

SISTO-SK-i SISTO-SK-i AS-i

Intelligent Actual-position Feedback Unit

for Valves with Linear Actuators
Stroke: 5 - 45 mm



Contents

	Glossary	3
1	General	4
	1.1 Principles	4
	1.2 Contact data	4
	1.3 Target group.....	4
	1.4 Other applicable documents	4
2	Safety information	4
	2.1 Key to safety symbols/markings	4
	2.2 General	4
	2.3 Intended use	4
	2.4 Consequences and risks caused by non-compliance with these manual.....	5
	2.5 Safety awareness	5
	2.6 Safety information for the operator/user	5
	2.7 Safety information for maintenance, inspection and installation.....	5
	2.8 Unauthorised modification and manufacture of spare parts	5
	2.9 Unauthorised modes of operation.....	5
3	Product information (REACH)	5
4	Delivery/Storage/Disposal	5
	4.1 Checking the condition upon delivery	5
	4.2 Storage	6
	4.3 Disposal	6
5	Marking	6
6	Technical Data	7
	6.1 Technical Data SISTO-SK-i 24V	7
	6.2 Technical Data SISTO-SK-i AS-i	8
	6.3 Inputs and Outputs of SISTO-SK-i AS-i	9
	6.4 Dimensions and weights SISTO-SK-i/SISTO-SK-I AS-i.....	10
7	Mounting/Removing/Installation SISTO-SK-i/SISTO-SK-i AS-i	11
	7.1 Mounting of the actual-position feedback unit on the valve actuators of the SISTO-C LAP.....	11
	7.2 Mounting of the actual-position feedback unit on the valve actuators of the SISTO-C LAP.520	12
	7.3 Mounting on valves from other manufactures.....	12
	7.4 Removing the actual-position feedback unit	13
	7.5 Electrical installation	13
	7.6 Pneumatically installation (only for SISTO-SK-i/SISTO-SK-i AS-i with solenoid valve).....	13
8	Commissioning/Start-up/Shutdown	14
	8.1 Commissioning the actual-position feedback unit SISTO-SK-i/SISTO-SK-i AS-i without an integrated pilot valve - on site	14
	8.2 Commissioning the actual-position feedback unit SISTO-SK-i/SISTO-SK-i AS-i without an integrated pilot valve - remote initialisation	14
	8.3 Commissioning the actual-position feedback unit SISTO-SK-i/SISTO-SK-i AS-i with an integrated pilot valve - on site	15
	8.4 Commissioning the actual-position feedback unit SISTO-SK-i/SISTO-SK-i AS-i with an integrated pilot valve - remote initialisation	15
	8.5 Shutdown.....	15
9	Trouble-shooting	16
	9.1 Error messages/operating status SISTO-SK-i/SISTO-SK-i AS-i	16
	9.2 Additional error messages/operating status SISTO-SK-i AS-i.....	17
10	Maintenance/Cleaning	17
	Declaration of incorporation	18
	Declaration of conformity (RoHS/EMC)	19

Glossary

Type series booklet

The type series booklet can be downloaded at:
<http://sisto-aseptic.com/downloads/>
or
<https://products.ksb.com/>

SISTO-C LAP

SISTO-C diaphragm valve with pneumatic piston actuator, stainless steel

SISTO-C LAP.520

SISTO-C diaphragm valve with pneumatic piston actuator, stainless steel

SISTO-C LAP.530

SISTO-C diaphragm valve with pneumatic piston actuator, aluminium, hard anodised

SISTO-SK-i

SISTO intelligent actual-position feedback unit

SISTO-SK-i AS-i

SISTO intelligent actual-position feedback unit with AS Interface

1 General

1.1 Principles

This operating manual describes the proper and safe use of the SISTO-SK-i intelligent actual-position feedback unit, or for the SISTO-SK-i AS-i intelligent actual-position feedback unit in all phases of operation.

In the event of damage, discrepancies and questions, immediately contact SISTO Armaturen S.A. sales organisation responsible in order to maintain the right to claim under warranty.

Only correct installation, maintenance or repair will ensure smooth operation of the actual-position feedback unit.

The manufacturer shall not accept any liability for the actual-position feedback unit if the manual set forth in this manual are not complied with.

In the case of any deviations or questions contact SISTO Armaturen S.A.

1.2 Contact data

SISTO Armaturen S.A.
After-Sales-Services
18, rue Martin Maas
L-6468 Echternach Luxembourg

Tel.: +352 32 50 85-1
Fax: +352 32 89 56

Email: info@sisto-aseptic.com
www.sisto-aseptic.com

1.3 Target group





This operating manual is aimed at the target group of trained and qualified specialist technical personnel.

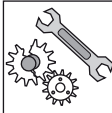

1.4 Other applicable documents

Document	Description
Type series booklet 8676.5	Description of the SISTO-SK-i/SISTO-SK-i AS-i actual-position feedback unit
Operating manual 0570.822	Installation/operating manual of the SISTO-C/SISTO-B diaphragm valves

2 Safety information

2.1 Key to safety symbols/markings

Symbol	Description
	DANGER In conjunction with the signal word DANGER this symbol indicates a high-risk hazard which, if not avoided, will result in death or serious injury.
	WARNING In conjunction with the signal word WARNING this symbol indicates a medium-risk hazard which, if not avoided, could result in death or serious injury.
	CAUTION In conjunction with the signal word CAUTION this symbol indicates a low-risk hazard which, if not avoided, could result in minor injury.
	Electrical hazard In conjunction with one of the signal words this symbol indicates a hazard involving electrical voltage and identifies information about protection against electrical voltage.

Symbol	Description
	CAUTION In conjunction with the signal word CAUTION this symbol indicates a hazard for the machine and its functions.
	NOTE This symbol indicates recommendations and important information on how to handle the product.

2.2 General

This operating manual contains general installation, operating and maintenance instructions that must be observed to ensure safe product operation and prevent personal injury and damage to property.

Comply with all the safety instructions given in the individual sections of this operating manual.

The operating manual must be read and understood by the responsible specialist personnel/operators prior to installation and commissioning.

The contents of this operating manual must be available to the specialist personnel at the site at all times.

Information attached to the actual-position feedback unit, the valve or accessories must always be complied with and kept in a perfectly legible condition at all times.

