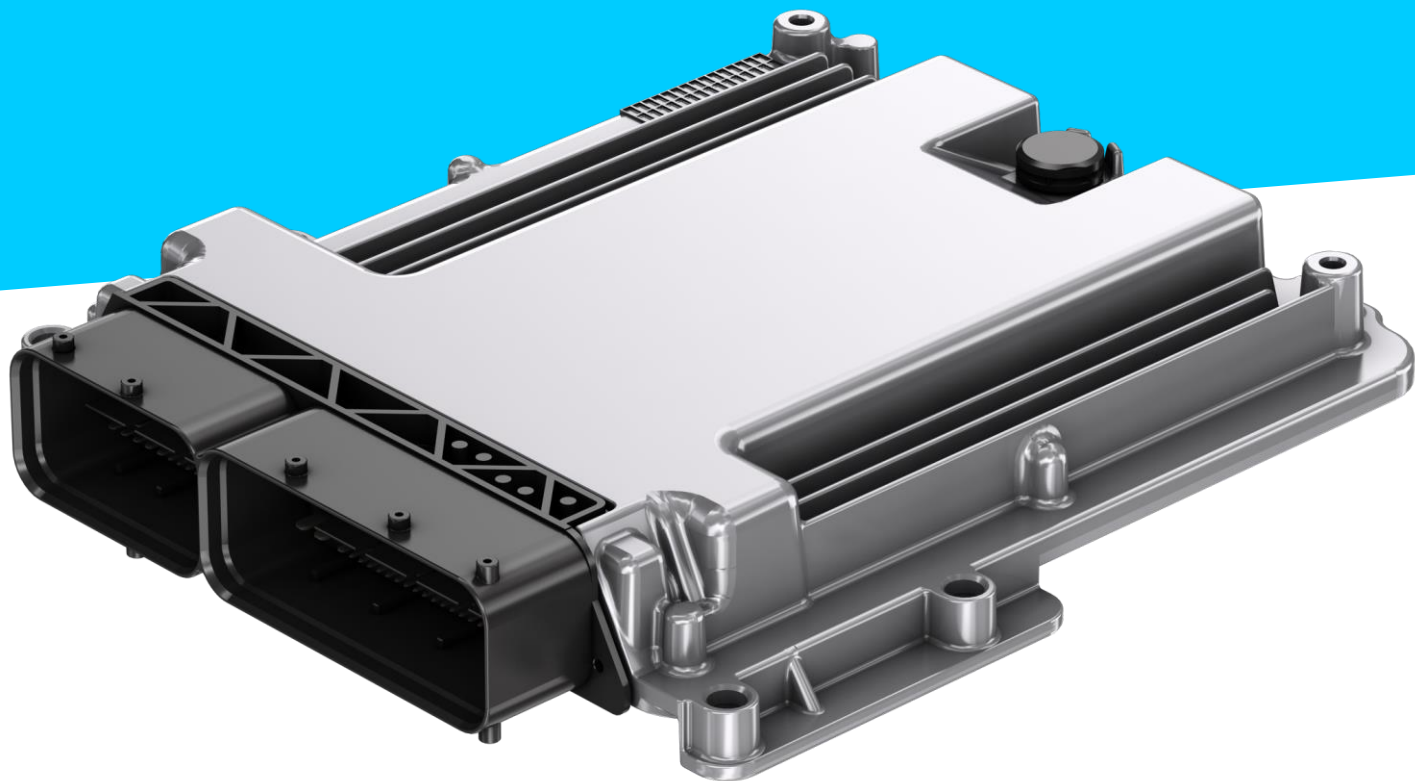


BODAS Controllers

RC18-12 and RC27-18 series 40

Highly safe, secure, and flexible electronic controllers



The flexibility and safety requirements for electronic control units in mobile machines are growing. With the BODAS Controllers RC18-12 and RC27-18, Bosch Rexroth has increased the scalability of the series 40: The devices differ only in the number of their available power outputs. They are pin-compatible with each other and to the smaller RC5-6/40 controllers. The series 40 also features a new technological foundation in terms of hardware and basic software, so it meets not only current but future requirements – especially in terms of functional safety, data integrity, and flexibility of inputs and outputs and communication interfaces. The controllers are suitable for all applications – from agricultural and forestry machinery to material-handling and construction machines.

