

Distributed intelligent fieldbus units for simplified control

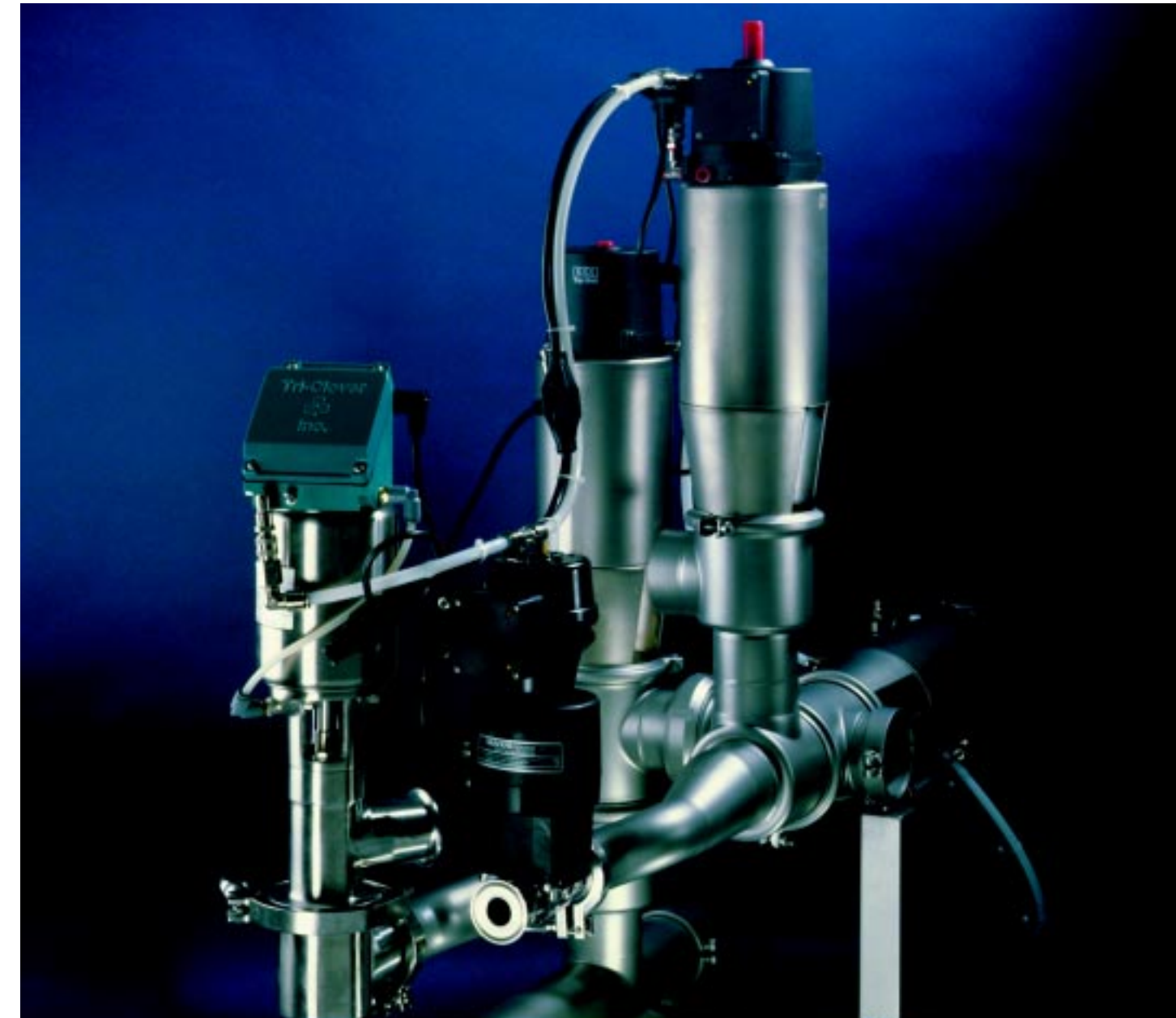
Data concentrator, SattTop STC	
Power supply	24 V DC (20 to 32 V DC).
Power consumption	5 W (24 V DC).
Communication	SattBus connector. Attachable 4-pole screw terminal. Serial channel RS485G (and RS422). 25 pole D-sub connector (Canon).
SattBus channel	
Transfer rate	62.5 kbits/s.
Cable	Unshielded twisted pair, min. 3 turns/metre.
Characterist. impedance	80–150 Ω.
Area	≥0.20 mm ² , AWG 24.
Cable length	Max. 2000 m.
Serial channel	
Baud rate	9600, 4800 and 2400 baud.
Fixed parameters	8 data bits, 1 stop bit.
Fixed parity	Odd (COMLI, Modbus), Even (Allen-Bradley, Siemens)
Cable	Screened multi-core.
Cable length	Max. 1000 m.
Temperature	
Operating	±0 to +55°C.
Storage	–25 to +70°C.
Relative humidity	10 to 95%, non-condensing.
Protection class	IP 20
Electrical environment	Fulfils Electro-Magnetic Compatibility, EMC, directive 89/336 EEC.