This operating manual does not take into account:

- Any eventualities or incidents which may occur during installation, operation and maintenance performed by the customer.
- Local regulations; the operator must ensure that such regulations are observed by all, including the personnel called in for installation.

The operating manual must be kept for the entire life cycle of the equipment.

For any queries you may have or in the case of damage, please contact SISTO Armaturen S.A.

2.3 Intended use

- The device was designed to measure the stroke of pneumatic valve actuators and to control them (optional).
- The actual-position feedback unit must only be operated in perfect technical condition.
- The permissible areas of application and limits of use specified in the documentation such as pressure, temperature must be observed.
- Other modes of operation, if not mentioned in the documentation, must be coordinated with SISTO Armaturen S.A..

2.3.1 Prevention of foreseeable misuse

- Neither liquids nor fluids containing solids must be allowed to enter the air supply ports of the actual-position feedback unit.
- Aggressive or combustible fluids must not enter the air supply ports.
- The actual-position feedback unit must not be operated in potentially explosive atmospheres.
- If the actual-position feedback unit is to be used in a damp environment, steps must be taken to ensure that any liquid that collects drains away from and does not penetrate the housing.
- The unit must never be cleaned with a water jet and/or aggressive cleaning agents (observe the requirements of the type of enclosure chapter 6.1, page 8/ chapter 6.2, page 9).

- The housing of the actual-position feedback unit must not be subjected to mechanical loads. Connection and pneumatic lines must be routed in such a way that no forces act on the actual-position feedback unit.
- Do not subject the actual-position feedback unit to a source of radiation (e.g. the sun).
- Protect actual-position feedback unit against vibrations.
- Regularly check that the electrical and pneumatic connections are correctly seated and that the connection to the pneumatic valve actuator is correct.

2.4 Consequences and risks caused by non-compliance with this manual

Non-compliance with this operating manual will result in loss of warranty and forfeiture of any and all rights to claims for damages.

Non-compliance can have the following consequences for example:

- Failure of important functions of the product,
- Failure of prescribed maintenance and servicing practices,
- Hazard to persons by electrical and mechanical effects.

2.5 Safety awareness

In addition to the safety information contained in this operating manual and the intended use, the following safety regulations shall be complied with:

- Accident prevention, health regulations and safety regulations,
- Explosion protection regulations,
- Safety regulations for handling hazardous substances,
- Applicable standards, directives and laws.

2.6 Safety information for the operator/user

The actual-position feedback unit with valve is intended for use in areas which cannot be accessed by unauthorised persons. Operation of these valves in areas, which can be accessed by unauthorised persons, is only permitted if appropriate protective devices are fitted at the site. This must be ensured by the operator.

- Fit protective equipment (e.g. contact guards) supplied by the operator for hot, cold or moving parts, and check that the equipment functions properly.
- Do not remove any protective equipment (e.g. contact guards) during operation.
- Bring the plant and plant section into a safe state that allows safe switching on the actual-position feedback unit and the valve.
- Electrical hazards must be eliminated. (For details, refer to VDE regulations and the safety regulations laid down by the local energy supply companies, for instance).
- The operator has to ensure that the guards for live components are regularly checked for any damage. The valve must never be operated without appropriate protection.

2.7 Safety information for maintenance, inspection and installation

- The operator ensures that maintenance, inspection and installation are performed by authorised, qualified specialist personnel who are thoroughly familiar with the manual
- Always use suitable tools to ensure proper functioning of the actual-position feedback unit.
- Carry out work on the SISTO-SK-i/SISTO-SK-i AS-i actual-position feedback unit and the valve during standstill only.
- Generally recognised safety and technical rules must be adhered to when planning deployment and during operation.
- Prior to commissioning/ start-up of the actual-position feedback unit observe the Section 8.1-8.4, page 14.
- For shutdown of the actual-position feedback unit observe the Section 8.5, page 15.

2.8 Unauthorised modification and manufacture of spare parts

Modifications or alterations of the actual-position feedback unit and the valve are only permitted with the manufacturer's prior consent.

Use only original spare parts and accessories authorised by the manufacturer. The use of other parts can invalidate any liability of the manufacturer for resulting damage.

2.9 Unauthorised modes of operation

The warranty relating to the operating reliability and safety of the actual-position feedback unit supplied is only valid if the equipment is used in accordance with its intended use as described in Section 2.3. The limits stated in the technical literature must not be exceeded under any circumstances.

3 Product information (REACH)

Product information as per Regulation No. 1907/2006 (REACH):

For information as per chemicals Regulation (EC) No. 1907/2006 (REACH), see <http://www.ksb.com/reach>.

4 Delivery/Storage/Disposal

4.1 Checking the condition upon delivery

Upon receipt of the goods, check immediately that the goods are complete and undamaged.

If the actual-position feedback unit was ordered together with a pneumatic valve actuator, the combined unit will come fully assembled.

In the case of any deviations contact the manufacturer.

4.2 Storage

Storage/temporary storage must ensure that even after a prolonged period of storage the function of the actual-position feedback unit will not be impaired. The following requirements must be met:

- Store in original packaging,
- Dry,
- Dark,
- Dust-free environment,
- Storage temperature must be between +10 °C and +30 °C.

