KOMPETENTE MESSTECHNIK

µFLOW LSE LITE

controller for
air scavenging device
LSE-HD

Instruction manual

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Valid from software version LSE-Lite

Ufl006-01.doc

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content

Note

These instructions do not claim to cover all details or variations in equipment, nor to provide for every possible contingency that may arise during installation, operation or maintenance.

Should further information be desired or should particular problems arise that are not covered sufficiently for the Purchaser`s purposes, the matter should be referred to S.K.I. or the local sales office.

The contents ot this instruction manual shall not become part of or modify any prior existing agreement, commitment or relationship. The Sales Contract contains the entire obligations of S.K.I.. The warranty contained in the contract between the parties is the sole warranty of S.K.I.. Any statements contained herein do not create new warranties or modify the existing warranty.

W A R N I N G

This equipment should only be installed and operated after qualified personnel have ensured that suitable power supplies are available. These personnel must ensure that the equipment is not subjected to any hazardous voltages during normal operation or when a defect occurs in the system.

The successful and safe operation of this equipment is dependent upon ist proper handling, installation, operation and maintenance.

Qualified person

For the purposes of this manual, a qualified person is one who is familiar with the installation, commissioning and operation of this equipment. In addition, the person must be:

- Trained and authorised to operate and service equipment/systems in accordance with established safety procedures relating to electrical circuits.
- Trained in the proper care and use of protective equipment in accordance with established safety practices.
- Trained in rendering first aid.

attention

During startup no buttom on the front panel must be pressed

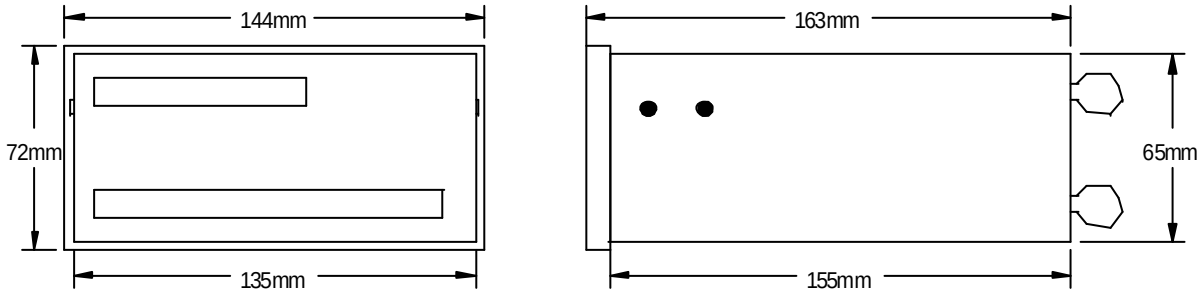
Technical data

indication:	LC-Display, 2 lines with 16 signs
Hilfsenergie:	230 VAC/50 Hz (±10%) 115 VAC/60 Hz (optional) 24 VDC/300 mA (optional)
maximum main interference:	150 V/20 ms, followed by automatic RESET by inegrated monitoring module with backup of the count
EMV tests:	according to EN 50081-1/2 and EN 50082-1/2
Functonal test:	Watchdog, FAIL function with drop-out contact in the event of fault
Available auxiliary power:	24 VDC/160 mA for transmitter supply (with auxiliary power 115/230 VAC only) No transmitter supply is possible with auxiliary power 24 V DC
analog inputs:	6x 0/4-20 mA switchable via software Internal resistance 24 Ohm per current input,
Analog/Digital converter	16 bit resoluton with integrated 50Hz-suppression; complete electrical isolation from the computer and all outputs (except in the case of transmitter supply))
Frequency input:	max. 10kHz, for external contact
Analog outputs:	1x 0/4-20 mA, optional 2x 0/4-20 mA max. load: 500 Ohm
count pulse:	purging in progress, max. 1W, max 30 V
resolution of the outputs:	14 bits, completely electrically isolated from the computer and all inputs
relay outputs:	Relay 1 – controlling of motor, Relay 2 - LSE-State, 1x Fail-relay max. load of the contacts: 250VAC/5A

Dimensions

Front panel housing

enclosure:	glass-fibre-reinforced Noryl, front panel 144x72 mm^2 (DIN)
depth:	ca. 170 mm
panel cut-out:	138 x 68 mm^2

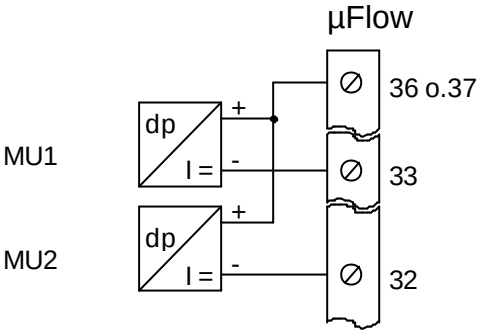


Electrical connection

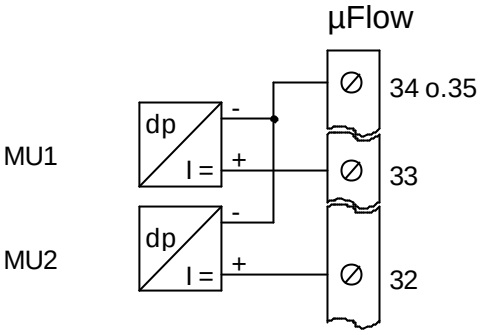
General hints

Signal leads must be shielded, one end of the shield has to be connected to ground. Signal and main leads have to be leaded seperately.