Operator's panel, SattTop OP2	
Display & Keyboard	4 x 40 characters, 26 keys.
Power supply	24 V DC (20 to 32 V DC).
Power consumption	8 W (24 V DC).
Communication	SattBus connector. Attachable 4-pole screw terminal.
SattBus channel	
Transfer rate	62.5 kbits/s.
Cable	Unshielded twisted pair min. 3 turns/m.
Characterist. impedance	80–150 Ω.
Area	≥0.20 mm ² , AWG 24.
Cable length	Max. 2000 m.
Temperature	
Operating	±0 to +50°C.
Storage	–25 to +70°C.
Relative humidity	10 to 95%, non-condensing.
Protection class	Front IP 65 (mounted in panel). Other sides IP 20.
Electrical environment	IEC 801-4/; power 2 kV, other 1 kV. IEC 801-2; 8 kV.
Mounting panel aperture	205 x 205 mm ± 1 mm.

SattTop LKT-S, SattTop VB and SattTop I/O	
Temperature	
Operating	IEC 68-2-1/2 +5 to +55°C
Storage	IEC 68-2-1/2 –25 to +70°C
Temperature change	IEC 68-2-14 –25 to +70°C
Vibrations	IEC 68-2-36
Functional test	
Spectra	10–20 Hz, 4.0 x 10 ⁻⁴ g ² /Hz, 20–500 Hz, –3 dB/octave.
Acceleration	Max. 0.86 g, 0.17 g rms.
Amplitude	Max. 0.45 mm.
Life test	
Spectra	10–20 Hz, 5.0 x 10 ⁻³ g ² /Hz, 20–500 Hz, –3 dB/octave.
Acceleration	Max. 3.1 g, 0.61 g rms.
Amplitude	Max. 1.6 mm.
Transportation	
Spectra	Point 1, 1Hz, 60x10 ⁻⁶ g ² /Hz. Point 2, 4Hz, 10x10 ⁻³ g ² /Hz. Point 3, 16Hz, 10x10 ⁻³ g ² /Hz. Point 4, 40Hz, 1.0x10 ⁻³ g ² /Hz. Point 5, 80Hz, 1.0x10 ⁻³ g ² /Hz. Point 6, 200Hz, 10x10 ⁻⁶ g ² /Hz
Acceleration	Max. 2.6 g, 0.52 g rms.
Amplitude	Max. 17 mm
Humidity	
Cyclic	IEC 68-2-30, +25 / +55°C, 5 cycles.
Operating	IEC 68-2-3, +40°C, 96h, 93 % R.H.
Protection class	IP 67

Valve Top Unit, SattTop LKT-S	
Compressed air	
Pressure	Max. 1 MPa (10 bar).
Particle size	Max. 0.01 mm.
Oil content	Max. 0.08 ppm.
Dew point of compr. air	Min. 10°C below amb. temp.
Water content	Max. 7.5 g/kg air.
Connection	R 1/8" (BSP), OD 10 mm tube, ID 6 mm tube.
Position sensors	
Type	Hall element sensors.
Signal output	On/off digital.
Supply voltage	8–30 V DC.
Supply current	Max. 25 mA.
Output	PNP open collector, max. 100 mA.
Solenoid valves	
Available voltage	24 V DC.
Power consumption	Max. 4 W.
Optional function	Manually operated.
Protection	Not earthed.
Materials	
Black plastic parts	Reinforced PA 6, polyamide.
Red plastic parts	POM, polyacetal.
Activating stem for SMP-EC valve	Acid-resistant steel AISI 316.
Seals for SMP valve stem	EPDM rubber.
Other seals	EPDM, NBR (nitrile), SEBS (Thermo-plastic elastomer).
Electronic parts	IP67-protected.

Linde & Co



SattTop is a registered trademark of ABB Satt AB.