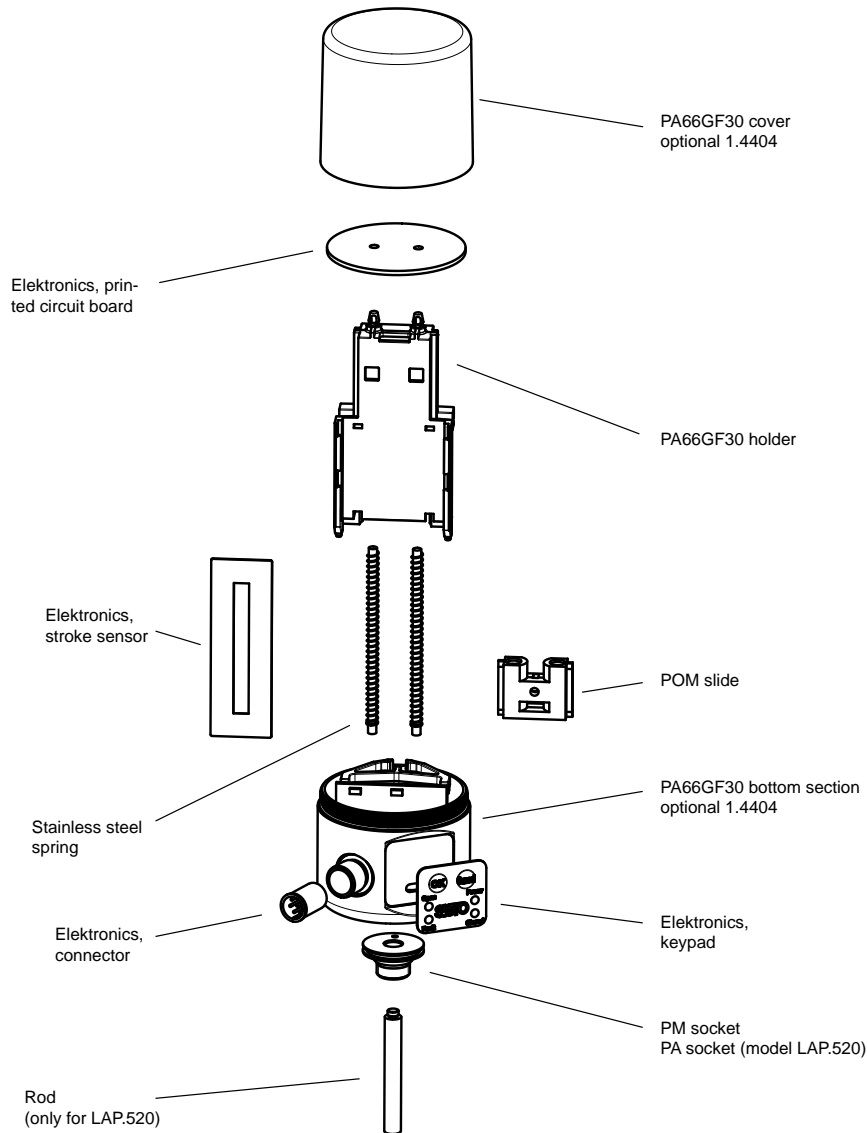
4.3 Disposal

Comply with applicable legal requirements and regulations.

5 Marking

The actual-position feedback unit is marked with:

- Manufacturer
- Serial number
- Type



Not listed:

Metal inserts 1.4404
NBR sealing elements

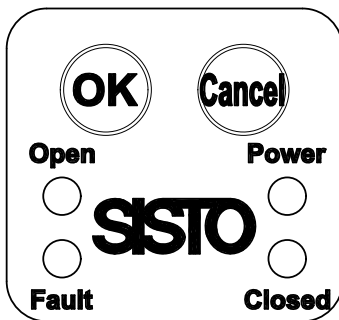
6 Technical data

6.1 Technical data of SISTO-SK-i 24 V

Permissible operating temperature: -30 °C to +60 °C

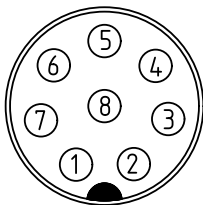
Elektrical Data	
Connection	8-pin M12 round plug connector
Supply voltage	24V +/- 10%
Current input	Approx. 80 mA
Duty ratio	100 %
Digital outputs	24V, max. 100 mA; short-circuit proof
-	Open
-	Closed
-	Fault
Digital inputs	24V, Low: 0-3 V; High: 18-24 V
-	Remote initialisation

Indicator and operating elements of SISTO-SK-i 24 V



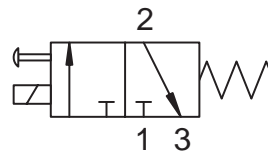
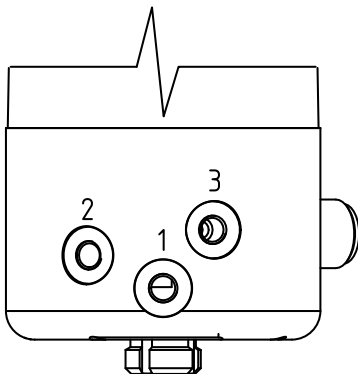
Function	LED colour
Power	Green
Open	Orange
Closed	Yellow
Fault	Red

Pin assignment of SISTO-SK-i 24 V



PIN	Assignment
1	+24 V
2	DO Open ¹⁾
3	0 V
4	DO Closed ¹⁾
5	DI Teach in ²⁾
6	DI Solenoid valve ^{2) 3)}
7	DO Fault ¹⁾
8	Not used

Pneumatic connection of SISTO-SK-i 24 V



Connection	Assignment
1	Air supply
2	Actuator
3	Air outlet

²⁾ Binary output

³⁾ Binary input

⁴⁾ With integrated solenoid valve only

Supplementary technical data for SISTO-SK-i with solenoid valve

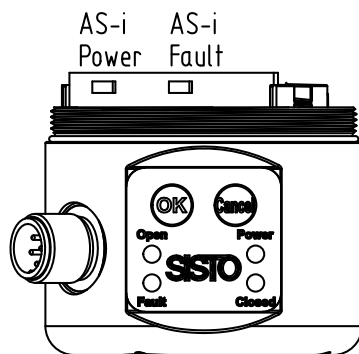
Electrical data	
Current input	120 mA
Pneumatic data	
Connection	Internal thread M5
Flow rate	15 l _N /min
P max	10 bar
Compressed air quality	ISO 8573-1 3/3/3
Materials	
Pneumatic connection	1.4404
Standards	
Enclosure to EN 60529	IP64
Safety class to EN 61140	Safety class III
Directives	
Electromagnetic Compatibility Directive (EMC)	2014/30/EU
RoHS-Directive	2011/65/EU
EC Machinery Directive	2006/42/EG

6.2 Technical data of SISTO-SK-i AS-i

Permissible operating temperature: -30°C to +60°C

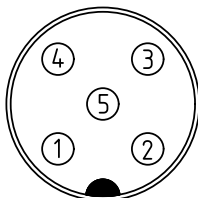
Elektrical data	
Connection	5-pin M12 round plug connector
Supply voltage	26,5 V - 31,6 V
Current input	Approx. 110 mA
Duty ratio	100 %
AS-i specification	V3.0
AS Interface profile	
I/O configuration	7
ID-code	A
ID1-code	*
ID2-code	E

