

SITRANS F M MAGFLO®
 Electromagnetic flowmeter
 Type MAG 5000/6000
 Accessory: Cleaning Unit

083F9148

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Introduction

The Siemens Flow Instruments cleaning unit is used with MAG 5000 or MAG 6000 19" version. The cleaning unit can be used for applications where deposits accumulate on the liner material and electrodes. Non-conductive deposits will reduce the electrode signal, while conductive deposits will partially shortcircuit the electrode signal, in both cases deteriorating the accuracy of the meter (depending on the character and thickness of the deposits).



Warning

During cleaning there are high voltages on the electrode cables:

1. Do not touch electrodes and stripped electrode cables.
2. Do not use the cleaning unit in explosion hazardous areas.
3. Do not use the cleaning unit on flammable or explosive media.
4. Do not connect the cleaning unit to a flow simulator, etc.

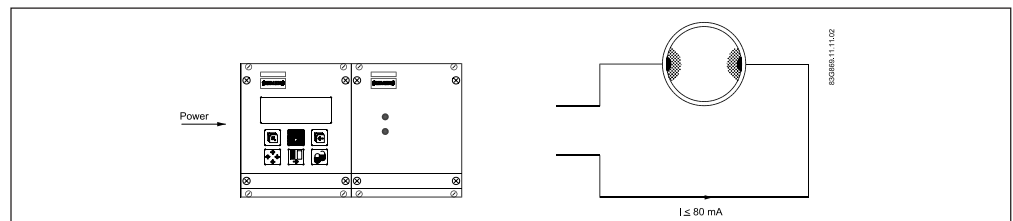
Mode of operation

The cleaning unit is used for electrochemical cleaning of the sensor (electrodes) by applying voltage for approx. 60 seconds. Metering is resumed after another 60 seconds when cleaning is complete. During cleaning (120 seconds) MAG 5000/6000 retains the last flow reading in the display and in the signal outputs until metering is resumed.

The relay output of the signal converter determines when to clean. In the signal converter the cycle time can be set at 1 to 240 hours. If the cleaning cycle is set at e.g. 3 hours, the signal converter will clean the electrodes every three hours.

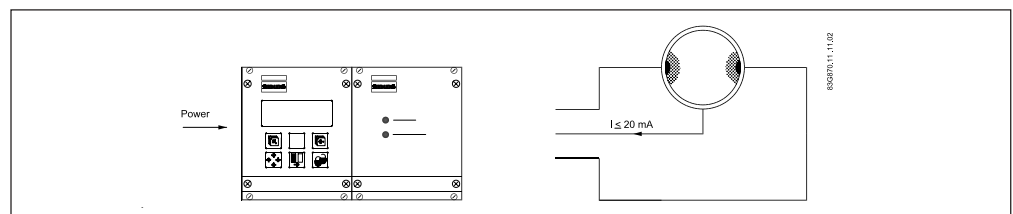
Always make sure there is liquid in the pipe when cleaning. Use the "empty pipe detection" function (ON) in the signal converter to detect when the cleaning unit can be used.

AC cleaning



AC cleaning is used to remove greasy deposits on the electrodes arising in connection with measurement of waste water flows from abattoirs or water containing oil residues. During AC cleaning heat is generated on the electrode surface and this softens the greasy particles, causing gas bubbles which draw the deposits away from the electrode surface.

DC cleaning



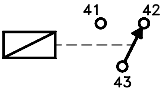
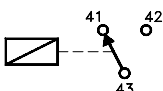
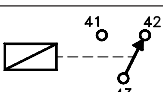
DC cleaning is used to remove conductive deposits from the meter pipe, as they can affect the meter's accuracy.

On measurement of district heating water flows, particular conductive magnetite deposits can occur, which can shortcircuit the electrode signal. This affects the meter's accuracy, deteriorating the signal/noise ratio. This problem may occur if the water's conductivity is below approx. 250 $\mu\text{S}/\text{cm}$.

This cleaning method involves electrolysis in which the electron flow leads the deposited particles away from the area around the electrodes.