Connection of inputs

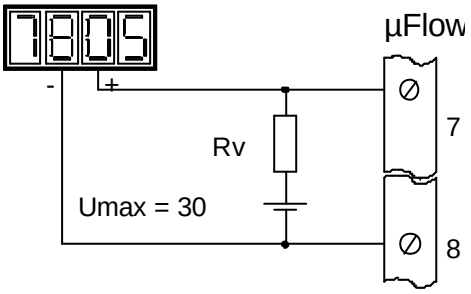


picture 1: connection of two differential pressure transmitters as passive signals, that means transmitters are powered by the µFLOW

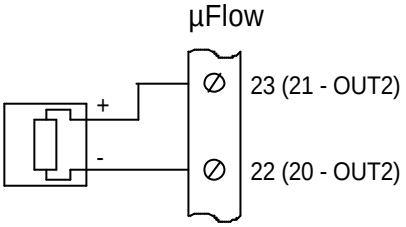


picture 2connection of two differential pressure transmitters as active signals, that means transmitters are powered by external power supply

Connection of the outputs



picture 3: external contact „purging in progress“, for example for counting of realized purgings. Th pull up resistance Rv should be in a range of 1 to 10 kΩ.



Picture 4: analog output, outputs are active, Thee is no need for an external power supply. The max. load is 500 Ω

The terminals in detail

Long terminal row

terminal	name	use
1	L/DC+	Power supply, (24 V DC + optional)
2	N/DC-	Power supply, (24 V DC - optional)
3	PE	mass
4		Not used
		Not used
6		Not used
7	CNT	Pulse output NPN Open collector
8	DGND	GND for pulse output
9	CO	 Relay 1, controlling motor
10	NO	
11	NC	
12	CO	 Relay 2, LSE-State
13	NO	
14	NC	
15	CO	 Fail-Relay
16	NO	
17	NC	
18		Not used
19		
20	OUT2-	Analog output 2 (Option)
21	OUT2+	
22	OUT1-	Analog output 1
23	OUT1+	

short terminal row

terminal	name	use
24	B	Not used
25	A/IN5	
26	b	
27	B	NO of endswitches 2..4
28	A/IN6	NO of endswitch 1
29	b	CO of endswitches 1..4
30	IN4	Not used
31	IN3	Not used
32	IN2	Current input differential pressure 2
33	IN1	Current input differential pressure 1
34	GND	GND for transmitters
35	GND	GND for transmitters
36	24V	Auxiliary power for transmitters
37	24V	Auxiliary power for transmitters

Exchange of the fuses

The main fuse is located on the main circuit board, it is located behind the terminal row. The fuse for the 24 V auxiliary power is located on the CPU circuit board behind the terminal row. The fuses are reachable after dismounting of the back panel. The type of fuse to be used is depending on the power supply

Power supply	Main fuse	Fuse for 24V
230V AC	250V/160 mA	250V/160 mA
115V AC	250V/160 mA	250V/160 mA
24V DC	250V/1A	-

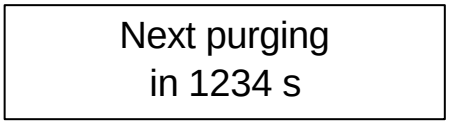
Description of the function of the air scavenging device

The scavenging device LSE-HD is used for the cleaning of sensors which are used in dustloaden gases. The most important features are the separate cleaning of each sensor chamber and the integrated automatical zero point control of the differential pressure transmitter connected to input IN1. Central element of the LSE is the multiway cock, which enables the four different positions normal operation, zero point control, scavenging chamber one and scavenging chamber two. These four positions can be adjusted by hand or with a motor by turning the square ended shaft of the multiway cock in steps of 90°. In the LSE this function is realized by an electrical drive which is controlled by the µFLOW-LSE. The µFLOW-LSE switches the drive on and off. The stop positions are defined by the four cam switches which are integrated in the drive.
In addition the controller µFLOW LSE-Lite passes the signals of the differential pressure transmitters and state signals to the control cabinet . Before the scavenging is started the last measured values of the differential pressure transmitters are stored. These values will be passed to the control cabinet as long as the purging procedure is in operation.

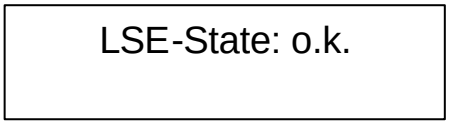
The displays

The following table show the different displays. By pressing the "🡻" key it is possible to switch between the displays in descending order of the table. By pressing the "🡹" key it is possible to switch in the opposite direction. After pressing the SELECT key, the TAG-no. which can be programmed by the user will be indicated. After pressing the SELECT key again you get back to the normal display mode.