Indicator and operating elements of SISTO-SK-i AS-i



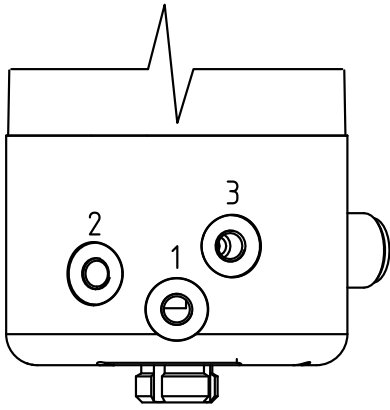
Function	LED colour
Power	Green
Open	Orange
Closed	Yellow
Fault	Red
AS-i-Power	Green
AS-i-Fault	Red

Pin assignment of SISTO-SK-i AS-i

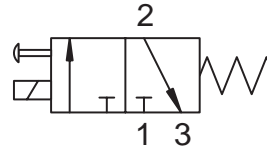


PIN	Assignment
1	AS-i +
2	Not used
3	AS-i -
4	Not used
5	Not used

Pneumatic connection of SISTO-SK-i AS-i



Connection	Assignment
1	Air supply
2	Actuator
3	Air outlet



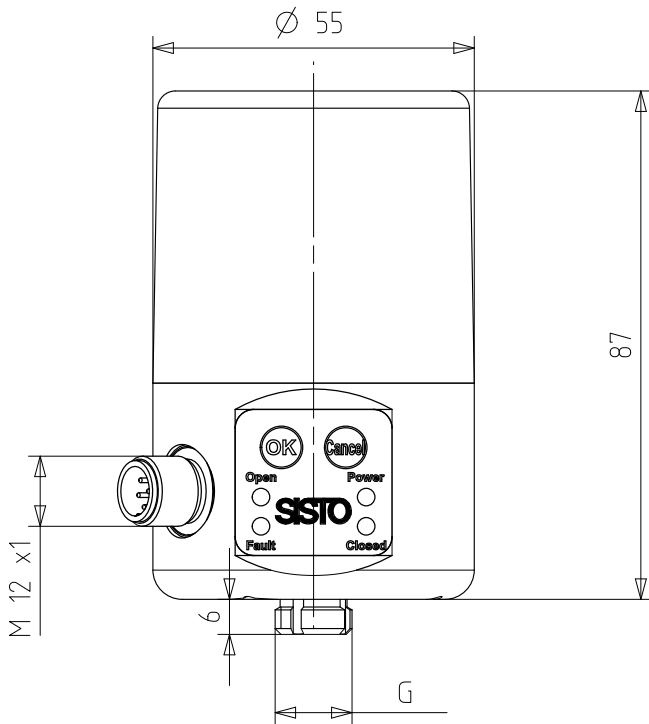
Supplementary technical data for SISTO-SK-i AS-i with solenoid valve

Elektrical data	
Current input	Max. 150 mA
Pneumatic data	
Connection	Internal thread M5
Flow rate	15 l _N /min
P max	10 bar
Compressed air quality	ISO 8573-1 3/3/3
Materials	
Pneumatic connection	1.4404
Standards	
Enclosure to EN 60529	IP64
Safety class to EN 61140	Schutzklasse III
Directives	
Electromagnetic Compatibility Directive (EMC)	2014/30/EU
RoHS-Directive	2011/65/EU
EC Machinery Directive	2006/42/EG

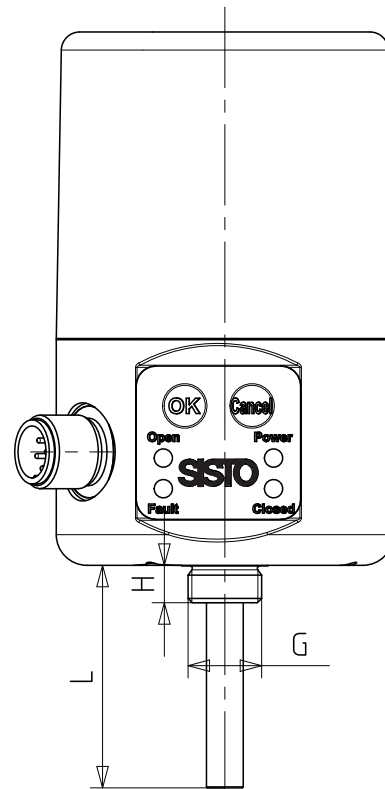
6.3 Inputs and Outputs of SISTO-SK-i AS-i

Inputs (AS-i master perspective)		
DI0	OPEN position	0 = „Not open“ position 1 = „Open“ position
DI1	CLOSED position	0 = „Not closed“ position 1 = „Closed“ position
DI2	Ready	0 = Normal operation 1 = Initialisation mode
DI3	Fault	0 = Normal operation 1 = Fault Alternating at 1 Hz = Valve not initialised
Outputs (AS-i Master perspective)		
DO0	Operate valve	0 = Pilot valve not operated (if fitted) 1 = Pilot valve operated
DO1	Not connected	-
DO2	Activate teach-In	0 = Normal operation 1 = Initialisation mode
DO3	Not connected	-

