# SIEMENS

# SITRANS F M MAGFLO®

*Electromagnetic flowmeters Transmitter types MAG 5000, MAG 6000* 



Technical Documentation (handbooks, instructions, manuals etc.) on the complete product range SITRANS F can be found on the internet/intranet on the following links:

English: http://www4.ad.siemens.de/WW/view/en/10806951/133300



Order no.: FDK-521H0739

# 1.1 Transmitter type MAG 5000 & MAG 6000

		MAG 5000 accuracy 0.5% MAG 6000 accuracy 0.25%					
Current of	output						
	Current	0-20 mA, 4-20 m	A or 4-20 mA + alarm				
	Load	< 800 ohm					
Digital or		0.1-30 5 aujusta	DIE				
Digital 0	Frequency	0-10 kHz, 50% (	dutv cvcle				
	Time constant	0.1-30 s adjustal	ble				
	Active	24 V DC, 30 mA	, 1 K $\Omega \le R_{load} \le 10$ K $\Omega$ , sl	nort-circuit-protected			
	Passive	3-30 V DC, max.	110 mA, 200 $\Omega \le R_{load} \le$	10 KΩ			
Relay	Time constant	Changeover rela	y, time constant same as	s current time constant			
	Load	42 V AC/2 A, 24	V DC/1A				
Digital in	put	11-30 V DC, R <sub>i</sub> =	= 4.4 ΚΩ				
	Activation time	50 ms					
	Current	$I_{11 V DC} = 2.5 m/$	A, $I_{30 V DC} = 7 \text{ mA}$				
Function	S	Flow rate, 2 tota	lizers, low flow cut-off, en	npty pipe cut-off, flow direction, error system, operating time,			
Galvania	isolation	All inputs and ou	now, limit switches, pulse	ated			
Cut-off		0-9.9% of maxim	nipuls are gaivarileally ison	aleu			
out-on	Empty pipe	Detection of emr	otv pipe <sup>1</sup> )				
Totalizer		Two eight-digit c	ounters for forward, net of	r reverse flow			
Display		Background illum	nination with alphanumeric	cal text, $3 \times 20$ characters to indicate flow rate, totalized			
		values, settings and faults					
		Reverse flow indicated by negative sign					
	Time constant	Time constant as current output time constant					
Zero poin	t adjustment	Automatic					
Electrode	input impedance	> 1 x 10 <sup>14</sup> Ω					
Excitation	n frequency	Sensor size depending pulsating DC current (125 mA)					
Ambient	temperature	Display version during operation: -20 to +50°C					
		During storage: $-40$ to $\pm 70^{\circ}$ C (BH max 95%)					
Custody t	transfer annroval	$PTB \qquad DANAK OIMI B25^{2} \qquad DANAK OIMI B117^{2}$					
		(cold water) 6.221 99.19	(hot water)	(cold water/milk, beer etc.)			
Commun	ication			-			
	Standard	Prepared for client mounted add-on modules <sup>2</sup> )					
	Optional	HART, Profibus PA & DP, Modbus RTU, CANopen, DeviceNet as add-on module <sup>2</sup> ), HART (MAG 5000)					
Compact	En els en este de la		and a share of a				
	Enclosure material	Fibre glass-reinte	orced polyamide	a for 20 minutoo)			
Enclosure fatting IP 67 to EN 60529 and DIN 40050 (111 w.g. 101 3				g. for 30 minutes)			
19" insert							
	Enclosure material	Standard 19" insert of aluminium/steel (DIN 41494)					
		Width: 21 TE					
		Height: 3 HE					
	Enclosure rating	IP 20 to EN 60529 and DIN 40050					
Mechanical load		Version: 1 G, 1-800 Hz sinusoidal in all directions to EN 60068-2-36					
EMC performance		Emission: EN 50081-1 (Light industry)					
		Immunity: EN 50082-2 (Industry)					
Supply voltage		115-230 V AC +	10% to -15%, 50-60 Hz				
		11-30 V DC or 1	1-24 V AC				
Davis		Fuse: 250 V ~ 50	00 mA T				
Power consumption		230 V AC: 17 VA	000 mA L 0A (00	20			
		24 V DC: 9 W, IN	$I_{\rm I} = 380 \text{ mA}, I_{\rm ST} = 8A (30 \text{ mA})$				
		12 V DC: 11 W, I <sub>N</sub> = 920 mA, I <sub>ST</sub> = 4A (250 ms)					

1) Special cable required in separate mounted installation

2) MAG 6000 only

#### SITRANS F M MAGFLO® 1. Technical data

## 1.2 **Output characteris**tics MAG 5000 & MAG 6000

Output characteristics	Bidirectio	nal mode	Unidirecti	onal mode
0-20 mA		100% Q	20 20 	Cut 100% Q
4-20 mA		14 100% Q	20 20 	5
Frequency		Pic]	102.5 1009 	F[Hz] F[Hz] Fmax. g Cut 100% Q
Pulse output		nal provinueau a		Counter Counter Counter Counter Counter
Relay	Power down	44, 45 DI 2200088	Active	44 45 9- 45
Error relay	No error	44 45 0:55 5 555 46	Error	44 45 01 
Limit switch or direction switch	1 set point	Set Point 44 45	2 set points	Output - Output
	High flow (Forward flow)	44 45 0 	High flow/ Low flow	
Batch on digital output (MAG 6000 only)			Continue Continue Become II - 100	
Batch on relay (MAG 6000 only)	Hold	44, 45 p. 46	Batch	44 45 0 88 46
Conductivity of medium	<b>Compact installati</b> For a conductivity b ±0.5% of actual flow	<b>ion:</b> Liquids with an between 5 and 10 μs w.	electrical conductiv S/cm, the repeatabil	ity $\ge$ 5 µS/cm. ity may degrade to
	Remote [µ\$/cm installation: 300 200	Standard cable	<sup>20</sup> [μ <sup>S</sup> /cm] S 50 40	pecial cable

**Note** For detection of empty sensor the min. conductivity must always  $be \ge 20 \ \mu$ S/cm and the max. length of electrode cable when remote mounted is 50 metres. Special cable must be used. For remote mounting in Ex applications special cable cannot be used, empty sensor cannot be detected and the electrically conductivity must be  $\geq$  30 µS/cm. For remote mounted CT installations the max. cable length is 200 metres.

