

Dimension Sheet for EAS[®]-Sm/Zr Control Unit Type 010.000.2

(M.0100002.GB)



Application

This unit is used to switch, control, monitor and to indicate overload for adjustable EAS[®]-Sm synchronous clutches and EAS[®]-Zr overload clutches.

Function

The EAS[®]-Sm/Zr control unit works according to the principle of cycled switching controllers with a frequency of 18 kHz. It switches, controls and monitors the clutch and emits a signal when the set torque is exceeded.

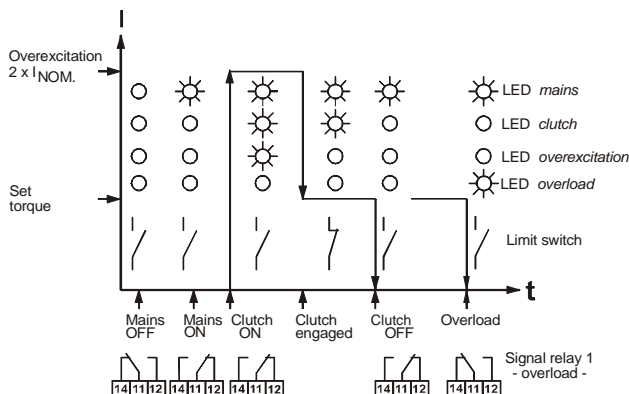
- | | |
|-----------------------------|--|
| Switched with | <ul style="list-style-type: none"> • potential-free contacts • SPS control with 10 – 30 VDC |
| Controlled by | <ul style="list-style-type: none"> • coil current |
| Monitored with | <ul style="list-style-type: none"> • potential-free contacts • magnetic field-resistant proximity switches up to +100 °C |
| Temperature monitors | <ul style="list-style-type: none"> • coil-clutch > +130 °C • control unit > +80 °C |



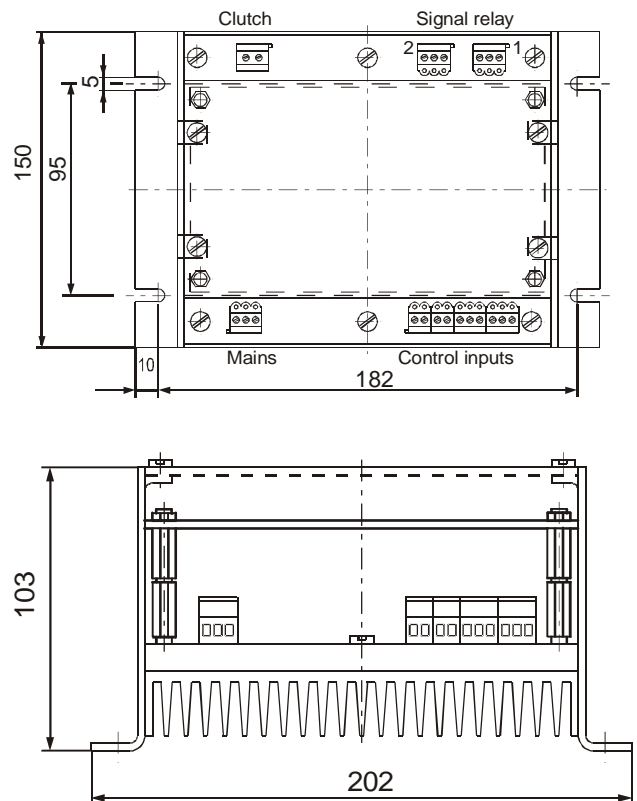
Electrical Connections

- | | |
|--------------|---|
| PE, L1, N | connection input voltage |
| Ku1 / Ku2 | coil connection for clutch |
| 14 – 11 – 12 | contact signal relay 1 (overload) |
| 24 – 21 – 22 | contact signal relay 2 (excessive temperatures) |
| ON | connection „Start“ button |
| OFF | connection „Stop“ button |
| Gnd1 | (-) connection with SPS control |
| End | limit switch signal |
| Gnd2 | (-) connection for limit switch |
| 12V | (+) connection for ON-button, OFF-button and limit switch |
| Gnd3 | (-) connection with analogue torque adjustment |
| M | (+) connection with analogue torque adjustment |
| P1, P2 | connection for coil thermistor (or bridge) |

Functional Sequence



Dimensions (mm)



Order Example

To be stated on order:	Size	Type
Order number:		010.000.2

EAS[®]-Sm/Zr sizes 0 - 5

Installation / Connection Examples

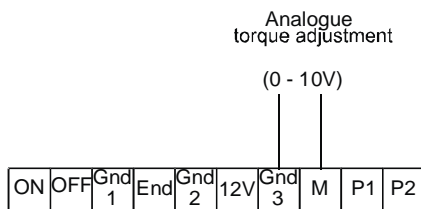


Please Observe! Do not apply external voltage to the 12 Volt terminal. Ensure **well-conducting connections** between the control unit housing and the metallic screw-on surface. Use toothed lock washers or spring washers under the fixing screws. Power connections are to be run interference-free!

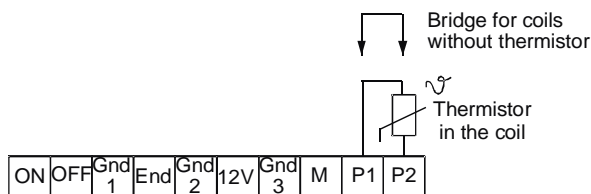
The control wires (ON OFF / Gnd1 / End / Gnd2 / 12V / Gnd3 / M / P1 / P2) are to be laid separately and at a sufficient distance from the high-voltage current or pulsating wires (PE / L1 / N / Ku1 / Ku2).