6.4 Dimensions and weights SISTO-SK-i/SISTO-SK-i AS-i



SISTO-C LAP



SISTO-C LAP.520

Mechanical data

Mechanical data of SISTO-SK-i/SISTO-SK-i AS-i

Dimensions	[mm]
Diameter	55
Height	87
Stroke	5-45

Mounting variants by linear actuator ⁵⁾

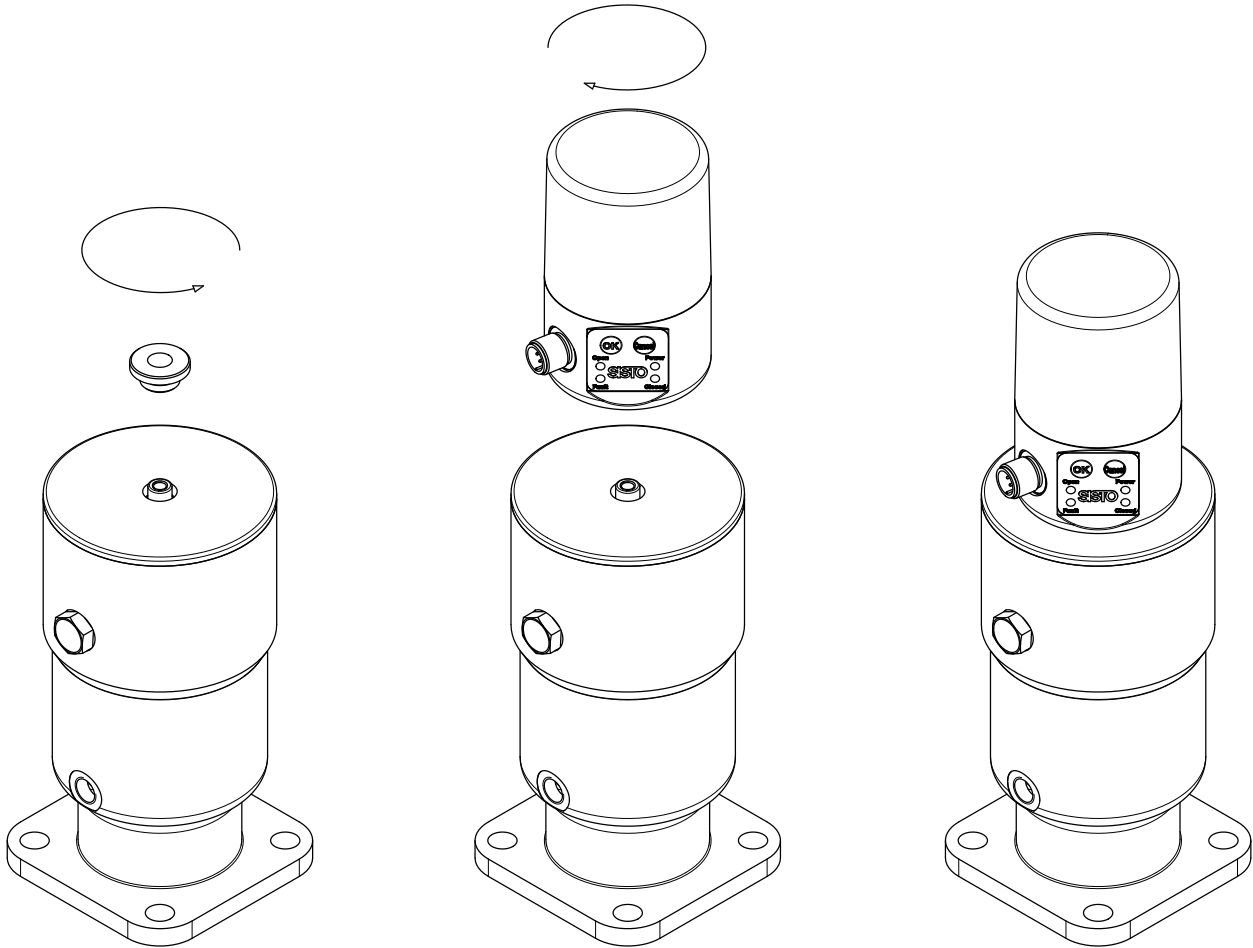
Actuator	SISTO-C LAP	SISTO-C LAP.520/530		
		01	02	03
Variant	00	01	02	03
L [mm]	-	38	38	59
G	G 1/4	M12 x 1	M18 x 1	M18 x 1
H [mm]	6	6	6	6
Diaphragm diameter [MD]	-	30-65	92-115	168

Weight [kg]	
PA66-GF30	0,170
1.4404	0,470

⁵⁾ Further mounting variants available on request

7 Mounting/Removing/Installation SISTO-SK-i/SISTO-SK-i AS-i

7.1 Mounting of the actual-position feedback unit on the valve actuators of the SISTO-C LAP type series:



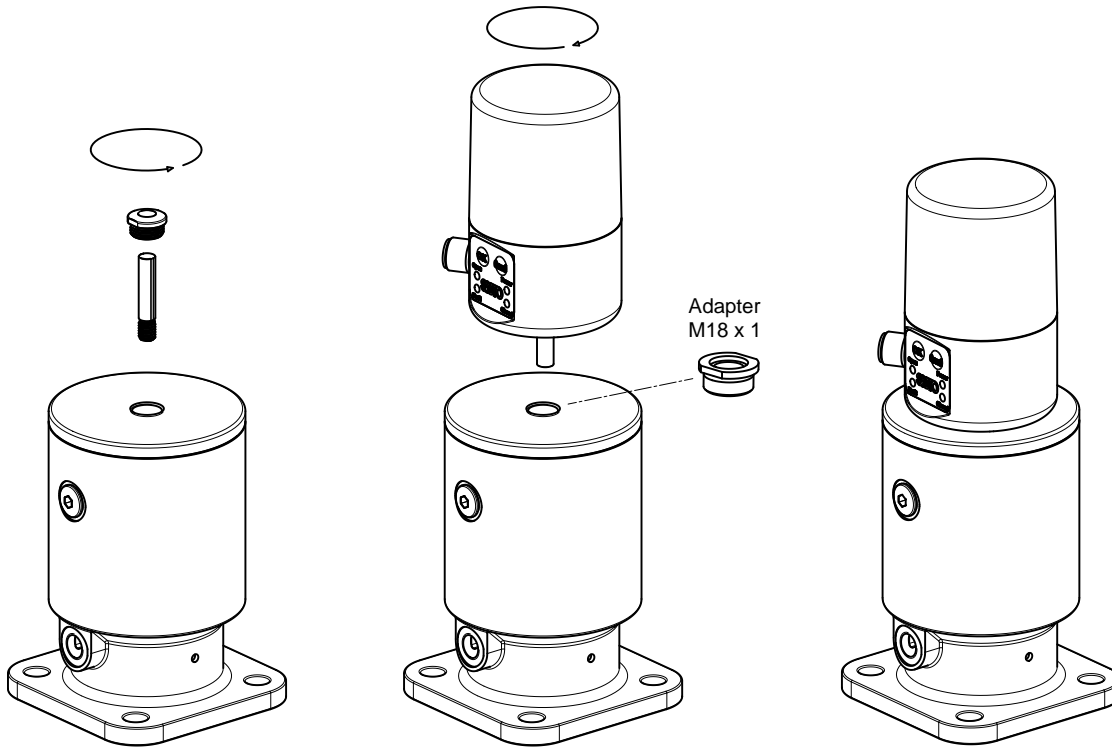
1. Remove the guide bush on the pneumatic valve actuator.

