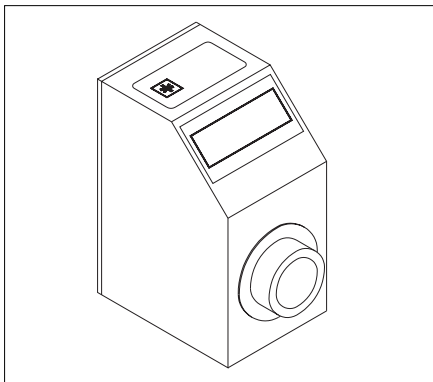


# AP09/1

Absolute / Incremental Electronic  
Position Indicator



**ENGLISH**

## 1. Warranty information

- In order to carry out installation correctly, we strongly recommend this document is read very carefully. This will ensure your own safety and the operating reliability of the device.
- Your device has been quality controlled, tested and is ready for use. Please respect all warnings and information which are marked either directly on the device or in this document.
- Warranty can only be claimed for components supplied by SIKO GmbH. If the system is used together with other products, the warranty for the complete system is invalid.
- The guarantee period is 6 months starting with the date of invoice.
- Repairs should be carried out only at our works. If any information is missing or unclear, please contact the SIKO sales staff.

## 2. Identification

Please check particular type of unit and type number from the identification plate. Type number and the corresponding execution are indicated in the delivery documentation.

e.g. AP09/1-0023  
           └───┬───┘ type number  
              └───┘ type of unit

## 3. Installation

The unit should be used only according to the protection level provided. Protect the unit, if necessary, against environmental influences such as sprayed water, dust, knocks, extreme temperatures.

**Attention:** The unit should not be exposed to electromagnetic fields. Especially do not mount close to adhesive or other permanent magnets.



Slide AP09/1 onto the solid shaft, insert torque pin into the prebored mounting hole and use grub screw M5 to fix the AP09/1's hollow shaft to the machine's solid shaft (see fig. 1).

- Ensure sliding fit between solid shaft and AP09/1.
- Ensure accurate shaft alignment and mount the AP09/1 without force. Do not exceed the values for the maximum axial and radial shaft load. If the shaft is not correctly aligned, strain on the bearings will result, which may cause overheating and irreparable damage.
- Especially when using torque pin type A for fixing, ensure that AP09/1 does not jam and that it is mounted without strain. Please remember this when choosing the AP09/1's bore diameter.
- Knocks on the unit should be avoided!
- Make sure that the axial seal is correctly mounted ! (see fig. 2)

Torque pin type A : pin  $\varnothing$  6 h9  
 type B : bore  $\varnothing$  10 +0.8

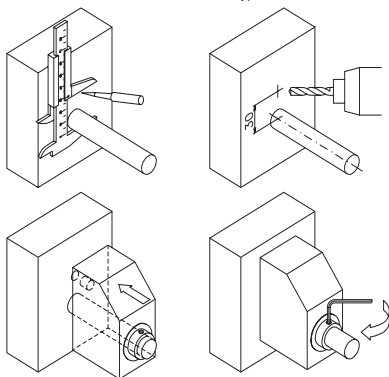


Fig. 1: Mounting instructions

Grub screw has to be screwed in flush to surface

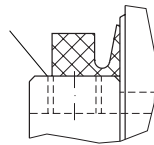


Fig. 2: Axial seal

## 4. Electrical connection

• **Switch power off before any plug is inserted or removed !!**

- Wiring must only be carried out with power off.
- Provide stranded wires with ferrules.
- Check all lines and connections before switching on the equipment.
- The AP09/1's and follower electronic's (eg. control) operating supply must be switched on simultaneously.

### Interference and distortion

All connections are protected against the effects of interference. **The location should be selected to ensure that no capacitive or inductive interferences can affect the display or the connection lines!** Suitable wiring layout and choice of cable can minimise the effects of interference (eg. interference caused by switching power supplies, motors, cyclic controls and contactors).

### Necessary steps:

- Only screened cable should be used. Wire cross section is to be at least 0,14 mm<sup>2</sup>, max. 0,5 mm<sup>2</sup>.
- Wiring to screen and to ground (0V) must be via a good earth point having a large surface area for minimum impedance.
- The unit should be positioned well away from cables with interference; if necessary **a protective screen or metal housing must be provided**. The running of wiring parallel to the mains supply should be avoided.
- Contactor coils must be linked with spark suppression.

### Power supply

Operating voltage depends on execution and is indicated in the delivery documentation or on the identification plate.

**12 to 30 Vd.c., with polarity protection**

#### 4.1 Connection

Try to achieve optimal conductivity for connection between plug casings and contact plate.