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Distributed control lowers installation and maintenance costs

SattTop is a unique system of distributed fieldbus units for controlling valves, pumps, motors and other digitally controlled objects. Distributed control can help to lower both installation costs and maintenance costs. The SattTop system is based on SattBus, an industrial fieldbus, designed to meet the requirements of the plant floor. SattBus is a token-passing bus.

SattTop PCDoc provides flexible and easy on or off-line configuration of SattTop units.

Tri-Clover top unit

Tri-Clover has designed their own module mounted on the actuator. The versatile system is available on a variety of Tri-Clover Series 700 and Series 900 seat valves, and Series B53 butterfly valves.

Saunders interface

The Saunders SattTop interface is one of the many variations of the unique remote indication device module used with compact Saunders 'EC' and 'ECX' actuator ranges for Weir type diaphragm valves.

LKT-S

LKT-S is the new control unit for most types of LKM pneumatic process valves, designed in co-operation with LKM. There are different top units for seat and butterfly valves. It features one or two integrated solenoid valve(s) and Hall element feed back sensors and can be easily configured for NO or NC operation.



SattTop PCDoc

SattTop PCDoc is used for flexible and easy on or off-line configuration of SattTop units using a PC, a software package and a standard SattBus PC card. It is easy to learn and use, and features automatic back-up of configuration and print-out of documentation.

The configuration can be downloaded to SattTop units directly via the bus cable.

PC Doc can be used to simplify procedures during commissioning.

Self-diagnostics reduce downtime

All field units designed to protection class IP67 are based on a smart microprocessor based electronic unit, SattTop EU, which can be configured for various tasks. Continuously executed selfdiagnostics detect calibration, communications or other internal faults. This helps to reduce downtime and improve safety.

LEDs on the front of the electronic unit, SattTop EU, indicate open and close position of the controlled object. SattTop is also an energy saver as only the communicating unit is fully energized. The energy in other units is reduced to as much as 30% of nominal.

Data Concentrator SattTop STC

The STC is the link between the host system and the SattTop loop, allowing the host system to read and change the process status.

The STC also initiates the SattBus communication and establishes the token passing and handles the supervision of the communication. An electronic key provides communication protocols to host systems other than ABBs.

Data Concentrator
SattTop STC



SattTop Operator Panel

With its four-line 40 character display, 11 x 2 function keys and its numeric keyboard, the SattTop OP provides functions for start-up, service and manual operation of the system.

SattTop Valve Box

SattTop Valve Box is a general unit designed for controlling pneumatic process valves. It comprises one or two solenoid valves and inputs for a variety of external sensors.

Combined with an external pneumatic (air/air) valve it provides a unique product for controlling valves in water and waste water applications.

SattTop I/O

Like the Valve Box, the SattTop I/Os are designed for general digital control of pumps, motors and other digital signal units.

The units are available in different versions depending on input voltages.

SattBus Communication and Power supply

The industrial medium speed, token-passing SattBus trunk cable is used for communication and power supply. It consists of two unshielded twisted pairs which can be up to 2000 metres in length. One of the pairs carries power to each of the connected units, while the other is used for communication.

Local units are easily hooked up to the trunk cable by means of a IP 67 class T-connector. Connection is independent of polarity.

The operator panel SattTop OP acts as a link between the control system and the distributed units.



A complete system for your control needs

A smart distributed system

SattTop is made for harsh industrial environments. The operator panel, SattTop OP, acts as data concentrator/supervisor and operator unit as well as a link between the host control system and the distributed field units. Up to 120 field units can be connected to each fieldbus loop.

Reduced cabling requirements

One trunk cable that covers both supply and communication needs, eliminates the need for costly and complex cabling. Far less I/Os are required than in a conventional system. Installation is fast and simple. Faulty units can easily be detected and replaced on-line.

There is no need for solenoid cabinets, as solenoids and feedback sensors are integrated in the valve top unit.

Special top units are available for LKM, Tri-Clover and Saunders pneumatic process valves, (companies within the Alfa Laval Group).

SattTop at your service

SattTop is a well proven high quality system designed for electronic precision and absolute control. It not only provides the advantage of distributed control of process objects. Fieldbusbased SattTop units result in lower costs for I/O equipment and less space than traditional installations. The units are more functional and flexible than traditional devices. You can also reduce wiring and conventional I/O equipment which will result in simplified wiring layout and drawings.

The extensive list of parameters and variables will help you to control your application in an optimal way. Local intelligence provides for accuracy and safety both of which lead to cost-effective production.

SattTop products can be used for all types of digitally controlled process objects in a variety of applications.