2. Screw the actual-position feedback unit into the tread and hand-tight.

3. To adjust the connections exactly, the actual-position feedback unit can be rotated further in clockwise direction.

After adjusting the actual-position feedback unit can be tightened with the help of a pin (see picture page 12).

7.2 Mounting of the actual-position feedback unit on the valve actuators of the SISTO-C LAP.520 type series:

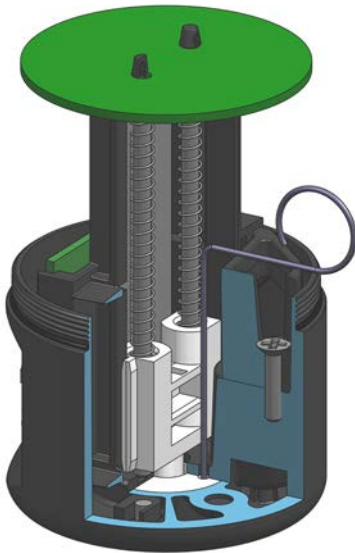


1. Remove the guide bush and the position indicator on the pneumatic valve actuator.

2. Screw the actual-position feedback unit into the tread and hand-tight. With connection thread M18 x 1 in the actuator screw in thread adapter first.

3. To adjust the connections exactly, the actual-position feedback unit can be rotated further in clockwise direction.

After adjusting the actual-position feedback unit can be tightened with the help of a pin (see picture below).



NOTE	
	<p>The bottom housing section and the adapter can be interlocked. To do this, insert a pin (diameter \approx 2 mm) through the opening in the housing into the hole in the adapter.</p> <p>This part is available as an accessory item with the article number 42470874.</p>



WARNING

The installation be performed by skilled and trained personnel with suitable tools, only. Carry out work on the SISTO-SK-i/SISTO-SK-i AS-i actual-position feedback unit during standstill only. Prior to commissioning/start-up of the actual-position feedback unit observe the Section 8.1-8.4, page 14.

7.3 Mounting on valves from other manufactures




NOTE


On demand SISTO-SK-i actual-position feedback unit can also be mounted on valves from other manufactures. It is advisable to clarify the technical details in advance by consulting SISTO Armaturen.

7.4 Removing the actual-position feedback unit

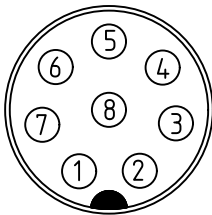
The actual-position feedback unit is dismantled in reverse order.

7.5 Electrical installation

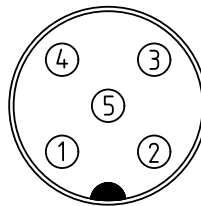
	DANGER
	Danger from voltage! The system must be de-energised and safeguarded against restarting and it must be verified that it is de-energised before it is accessed. All applicable accident prevention, health and safety regulations must be observed when working on electrical equipment.

	WARNING
	Personal injury, damage to equipment or damage to the environment can result if installation work is not carried out properly. The installation be performed by skilled and trained personnel with suitable tools, only. Carry out work on the SISTO-SK-i/SISTO-SK-i AS-i actual-position feedback unit during standstill only. Prior to commissioning/ start-up of the actual-position feedback unit observe the Section 8.1-8.4, page 14.

1. Check the supply voltage and voltage of the digital inputs.
2. Gently connect the M12 socket to the M12 connector on the actual-position feedback unit. Ensuring that the anti-rotational device is positioned correctly.





SISTO-SK-i	
PIN	Assignment
1	+24 V
2	DO Open ⁵⁾
3	0 V
4	DO Closed ⁵⁾
5	DI Teach in ⁶⁾
6	DI Solenoid valve ^{6) 7)}
7	DO Fault ⁶⁾
8	Not used



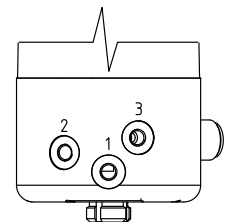
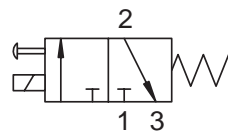
SISTO-SK-i AS-i	
PIN	Assignment
1	AS-i +
2	Not used
3	AS-i -
4	Not used
5	Not used

7.6 Pneumatic installation (only for SISTO-SK-i/SISTO-SK-i AS-i with solenoid valve)

	WARNING
	Danger from pressure! The feed line must be depressurised, bled and secured against being re-pressurised before the air supply connections are released.

	WARNING
	Personal injury, damage to equipment or damage to the environment can result if installation work is not carried out properly. The installation be performed by skilled and trained personnel with suitable tools, only. Carry out work on the SISTO-SK-i/SISTO-SK-i AS-i actual-position feedback unit during standstill only. Prior to commissioning/ start-up of the actual-position feedback unit observe the Section 8.1-8.4, page 14.

1. Remove the screw plug.
2. Screw the hose connectors into the respective threaded connections on the actual-position feedback unit. Ensure that the connections are established properly and are leak-free.



Optional:

3. Replace the silencer at connection point 3 with a hose connector if the exhaust air is to be discharged via a connection line.

Connection	Assignment
1	Air supply
2	Actuator
3	Air outlet

⁵⁾ Binary output

⁶⁾ Binary input

⁷⁾ With integrated solenoid valve only.

8 Commissioning/Start-up/Shutdown

8.1 Commissioning the actual-position feedback unit SISTO-SK-i/SISTO-SK-i AS-i without an integrated pilot valve - on site

1. Verify that the electrical connections were established properly.
2. Check the supply voltage.
3. The valve actuator must be in its fail-safe position.
4. Check that the actual-position feedback unit is properly mounted on the valve actuator.

