

Synchronising Control SYN 2 d

Installation and Operation Instructions - Version 3/21

Work at may be performed only by qualified personnel!

Before starting any work, it is mandatory to deflect static charge!

We do not assume any guarantee or liability for defects caused by faulty connection.

1 Intended use, Concept

- Control for synchronising the travelling speed of two identical 24 V- actuators of the series **G**, **S** or **SG** on a Vent or Smoke and Heat Vent (SHV). Not suitable for actuators type G201, G205, G209, G401, G405, G409
- Current input of each actuator max. 4 A (**SYN 2d-8**) or 8 A (**SYN 2d-16**)
- Both actuators are de-energised if any of them should fail
- Power supply and control must be provided by a single 24 V- actuator output of a SHEVS Control Centre / Control. The use of K + G / Grasl Control Centres is recommended. Compatibility is to be checked for third-party controls. The travel direction of the actuators must not be switched directly. Not to be operated with the Control Centre RWZ 1a and the Control RWD 1a
- Selectable functions:
 - “Sxxxx actuator” (must be activated for actuators type Sxxx)
 - “Synchronisation OFF” (there is no synchronisation of the travelling speed of the actuators, but both actuators are switched off if one of them fails)
- Internal indicators Δ and ∇
- Plastic enclosure, light grey (like RAL 7035)

2 Installation / Putting into and out of service / Notes

⚠ *Perform work only in de-energised condition!*

⚠ *The **SYN** must not be directly controlled (e.g., with external accumulators during installation / maintenance) if it is already connected to a SHEVS Control Centre / Control. This can lead to defects in the power output of the Control Centre / Control.*

*Actuators must not be controlled directly if they are already connected. This can lead to defects in the power output of the **SYN**.*

- For installation of the **SYN**, put the Control Centre / Control out of service following the instructions given in the belonging Operation Instructions.
- Fasten the enclosure securely using suitable mounting material. Pass the connection cables through the openings provided and wire them according to the enclosed connection diagrams.
- Set up the selectable functions (see section 3), close enclosure.
- Put the Control Centre / Control into service again.

ℹ *The **SYN** only works when travel commands are active.*

- The indicator Δ / ∇
 - lights up: travel command is active.
 - blinks: the actuators have reached their end position, there is a wire breakage or an overload cut-off has responded.
 - flashes: the travel command is blocked (change of travel direction required).
 - flickers: the actuators have been switched off due to exceeding the range of regulation.

ℹ *After an automatic switch-off by the **SYN**, it is only possible to drive in the same direction again if it has been driven in the other direction in the meantime.*

ℹ *The regulation also works with asymmetrical loads up to a load ratio of about 70:30.*

ℹ *During operation, minor stroke differences may occur which are compensated by the follow-up movement at the time of closing. If the actuators go through the entire stroke without interruption, the synchronisation deviation amounts to max. 0.5 % of the total stroke.*

⚠ *In case of repeated start operations in the same travelling direction, synchronization deviations can add up.*

ℹ *When the Control Centre / Control is put out of service, the **SYN** is out of service as well.*

3 Selectable functions

The following functions can be set using DIP switches (* = factory setting):

- “Sxxx actuator” DIP switch 1:

When using actuators of type Sxxx, this switch must be set to position ON.



Actuator type **G, SG** *



Actuator type **Sxxx**

- “Synchronisation OFF” DIP switch 2:

In position ON there is no synchronisation of the travelling speed of the actuators, but both actuators are switched off if one of them fails.



Synchronisation ON *



Synchronisation OFF

- DIP switches 3 and 4: Do not change setting. Factory setting: OFF


4 Technical Data

Type	SYN 2d-8	SYN 2d-16
Part number	8164 2408 0000	8164 2416 0000
Maximum current input	8.1 A	16.1 A
Maximum output current	2 x 4.0 A	2 x 8.0 A
Voltage supply (inversion of polarity for Δ / ∇)	24 V $\overline{=}$ (-5 V / +6 V)	
Permissible ripple	150 mVpp	
Required pause when changing the travel direction	≥ 1 s	
Inrush current	ca. 6 A / 10 μ s	
The inrush current of the actuators must also be observed.		
Overrun time when retracting the actuators	0,5 s	
Dimensions in mm (W x H x D)	150 x 200 x 80	
Mounting dimensions in mm	100 x 150	
Cable entry from all sides through stepped nipples (\varnothing 28 mm)	2 x 2 pieces (top / bottom) 2 x 3 pieces (left / right)	
Environmental Class I (VdS 2581)	-5 °C ... +75 °C	
Max. permanent ambient temperature	+60 °C	
Relative humidity	20 % ... 80 %, non-condensing	
Enclosure protection rating	IP43	
Maximum cable cross-section (Control Centre / actuators)	4 x 10 mm 2 / 2 x 2 x 2.5 mm 2	
Permissible cable length from the SYN to the actuators	< 3 m	

Permissible cable length from the Control Centre to the **SYN** with 1 V voltage drop (simple and moderately branched arrangement). Depending on the minimum input voltage and the operating voltage range of the actuators, a higher voltage drop may be permissible.