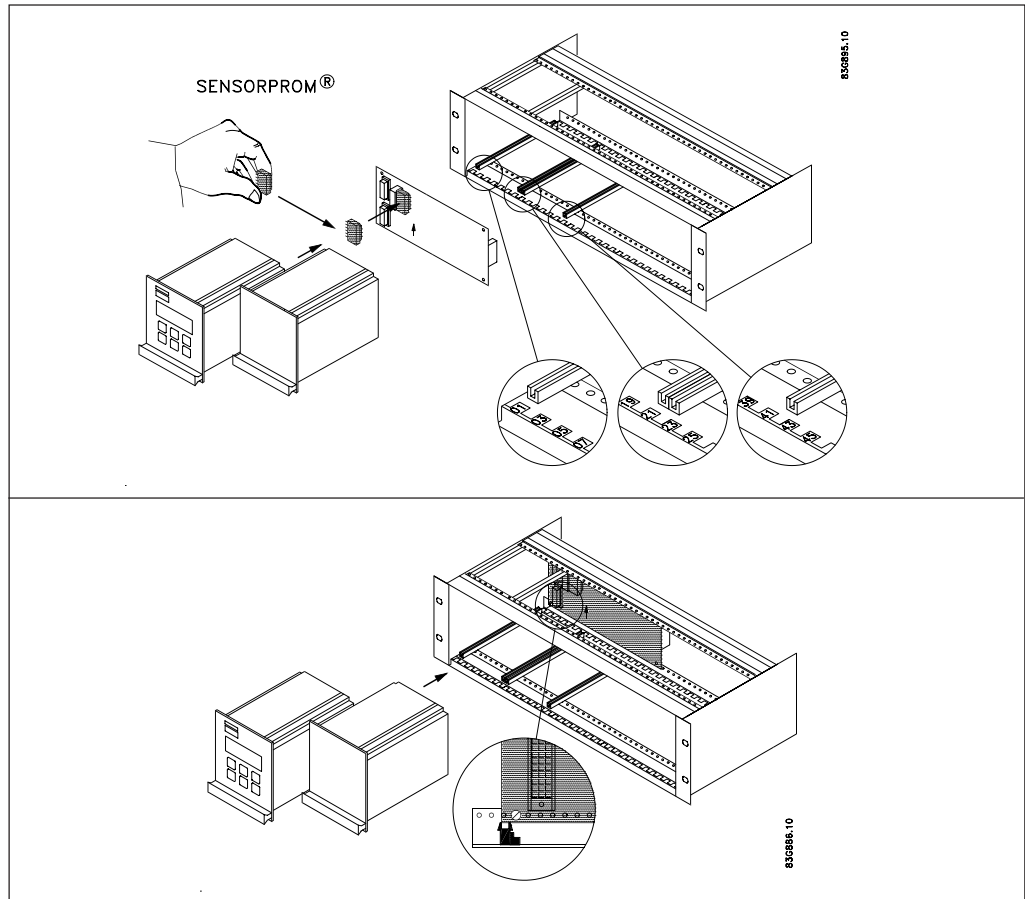
Do not apply DC cleaning to sensors with tantalum electrodes.

Output relay

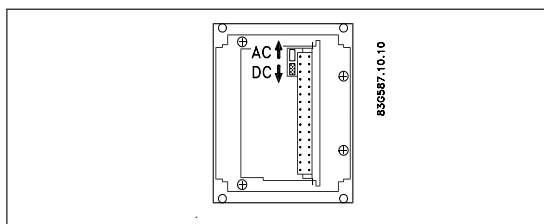
De-energized	
Cleaning	
Flowmetering	

The cleaning unit includes a switch relay providing a signal through terminals 41, 42 and 43 when cleaning is on. At the same time, the "Cleaning" LED on the front plate is on.
(Do not confuse this relay with the relay of the signal converter.)