Scavenging display:
indicates when the next scavenging will take place



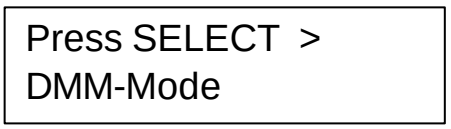
State display



The following table shows the possible state displays:

display	**meaning**
"LSE-State: o.k"	No failure detected
"TIMEOUT-ERROR - ES1 not found!"	End switch 1 was not found
"LSE-State: fail - zero offset error"	Zero point of the first transmitter out of specified range

Multimeter-Mode (only for authorised personal)
This display only occurs, when the
access for Laboratory, OEM or Factory is chosen.



Scavenging display:
During normal operation the display shows the time until the next purging cycle. During the scavenging process the actual procedure is displayed (e.g.. „zero-control“, „purging H-side“, „purging L-side“,....)

Menu tree

attention: For sme parts of the menu the access is denied.

level	A	B	C	D	Input/indication	comments
1	Info	Version			Ver. LSE-Lite	Indication of the software version, no input possible
2	↓	Ser.Nr.			SN: 123	Indication of the serial number, no input possible
3	PURGING		DELAY		Choose delay time	time between end of scavengng and passing the actual input to the cabinet again
4			t.cycle		Time between two savenging procedures	range: 0..6000 min. , default-value 360 min.
5			t.blow		Blow time for each chamber	range: 5..60 sec. , default-value 15 sec.
6			SERVICE	-LIMIT	Choose value	If zero point falls below this value Service-alarm occurs, default: 3,9 mA
7				+LIMIT	Wert eingeben	If zero point exeeds this value Service-alarm occurs, default: 4,1 mA
8			EXTERN		EXTERN, TIMER	Here is chosen, if scavenging is started by internal timer or by external contact
9			LEVEL		LOW, HIGH	If „EXTERN“ is chosen, here the contact level which will start the scavenging is selected
10			pulslen		Choose value	1..20x10 ms, default 1 minimum pulse length to start the scavenging
11	calibrt	inputs	IN1	Lo-VAL	Connect 4mA to input, press ENTER o.Reset	Calibration of current input 1 low value
12				Hi-VAL	Connect 20mA to input, press ENTER o.Reset	Calibration of current input 1high value
13			IN2	see IN1	Not used	
14			IN3	see IN1	Not used	
15			IN4	see IN1	Not used	
16			IN5	see IN1	Not used	
17			IN6	see IN1	Not used	
18			RTD1	LO-VAL	Not used	
19				HI-VAL	Not used	
20			RTD2	see RTD 1	see RTD 1	
21		outputs	OUT1	DAU-LO	adjustment: 4,0 mA	Output calibration for 4 mA
22				DAU-HI	adjustment: 20,0 mA	Output calibration for 20 mA
23			OUT2	see OUT1	see OUT1	
24	config	Struct	Sensors		Choose value	Default: 48, do not change
25		USERNAM			Choose value	Input of free choosable user name by using the arrow keys
26		LANGUAG			Deutsch, English	Select language
28		Reset			SW-Res, HW-Res, both, none	Reset of parametrisation and/or Structure ! **ATTENTION** ! new calibration and parametrisation required
29		Acc_Cnt			N.o.acc.: 21	Access counterr
30	Factory	SERIAL.			Input of value	Serial number
31		Access			Reset of account counter	
32		Name			Input of signs	Startup message
33	Access	ID-No.			Input of value	Choosing the access
34		Level			list	Choosing the access
35	MANUAL					By pressing the SELECt-key the drive will bring the multiway cock to the postion „zero-control“. After correction of the zero point, the drive will bring the multiway cock back to the normal operation position whenr pressing the SELECT-key a second time
36	Measure					Back to normal operation

Access

The following tabel shows the most important ID-codes with the available parts of the menu.

Code / Menu	0000 blocked	1508 worker	2552 Eng.	xxxx Labor.	xxxx OEM	xxxx Factory
INFO		x	x	x	x	x
PARAMS			x	x	x	x
CALIBRG				x	x	x
CONFIG					x	x
FACTORY						x
∑-RESET		x	x	x	x	x
ACCESS		x	x	x	x	x
MEASURE		x	x	x	x	x

Trouble shooting

Description of the failure	**Possible reason**
No indication on the display	Auxiliary power is missing
	Main fuse is defective (see page 8)
Zero point failure is detected	Zero point drift, zero point correction by using the „MANUAL“ function (look at menu tree)
ES1 is not detected	Incorrect wiring
	End switch defective
Drive is out of operation	Incorrect wiring
	motor defective
Auxiliary power for the sensors is missing	Fuse for 24VDC defective (see page 8) There is no fuse within units with SN1001 or later
	External short circuit
Output current wrong	Calibration is not valid

If any error occurs which is not covered by this table please do not hesitate to contact us.