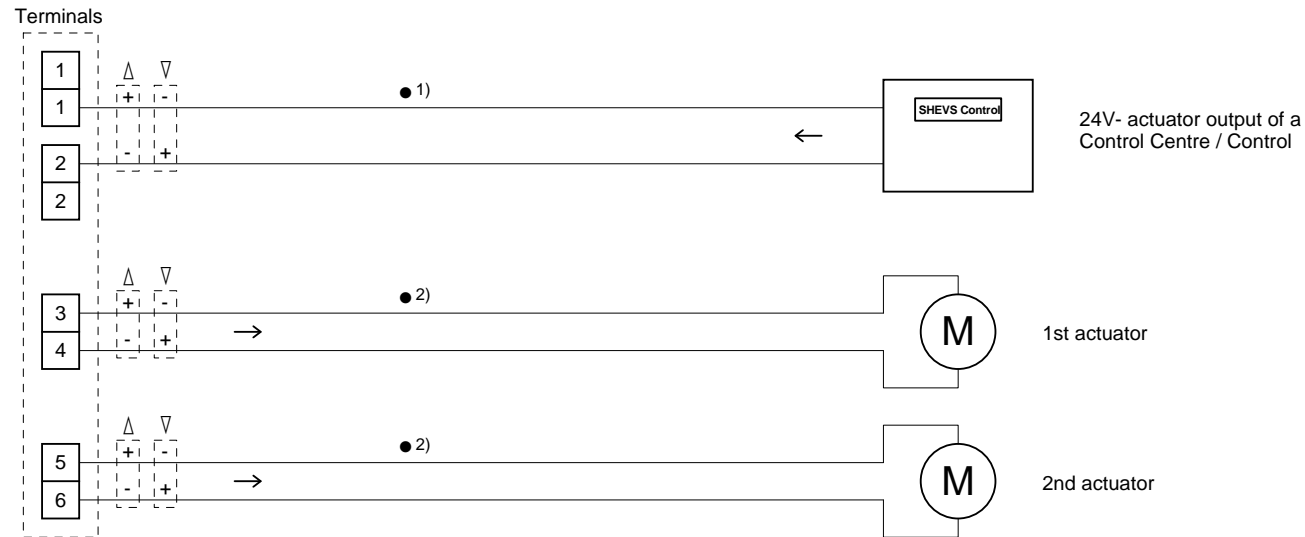
Cross section	Current							
	2.0 A	4.0 A	6.0 A	8.0 A	10.0 A	12.0 A	14.0 A	16.0 A
2 x 1.5 mm 2	22 m	11 m	7 m	5 m	4 m	4 m	3 m	3 m
2 x 2.5 mm 2	36 m	18 m	12 m	9 m	7 m	6 m	5 m	5 m
2 x 4.0 mm 2	58 m	29 m	19 m	15 m	12 m	10 m	8 m	7 m
2 x 6.0 mm 2	87 m	44 m	29 m	22 m	17 m	15 m	12 m	11 m
2 x 10.0 mm 2	145 m	73 m	48 m	36 m	29 m	24 m	21 m	18 m
4 x 1.5 mm 2	44 m	22 m	15 m	11 m	9 m	7 m	6 m	5 m
4 x 2.5 mm 2	73 m	36 m	24 m	18 m	15 m	12 m	10 m	9 m
4 x 4.0 mm 2	116 m	58 m	39 m	29 m	23 m	19 m	17 m	15 m
4 x 6.0 mm 2	174 m	87 m	58 m	44 m	35 m	29 m	25 m	22 m
4 x 10.0 mm 2	290 m	145 m	97 m	73 m	58 m	48 m	41 m	36 m

When 4 cores are used, connect 2 cores each in parallel.

The requirements of Directives 2014/35/EU and 2014/30/EU are met. 

