I Application

The C-TOP+ control unit with AS-i (Actuator Sensor Interface) communication is designed or intended for the optimal automation of INOXPA process valves. This option is available for the entire range of valves supplied with C-TOP+ units (ball valve, butterfly valve, single and double seat multiway valve, etc.).

I Principle of operation

The AS-i interface is a field bus system that allows connecting a network of actuators and sensors (detectors) to a higher level control device (master).

An AS-i network comprises the following elements:
A power supply, one or several master (or control) modules, bus cable (preformed cable), an IDC connector, an IDC connector to C-TOP+ connector connection cable, and the C-TOP+ prepared for AS-i (special card for AS-i with connector).

The AS-i field bus obtains the required voltage from a power supply. The sensors and solenoid valves connected to the field bus are controlled by the master module.
Every master sends the information to the PLC and is able to control up to 62 slave units (62 C-TOP+ AS-i units).

The interconnection is made with a preformed cable. The preformed cable is used both for the transmission of information and as a power supply for the solenoid valves and detectors. The C-TOP AS-i head must always be used in conjunction with magnetoresistive detectors.

The C-TOP+ AS-i also incorporates three signalling LEDs which continuously indicate the status of the valve, and one flashing red LED to alert in case of signal loss.

Signal status LED			Detector signal	Status of the inputs			
Red[1)]	Green	Yellow		DI1	DI2	DI3	DI4
○	○	○	-	0	0	0	0
✹	○	○	Detector 1 (S1)	1	0	0	0
○	✹	○	Detector 2 (S2)	0	1	0	0
○	○	✹	Detector 3 (S3)	0	0	1	0
○	✹	✹	Detector 4 (S4, external)	0	0	0	1
✹	✹	✹	S1 and S4 (external)	1	0	0	1
○	✹	✹	S2 and S4 (external)	0	1	0	1
○	✹	✹	S3 and S4 (external)	0	0	1	1
Flashing	○	○	Signal patterns not mentioned above				

1) The red LED starts flashing after a delay of 10 seconds in patterns of DI1... DI4 not mentioned above and is permanently switched on when actuating more than one output.

I Design and features

The C-TOP+ AS-i is characterised by its modular simple and robust design which guarantees maximum flexibility during installation. Due to its enormously reduced wiring requirements, it facilitates the installation and commissioning of the system. Moreover, it reduces the commissioning time and potential installation errors.
Depending on the version, the head can have up to three solenoid valves 3/2 (NC) and three sensors. If necessary, an additional external sensor can be connected. The sensors are magnetoresistive, with contactless activation by means of a magnet connected to the control shaft. The C-TOP+ AS-i heads are configured according to each customer's requirements.

Solenoid valve configuration
- *Single-acting - 1 solenoid valve*
- *Double-acting - 2 solenoid valves*
- *Mixproof valve - 3 solenoid valves*

Detector configuration
- *1 position (valve open or closed) - 1 detector*
- *2 positions (valve open and closed) - 2 detectors*
- *3 positions (valve open, valve closed, Mixproof seat cleaning) - 3 detectors*

I Technical specifications

Outdoors use	*C1 - protected areas*
Stroke	*≤ 70 mm*
Maximum shaft diameter	*22 mm*
Mounting position	*360°*
Fastening type	*Screws*
Medium	*Filtered compressed air, filtration level 40 µm, lubricated or non-lubricated*
Measuring principle	*Magnetoresistive (inductive), PNP, NA*
Measurement parameter	*Position*
Visual Indicators	*LED*
Solenoid valves	*3/2-way, NC*
Operating pressure	*3 ... 8 bar*
Nominal operating pressure	*6 bar*
Standard nominal flow rate	*200 l/min*
Storage temperature	*-20 ... 60 °C*
Ambient temperature	*- 5... 50 °C*
Protection class	*IP65, IP67 (mounted head)*
Protection against reverse polarization	*Yes*
Supply voltage	*26.5 … 31.6 VDC (via the bus line. Bus cable not included)*
Max. current consumption	*200mA*

Pneumatic connections

Connection 1: compressed air connection for		*QS-8 operating pressure (Ø8 mm pipe)*
Connection 3:	*Outlet*	*Integrated silencer*
Connection A1 ... A3:	*Solenoid valve lines*	*QS-6 (for Ø6 mm pipe)*

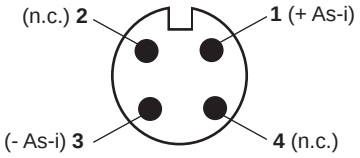
Profile (factory setting slave 0 address):

S-7.A.7.7	*V3.0 (slave A/B, max. 62 slave addresses)*
S-7.F.F.E	*V2.0 (max. 31 slave addresses) - on request*

I Electrical connections

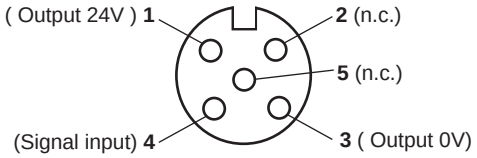
Male connector M12 x 4 poles

1 + AS Interface
2 n.c. = free (do not connect)
3 - AS Interface
4 n.c. = free (do not connect)



Additional connector for the fourth external detector (S4), female connector M12 x 5 poles
(Only available with 3 detectors and 3 solenoid valves)

1 24V (external detector S4)
2 n.c. = free (do not connect)
3 0V (external detector S4)
4 Detector signal (external detector S4)
5 n.c. = free (do not connect)



I Materials

Cover	*Polypropylene*
Body	*Reinforced polypropylene*
Base	*Reinforced polypropylene*
Seals	*EPDM*
Screws	*Stainless steel*

I General dimensions