Start initialisation:

1. Press the „OK“ and „Cancel“ buttons together for approx. 2 seconds.
2. Activate the external pilot valve to trigger the valve actuator.
3. The actual-position feedback unit automatically detects whether the actuator is opening or closing the valve when the valve is activated.
4. The valve actuator reaches the limit position.
5. Press the „OK“ button to verify the limit position.
6. Deactivate the external pilot valve to move the actuator back to its fail-safe position.
7. Press the „OK“ button when this position has been reached.

The actual-position feedback unit is ready to be operated.

8.2 Commissioning the actual-position feedback unit SISTO-SK-i/SISTO-SK-i AS-i without an integrated pilot valve - remote initialisation

1. Verify that the electrical connections were established properly.
2. Check the supply voltage.
3. The valve actuator must be in its fail-safe position.
4. Check that the actual-position feedback unit is properly mounted on the valve actuator.

SISTO-SK-i procedure:

1. Start remote initialisation: Apply 24 volts to the teach-in input (pin 5) for at least 0.5 seconds.
2. Activate the external pilot valve to trigger the valve actuator.
3. The actual-position feedback unit automatically detects whether the actuator is opening or closing the valve when the valve is activated.
4. The valve actuator reaches the limit position.
5. The actual-position feedback unit sends after three seconds a signal to pin 2 (DO Open) or pin 4 (DO Closed).
6. Deactivate the external pilot valve to move the actuator back to its fail-safe position.
7. After three seconds a signal is sent to pin 2 (DO Open) or pin 4 (DO Closed).
8. The alternating voltage at the fault output (pin 7) is switched off.

The actual-position feedback unit is ready to be operated.

SISTO-SK-i AS-i procedure:

1. Start remote initialisation: Activate DO2 via AS-i master.
2. The positioner is in the initialisation mode.
3. Activate the external pilot valve to trigger the valve actuator.
4. The actual-position feedback unit automatically detects whether the actuator is opening or closing the valve when the valve is activated.
5. The valve actuator reaches the limit position.
6. The actual-position feedback unit sends after three seconds a signal to DI0 (Open) or DI1 (Closed).
7. Deactivate the external pilot valve to move the actuator back to its fail-safe position.
8. After three seconds a signal is sent to DI0 (Open) or DI1 (Closed).
9. The alternating voltage at the fault output (DI3) is switched off.

The actual-position feedback unit is ready to be operated.

8.3 Commissioning the actual-position feedback unit SISTO-SK-i/SISTO-SK-i AS-i with an integrated pilot valve - on site

1. Verify that the electrical and pneumatic connections were established properly.
2. Check the supply voltage and the control pressure present.
3. Check that the actual-position feedback unit is properly mounted on the valve actuator.

Start initialisation:

1. Press the „OK“ and „Cancel“ buttons together for approx. 2 seconds.
2. The actual-position feedback unit actuates the internal pilot valve, reaches the both limit positions and saves them internally.
3. The Power LED and the Open or Closed LED are lit continuously.

The actual-position feedback unit is ready to be operated.

8.4 Commissioning the actual-position feedback unit SISTO-SK-i/SISTO-SK-i AS-i with an integrated pilot valve - remote initialisation

1. Verify that the electrical and pneumatic connections were established properly.
2. Check the supply voltage and the control pressure present.
3. Check that the actual-position feedback unit is properly mounted on the valve actuator.

SISTO-SK-i procedure:

1. Start remote initialisation: Apply 24 volts to the teach-in input (pin 5) for at least 0.5 seconds.
2. The actual-position feedback unit actuates the internal pilot valve, reaches the both limit positions and saves them internally.
3. A signal is present at pin 2 (DO Open) or pin 4 (DO Closed).
4. No voltage is present at pin 7 (DO Fault).


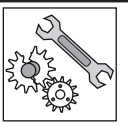

The actual-position feedback unit is ready to be operated.

SISTO-SK-i AS-i procedure:

1. Start remote initialisation: Activate DO2 via AS-i master.
2. The actual-position feedback unit actuates the internal pilot valve, reaches the both limit positions and saves them internally.
3. A signal is present at DI0 (Open) or DI1 (Closed).
4. No voltage is present at fault output (DI3).

The actual-position feedback unit is ready to be operated.

8.5 Shutdown

	<p>WARNING</p> <p>Risk of injury! Carry out work on the SISTO-SK-i/SISTO-SK-i AS-i actual-position feedback unit during standstill only.</p>
	<p>ATTENTION</p> <p>The installation be performed by skilled and trained personnel. Always use suitable tools to ensure proper functioning of the actual-position feedback unit.</p>
	<p>NOTE</p> <p>All applicable accident prevention, health and safety regulations must be observed when working on electrical equipment.</p>

Measures for shutdown:

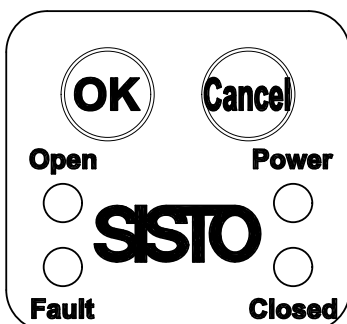
- Before intervention in the system:
 1. The system must be de-energised.
 2. Secure against restart.
 3. Check that no voltages are present.
- Before the air supply connections are released:
 1. Feed line must be depressurised.
 2. Feed line bleed.
 3. Feed line secure against being re-pressurised.