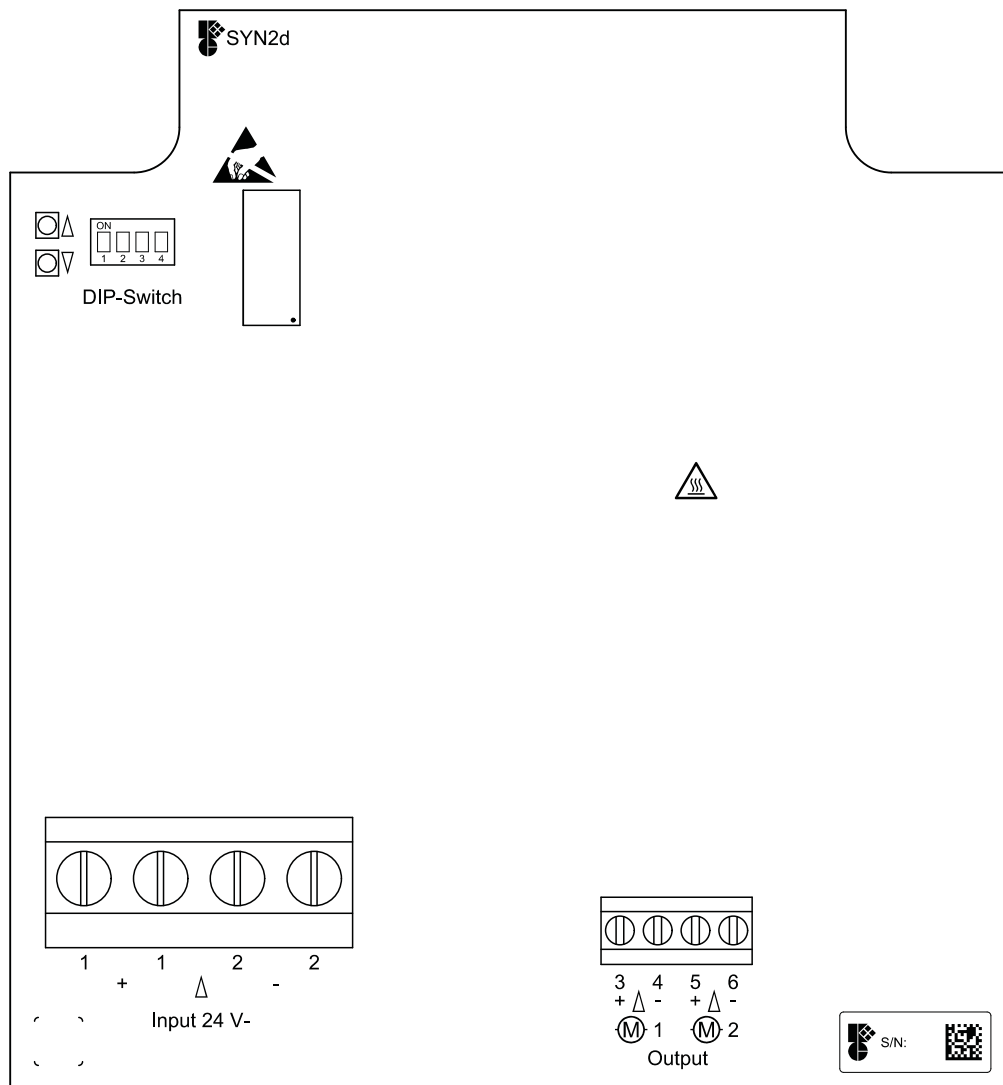
Synchronising Control SYN 2d

Terminal diagram



- 1) If the polarity of the line between SYN and Control Centre / Control is reversed, the function "Follow-up time" of the SYN will not operate correctly. Allowed length of cable: see section "Technical Data".
- 2) In the case of wrong travelling sense, the polarity of the actuator supply lines may only be reversed if proper connection of the line between SYN and Control Centre / Control has been verified. Allowed length of cable: < 3 m.

! The SYN must not be directly controlled (e.g., with external accumulators during installation / maintenance) if it is already connected to a SHEVS Control Centre / Control. This can lead to defects in the power output of the Control Centre / Control. Actuators must not be controlled directly if they are already connected. This can lead to defects in the power output of the SYN.



DIP-Switch

- 1: Sxxx actuator
- 2: Synchronisation OFF
- 3+4: Do not change the setting

SYN 2d
Layout diagram
SYN2d-A2-1.pdf Ver. 2/21 JK 16 Mar. 2021