Installation should correspond to the **EMC directives!**

Analogue torque adjustment (observe coding!)

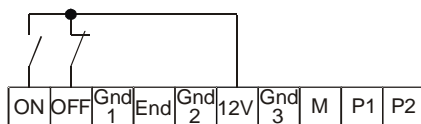


Connection example for thermistor or bridge



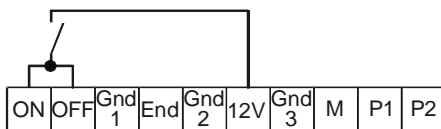
Start/Stop (2 contacts)

Start: close ON contact
Stop: open OFF contact



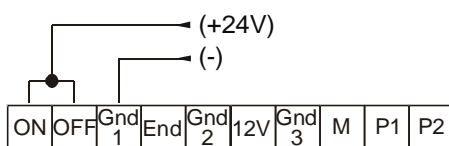
Start/Stop (1 contact)

Start: close ON-contact
Stop: open OFF-contact



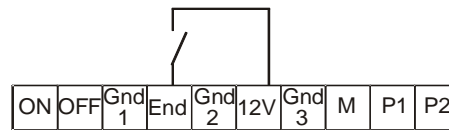
Start/Stop SPS control (SPS control 10 – 30 Volts)

Start: +24V
Stop: 0V



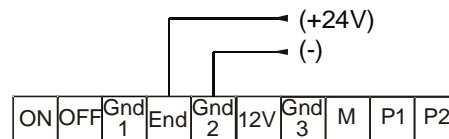
Limit switch (1 contact)

Clutch engaged: contact closed
Clutch disengaged: contact open



Limit switch SPS control (SPS control 10 – 30 Volts)

Engaged: +24V
Disengaged: 0V

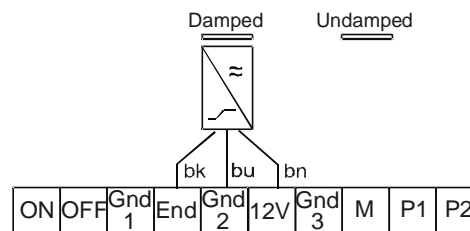


Limit switch PNP – NC contact

PNP – NC contact: 3-wired, magn. field resistant proximity switch, 10 – 30 VDC, operational temperature 100 °C.

Warning: No overload signal is emitted if the limit switch is fitted incorrectly.

Clutch engaged: sensor undamped
Clutch disengaged: sensor damped



Settings

Engagement time t_k (= overexcitation time)

The engagement time t_k is set to the max. time of 5 s. (manufacturer setting). The engagement time is determined by:

Mode 1 The engagement time is stopped, i.e. switched from overexcitation to torque current when the clutch engages, as the limit switch is actuated.

Mode 2 When the set time has passed (independent of the clutch switch condition), overexcitation switches to torque current.

Technical Data

Input voltage	230 VAC, ±10 %, 50 - 60 Hz
Current consumption	max. 4 Amp./100 % DC
No-load power	< 4 Watt
Coil _{NOM} -voltage	96 VDC
Coil _{NOM} -power	max. 256 Watt
Coil _{NOM} -current	manufacturer setting according to the mayr [®] - EAS [®] - Sm/Zr- clutch size
Coil overexcitation	2x I _{NOM} , current limitation is adapted to the respective coil size.
Torque adjustment	25 % up to 100 % of the coil current (current stabilization)
Engagement time t _k	5 seconds ±30 %
Protection	IP 20
Ambient temperature	0 °C up to +50 °C
Storage temperature	-20 °C up to +70 °C
Max. clampable conductor cross section	2.5 mm ² / AWG 30-12
Weight	1.5 kg / 3.31 lb
Protection fuse	
Input-side G-microfuse	F1/F2, (4 A MT, 5x20 mm)
Coil-side G-microfuse	F3. The current is adapted to the mayr [®] -clutch size. Always use the same spare fuse. two; one for connection to PELV/SELV (control wires), EN 50178 - 04/1998
Excess voltage category	
Excess voltage protection	For installation in <u>excess voltage category III</u>, a suitable excess voltage protection is required between the input voltage and the EAS[®] Sm/Zr control unit.

Control unit temperature monitoring

A fitted temperature switch prevents the control unit from overheating.

Switch-off	The coil voltage is switched off at a working temperature of > 80 °C
New start	can only take place after the unit temperature has cooled to below 40 °C.
Reset	Switching the input voltage off and on again.

Clutch coil temperature monitoring

The coil temperature monitoring can only be used with a fitted thermistor. The thermistor should be connected to terminals P1/P2.

Advance warning at > +130 °C operational temperature

The coil voltage is not yet switched off.

Switch-off	at > +135 °C operational temperature The coil voltage is switched-off.
-------------------	---

New start can only take place after the coil temperature has cooled to below +120 °C.

Reset is energised by clutch „start“.

Short-circuit-resistant coil connection

If short-circuiting occurs between the coil connections Ku1 and Ku2, the coil voltage is switched off. The short-circuit monitoring is reset by switching off the input voltage and removing the short circuit.



Warning! Not protected against earth short circuits!

Connecting the coil connections Ku1 or Ku2 against earthed metal components causes earth short circuits and therefore to unit failures. It may be necessary to equip the system with an earth leakage circuit breaker (ELCB), to protect against injury or damage. However, this does not protect against control unit failure.