9 Trouble shooting

9.1 Error messages/operating status SISTO-SK-i /SISTO-SK-i AS-i

Symbol	Description
-	Off
o	On
x	Flash
□	Undefined

LED				Output signal			Fault/ Operating status	Note/ Trouble shooting
Power	Fault	Open	Closed	DO Open	DO Closed	DO Fault		
-	-	-	-	-	-	-	No power supply	Check power supply
x	-	-	-	-	-	x	-	Reinitialise
x	x	-	-	-	-	x	Ready for initialisation	-
x	x	x	-	-	-	x	Initialisation (Movement in the opening direction)	
x	x	o	-	o	-	x	Initialisation (Reached open position)	
x	x	-	x	-	-	x	Initialisation (Movement in the closing direction)	
x	x	-	o	-	o	x	Initialisation (Reached closed position)	
o	-	x	-	-	-	-	Operation (Movement in the opening direction)	
o	-	o	-	o	-	-	Operation (Reached open position)	
o	-	-	x	-	-	-	Operation (Movement in the closing direction)	
o	-	-	o	-	o	-	Operation (Reached closed position)	
o	x	□	□	□	□	o	Fault (all positions)	Limit position not reached, check stroke, reinitialise
o	x	x	x	□	□	o	Fault (all positions)	Fault in system, send in actual-position feedback unit to manufacturer

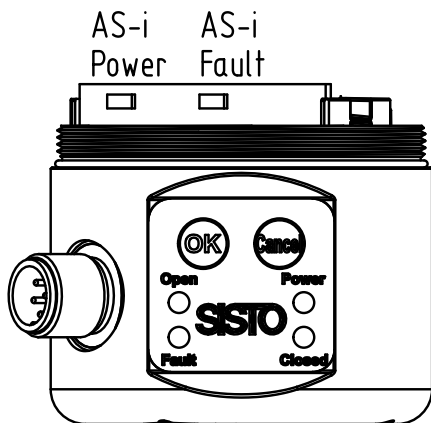


Function	Colour LED
Power	Green
Open	Orange
Closed	Yellow
Fault	Red

9.2 Additional error messages/operating status SISTO-SK-i AS-i

Symbol	Description
-	Off
o	On
x	Flash

LED		Symptom	Note/ Trouble shooting
AS-i Power	AS-i Fault		
-	-	No operating voltage	No operating voltage is available.
o	-	Normal operation	Data communication is established.
o	o	No data exchange	The data-exchange-disable-flag is set. Data port communication is not allowed. IC is waiting for a write-parameter-request. The communication monitor has detected „No data exchange status“ or the IC was reset by watchdog reset.
x	o	No data exchange (address=0)	Slave is waiting for address assignment. Data port communication is not possible.
x	x	Peripheral fault	Signal of peripheral fault generated at FID input.
o	x	Worse Peripheral fault with reset.	„Data Strobe“ driven LOW for more than 44µs.



Function	Colour LED
AS-i Power	Green
AS-i Fault	Red

10 Maintenance/Cleaning

The SISTO-SK-i/SISTO-SK-i AS-i actual-position feedback unit was designed to be maintenance-free. However, check all electrical and pneumatic connections at regular intervals. The unit must never be cleaned with a water jet and/or aggressive cleaning agents (observe the requirements of the type of enclosure chapter 6.1, page 8/ chapter 6.2, page 9).

Please contact SISTO Armaturen S.A. beforehand should any doubt arise as to the compatibility of the cleaning agent with the housing material.

Machinery Directive 2006/42/EC
 Maschinenrichtlinie 2006/42/EG

Declaration of incorporation according to annexe IIB
 Einbauerklärung entsprechend Anhang IIB

Manufacturer, address: **SISTO Armaturen S.A.**
 Hersteller, Adresse: **18, rue Martin Maas**
L-6468 Echternach/Luxembourg

Description of the partly completed machinery:
 Beschreibung der unvollständigen Maschine:

Actual-position feedback unit type SK-i or actual-position feedback unit type SK-i AS-i, intended to be used for mounting on linear pneumatic valve actuators.

Stellungsrückmelder Typ SK-i oder Stellungsrückmelder SK-i AS-i, vorgesehen zum Aufbau auf lineare pneumatische Ventilantriebe.

In accordance with the following essential requirements applied:
 Im Einklang mit folgenden angewendeten grundlegenden Anforderungen:

1.1.2, 1.1.3, 1.1.4, 1.1.5, 1.1.6, 1.2.1, 1.2.2, 1.2.3, 1.3.2, 1.3.3, 1.3.4, 1.3.7, 1.3.8, 1.3.8.1, 1.4.1, 1.4.2.1, 1.5.1, 1.5.2, 1.5.3, 1.5.4, 1.5.7, 1.5.8, 1.6.1, 1.6.3, 1.6.4, 1.7.1.1, 1.7.1.2, 1.7.2, 1.7.4, 1.7.4.1, 1.7.4.2

The technical documentation has been prepared in accordance with appendix VII, section B.
 Die technische Dokumentation wurde erstellt in Übereinstimmung mit Anhang VII, Teil B.

Other applicable directives / Andere anwendbare Richtlinien:

- **EMC Directive 2014/30/EU / EMV-Richtlinie 2014/30/EU**
- **RoHS Directive 2011/65/EU / RoHS-Richtlinie 2011/65/EU**

Note: This partly completed machinery must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of the Machinery Directive 2006/42/EC, where appropriate.

Hinweis: Die unvollständige Maschine, die Gegenstand der vorliegenden Einbauerklärung ist, darf nicht in Betrieb genommen werden, solange die Maschine, in die sie eingebaut wird, nicht die Anforderungen der Richtlinie 2006/42/EG erfüllt.

Echternach, 17.12.2019


 Bernd Hackenberger
 Manager Research & Development

EU-Konformitätserklärung
EU Declaration of Conformity

Hiermit erklären wir,

SISTO Armaturen S.A.
18, rue Martin Maas
L-6468 Echternach/Luxembourg

dass, die nachstehenden Produkte

Stellungsrückmelder Typ SISTO-SK-i
Stellungsrückmelder Typ SISTO-SK-i AS-i
vorgesehen zum Aufbau auf lineare pneumatische Ventilantriebe

mit den Vorschriften folgender der Richtlinien in ihrer gültigen Fassung entspricht:

- 2011/65/EU** **Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektrogeräten und Elektronikgeräten (RoHS)**
- 2014/30/EU** **Elektromagnetische Verträglichkeit**

Herewith we,

SISTO Armaturen S.A.
18, rue Martin Maas
L-6468 Echternach/Luxembourg

declare that the listed products

Actual-position feedback unit type SISTO-SK-i
Actual-position feedback unit type SISTO-SK-i AS-i
intended to be used with linear pneumatic valve actuators

meet the provisions of the below Directive in the valid version:

- 2011/65/EU** ***Restrictions of the use of certain hazardous substances in electrical and electronic equipment (RoHS)***
- 2014/30/EU** ***Electromagnetic Compatibility***

Echternach, 18.12.2019



Bernd Hackenberger
Manager Research & Development



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