP040172EN](#)
 - Analog I/Os [AP040129EN](#)
 - Digital I/Os [AP040132EN](#)
 - Load balancing in multi motor applications [AP040168EN](#)
 - Motordata and V/f curves [AP040177EN](#)
 - PID Controller [AP040164EN](#)
 - Smoke Mode and Fire Mode [AP040065EN](#)
 - Starting, Stopping and Operation [AP040176EN](#)
- Following link will show you the Application notes for DG1: [Eaton.com/ap/overview/drives](https://www.eaton.com/ap/overview/drives)
- DG1-Manuals you can find at: [Eaton.com/dg1](https://www.eaton.com/dg1)

Services

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