Montage

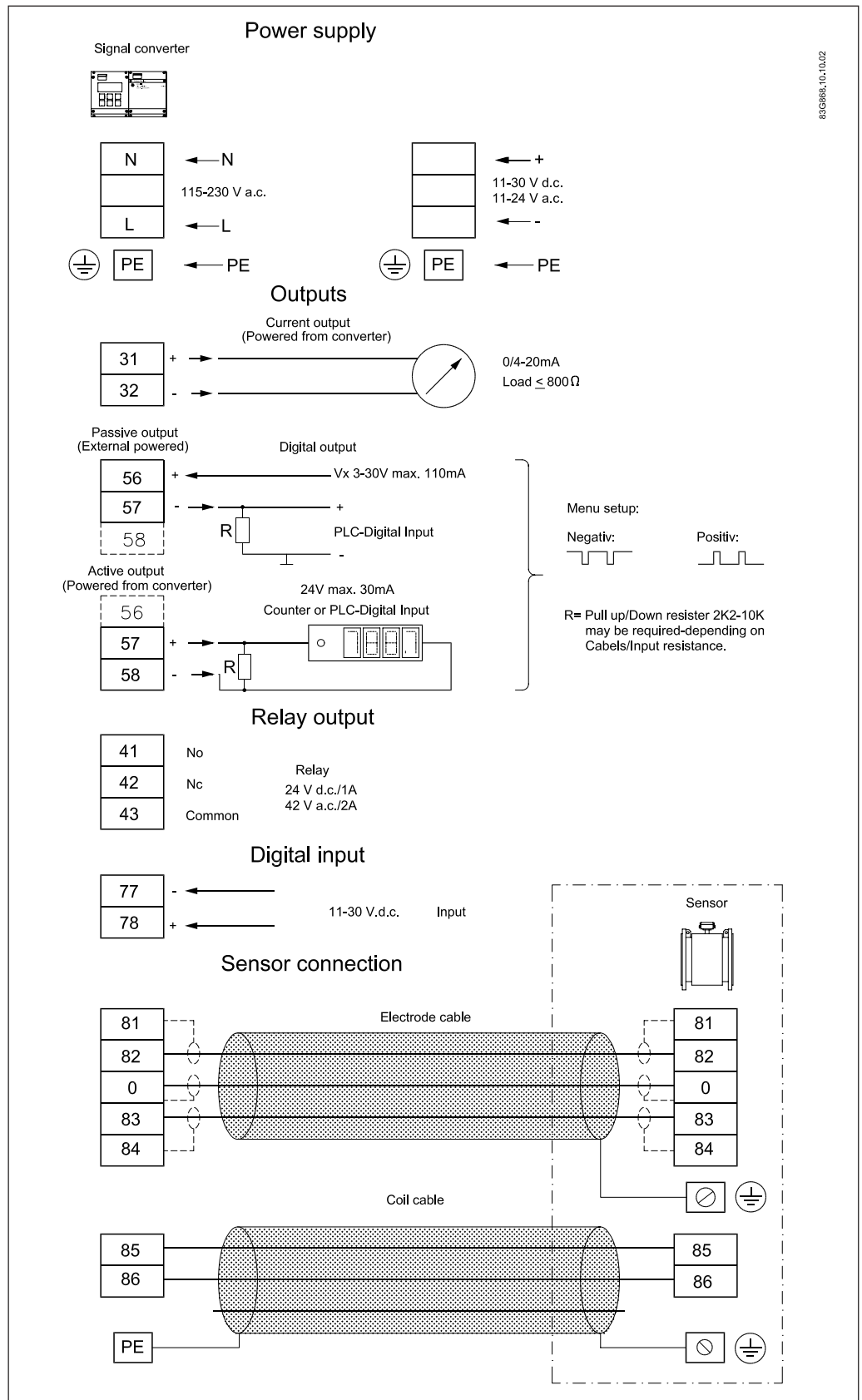


1. Fit the SENSORPROM® memory unit on the connection board supplied with the cleaning unit. The SENSORPROM® unit is delivered mounted in the terminal box of the sensor. The connection board supplied with the signal converter may not be used.
2. Mount the guide rails in the rack system as shown. Distance between guide rails is 20 TE. Guide rails are supplied with the rack system and not with the signal converter.
3. Mount the connection board as shown. The mounting screw must be installed just in line with the guide rails.
4. Connect the cables as shown under "Electrical connection".



5. Select AC cleaning or DC cleaning mode at the switch located on the base of the cleaning unit.
6. Insert the cleaning unit and the signal converter in the rack system.

Electrical connection



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Terminals 81 and 84 are only connected when special electrode cable with double screening is used.

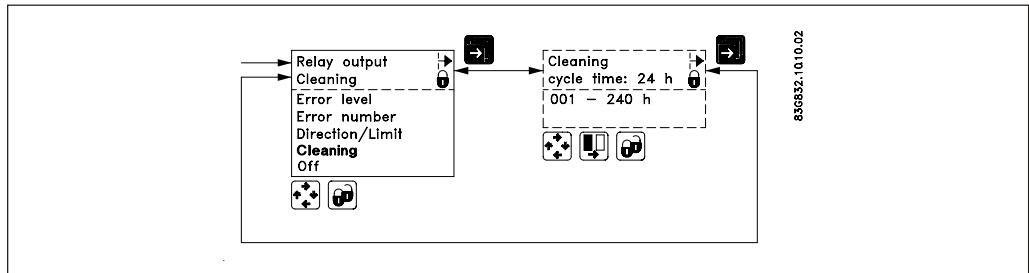
Commissioning

The cleaning unit can be set at:

- Automatic cleaning

Automatic cleaning

Set the relay output of the signal converter at cleaning.



Set the required cleaning cycle time. The default value is 24 hours. Use the lock key to lock the set values. Return to the operator menu using the top-up key. The signal converter is now set at automatic cleaning.

Technical data

Supply voltage	115 - 230 V a.c. +10% to -15%, 50 - 60 Hz		
Power consumption	7 VA cleaning, 5 VA stand by		
Cleaning period	60 sec.		
Relay load	42 V a.c./2 A, 24 V d.c./1 A		
Indicator lamps	LEDs: "ON" and "CLEANING"		
Ambient temperature	During operation : -20 to +50°C		
	During storage: -40 to +85°C		
Electrical noise (EMC)	CENELEC	Emission	Immunity
		Light industry	EN 50081-1
		Heavy industry	EN 50082-2
Mechanical load (vibration)	1 G 1 - 1000 Hz sinusoidal in all directions, to IEC 68-2-6		
Enclosure rating	IP 00 to IEC 529		
Dimensions			
Weight	1 kg		