PE connection between the connector plugs is to be linked with protective potential - fig. 3 (possibly use short strand with 2,5 mm<sup>2</sup> to 4 mm<sup>2</sup>)!

For data transmission cables with a length of up to 200m can be used.

### Serial interface

AP09/1 has a serial interface according to RS 485. **Protocol:** see enclosed page with software description.

Pin	Designation
1	-
2	-
3	0V
4	+ UB
5	DÜA
6	DÜB
7	-

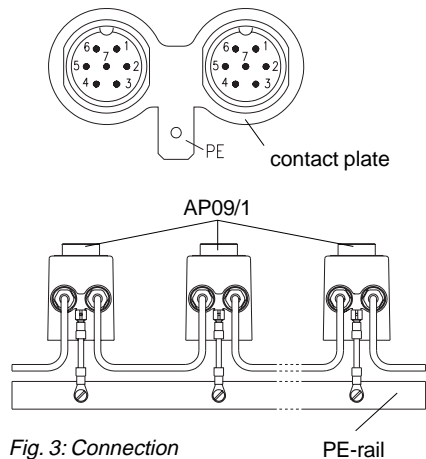


Fig. 3: Connection

#### 4.2 Battery back-up

The lithium battery allows storage of programmed parameters, current value and to capture movements during power loss. Battery life is approx. 5 to 8 years - depending on operating time and frequency of moves during power loss. When message "batt" is displayed then battery should be exchanged by a SIKO agent or at the parent company. In case you intend to exchange the battery yourselves, please note the following information.

### Safety information

**Attention-Battery:** Inflammable, explosion and burning hazard. Cannot be recharged and must not be punctured, burned or exposed to temperatures above 100° C.



## Battery change



**Only exchange battery when operating voltage is applied.** Otherwise, when removing the battery, the programmed parameters will be lost after approx. 10 to 12 s.

The battery box is at the rear of the device under the foam rubber seal. New, ready to be used battery can be ordered from SIKO under article code 80331.

To change the battery, please proceed as follows:

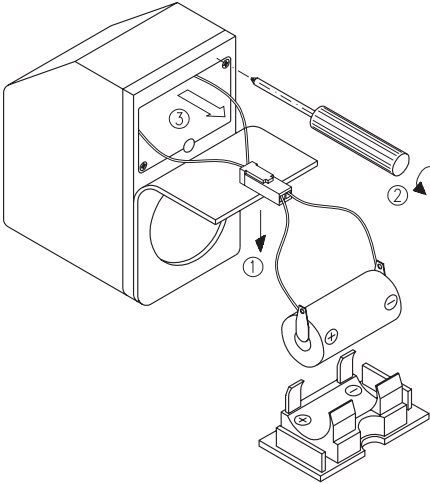


Fig. 6: Battery change

- Remove AP09/1 from the spindle.
- Apply voltage supply (if it has been disconnected previously).
- Prepare new battery.
- Partially remove foam rubber seal (1).
- Battery box (3) can be removed after unscrewing the two fixing screws (2).
- Disconnect plug-and-socket connector.
- Insert new battery in reverse order. In case of wrong polarization "batt" will be displayed. Turn plug-and-socket connector by 180°.
- Strands must be carefully pushed into the unit and must not be jammed or bent when the battery box is inserted.
- To check correct battery installation, unit must be disconnected from supply voltage.



**Attention:** If AP09/1 then does not function, programmed values will be lost within 10 to 12 seconds.

- Tighten fastening screws and glue foam rubber seal.
- Discharged batteries should be disposed of safely.

## 5. Commissioning

Before the first use of the AP09/1, please check:

1. correct polarity of supply voltage.
2. correct cable connection and existence of signals.

**Note!** Before starting bus operation each unit must have been allocated its address. If one and the same address is allocated several times, bus operation will collapse.



Now the AP09/1 can be used. If necessary, program the AP09/1's parameters according to your requirements (see chapter 'Parameter Description'). Check whether the AP09 functions without problems (see chapter 'Operation/Key's function').

**With built-in battery:** Battery is tested automatically during operation. When battery voltage falls below a certain value, "batt" is displayed and a corresponding note is made under the status bit in the AP09/1's protocol.

### Operating modes

Two operating modes are possible.

#### Stand-alone operation:

Position is controlled from the display. Target value and other parameters have already been programmed before via interface.

#### Bus operation:

The interface allows to operate and control up to 31 AP09/1. Each AP09/1's parameters can then be programmed /modified at any time and position value indicated.

**Attention!** In case of bus operation the last AP09/1 on the bus system (the one located at the end of the bus array) must be provided with a bus terminating element. This plug-shaped accessory, reference BAS09, can be purchased from SIKO.



Operation / Key's function / Parameter programming / Calibration etc., see enclosed page with software description.

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