CUSTOMER BENEFITS

- Easy to program thanks to comprehensive support
- Fit for safety functions
- Safe control of actuators with proportional and switching outputs
- Data integrity due to protection against unauthorised access
- Flexible adaptability thanks to multifunctional inputs
- High quality standards of Bosch Automotive Electronics
- Flexible communication thanks to Ethernet option

FUNCTION AND BENEFITS

Easy to program thanks to comprehensive support

A comprehensive function library is available for programming the powerful 32-bit multi-core microcontroller. The programming interface (API) allows easy access to inputs and outputs, communication interfaces, and diagnostic and system resources. Operation in lockstep mode increases the diagnostic coverage by means of redundant execution of the program. The basic software is configured using an online tool. On request, Bosch Rexroth can develop custom application software by applying its decades of experience and existing software modules.

Fit for safety functions

Like all BODAS Controllers in series 40, the Rexroth BODAS Controllers RC18-12/40 and RC27-18/40 meet high requirements for functional safety, so they can be used for safety-relevant applications. According to the standard EN ISO 13849, safety functions can be implemented up to performance level PL d. New in series 40 is the option to achieve AgPL d according to the ISO 25119 standard, which is used for agricultural equipment and municipal machines.

APPLICATIONS



TECHNICAL DATA

| BODAS Controller RC18-12/40 I RC27-18/40 | |
|--|---|
| Supply voltage: | 12 V or 24 V nominal |
| Processor: | Infineon TC389, 300 MHz multi-core |
| Max. supply current: | 40 A |
| Current-controlled power outputs: | 12 I 27, max. 3 A or 4 A PWM up to 1 kHz |
| Switching power outputs: | 12 I 18, max. 3 A, 4 A, or 5 A |
| Switching outputs: | 8 up to 200 mA each, ground switching e.g., for controlling relays |
| Signal inputs: | 58: 37 are flexibly configurable in software, 8 are SAE J2716 SENT |
| Signal outputs: | 1x analog 0 – 10 V, 2x PWM |
| Sensor supplies: | <ul style="list-style-type: none">2x 150 mA @ 5 V1x 300 mA @ 5 V1x 500 mA @ 10 V |
| Communication: | <ul style="list-style-type: none">3x high-speed CAN o CAN-FD1x high-speed CAN, ISOBUS1x LIN Master1x 100Base-T1 (optional from 2022) |
| Functional safety: | <ul style="list-style-type: none">EN ISO 13849 up to PL dISO 25119 up to AgPL d |
| Inhibit: | Two-channel shut-off with restart prevention |
| Operating temperature range: | +40° C to +85° C |
| Dimensions LxWxH: | 229 x 203 x 44 mm incl. multi-point connector, without mating connector |
| Data sheet: | 95208 |

EXPLORE MORE



RC18-12/40



RC27-18/40

Safe control of actuators with proportional and switching outputs

BODAS series 40 Controllers from Bosch Rexroth provide current-controlled power outputs that switch the battery voltage to actuate the solenoids on pumps, motors, and valves. Loads are operated between these outputs and ground-switching outputs in safety-relevant applications. In the event of a short circuit, the loads are switched off on both sides and the machine is brought to a safe state.

Data integrity due to protection against unauthorised access

Illegal flashing and unauthorized diagnosis access – such as a change in safety-relevant parameters – may result in danger to life and/or cause extreme damage to property. BODAS Controllers in series 40 counteract this with specific protection mechanisms that are based on a hardware security module (HSM).

Flexible adaptability thanks to multifunctional inputs

The control elements and sensors have a number of electrical interfaces. To optimally utilize them, input devices that can be configured in the software are used in the BODAS Controllers series 40. This means that the inputs can acquire different electrical properties (voltage, current, frequency, resistance) and device-specific diagnostic functions. Eight inputs are available for connecting sensors via a digital SENT interface.

High quality standards of Bosch Automotive Electronics

Like every BODAS Controller from Bosch Rexroth, RC18-12/40 and RC27-18/40 are manufactured by Bosch Automotive Electronics to the highest automotive quality stands.

Flexible communication options thanks to Ethernet

Beginning in 2022, both the BODAS RC18-12/40 and RC27-18/40 Controllers will be available with an optional 100Base-T1 Ethernet interface for fast and future-proof data transmission. Data can be transferred at 100 Mbit/s over an unshielded pair of twisted wires across that channel.