100

200

Cable length

300 [m]

20

10

50 100 200 300 400 Cable length

100

## 1.3.2 Minimum accept data for cable

1.3.1 Sensor cables and conductivity of medium

			Coil cable	Electrode cable
Basic data No. of conductors			2	3
	Min. sqr. area		0.5 mm <sup>2</sup>	0.2 mm <sup>2</sup>
	Screen		Yes	Yes
	Max. capacitance		N.A.	350 pF/m
Max. cable loop	Media temperature:	< 100°C	40 Ω	N.A.
resistance		< 200°C	6 Ω	N.A.

500 [m]

# SITRANS F M MAGFLO® 2. Electrical connection





# Potential Hazards / Grounding

The mains protective earth wire must be connected to the PE terminal in accordance with the diagram (class 1 power supply).

# Mechanical counters

When mounting a mechanical counter to terminals 57 and 58 (active output), a 1000  $\mu F$  capacitor must be connected to the terminals 56 and 58.

Capacitor + is connected to terminal 56 and capacitor – to terminal 58.

# Output cables

If long cables in noise environment, we recommend to use screened cable.

# Electrodes cables

Dotted connections only to be when using special electrode cable.



Mains supply 115 to 230 V AC from building installation Class II. A switch or circuit-breaker (max. 15 A) shall be included in the building installation. It must be in close proximity to the equipment and within easy reach of the operator, and it shall be marked as the disconnecting device for the equipment.

# SITRANS F M MAGFLO® 3. Installation of transmitter

# 3.1 Compact installation MAG 5000 & MAG 6000 - Compact polyamide



System will **not** register flow if black plugs are not connected to connection board



Exposing the transmitter to direct sunlight may increase the operating temperature above its specified limit, and decrease display visibility



# Step 1

Remove and discard the terminal box lid of the sensor.

Fit the PG 13.5 cable glands for the supply and output cables.

# Step 2

Remove the two black plug assemblies for coil and electrode cables in the terminal box and connect them to their corresponding terminal numbers on the connection board.

# Step 3

Connect an earth wire between PE on connection board and bottom of terminal box. Connect the 2 pin connector and 3 pin connector as shown.

# Note

In earlier version the 3 pin connector was a 5 pin connector.

# Step 4

Mount the connection plate in the terminal box. The SENSORPROM<sup>®</sup> unit connections will be established automatically when the connection plate is mounted in the terminal box.

## Note

Check that your connection board lines up with the SENSORPROM<sup>®</sup> unit, if not, move the SENSORPROM<sup>®</sup> unit to the other side of the terminal box.

## Step 5

336597.1

Fit the supply and output cables respectively and tighten the cable glands to obtain optimum sealing.

Please refer to the wiring diagram "Electrical connections".

Mount the transmitter on the terminal box.

# SITRANS F M MAGFLO® 3. Installation of transmitter

# 3.2.1 Remote installation - At the sensor





Remove the SENSORPROM<sup>®</sup> unit from the sensor and mount it on the connection plate in the transmitter.

Fit and connect the electrode and coil cables as shown in "Electrical connections".

The unscreened cable ends must be kept as short as possible.

The electrode cable and the coil cable must be kept separate to prevent interference. Tighten the cable glands well to obtain optimum sealing.



Mount the terminal box lid before power up.

Mount wall bracket on a wall or on a pipe using ordinary hose clips or duct straps.



Take the SENSORPROM® memory unit from the sensor. Mount the SENSORPROM® unit in the wall mounting unit as shown. The text on the SENSORPROM® unit **must** face towards the wall bracket.

Mount an earth wire between PE on connection board and bottom of terminal box.

# 3.2.2 Remote installation -Wall mounting transmitter

# SITRANS F M MAGFLO<sup>®</sup> 3. Installation of transmitter

# 3.2.2 Remote installation -

Wall mounting

transmitter (continued)



Mount the connection plate in the terminal box. Fix the connection plate with the two diagonal opposite screws.

Fit the coil, electrode, supply and output cables respectively and tighten the cable glands to obtain optimum sealing. Please see the wiring diagram in "Electrical connections".

Mount the transmitter on the terminal box.



When remote mounted, power supply PE wire must be connected to PE terminal.

Coil cable shield must be connected to SHIELD terminal.

Use the supplied insulating tube to insulate the core shield.

# Caution

Exposing the transmitter to direct sunlight may increase the operating temperature above its specified limit, and decrease display visibilty





- 1. Fit the SENSORPROM<sup>®</sup> memory unit on the connection board supplied with the transmitter. The SENSORPROM<sup>®</sup> unit is supplied with the sensor in the terminal box.
- Mount the guide rails into the rack system as shown. Distance between guide rails is 20 TE. Guide rails are supplied with the rack system and not with the transmitter.
- 3. Mount the connection board as shown.
- 4. Connect the cables as shown under "Electrical connection".
- 5. Insert the transmitter into the rack system.

# 4.1 MAG 5000 & MAG 6000



# 4.1 MAG 5000 & MAG 6000 (continued)



# SITRANS F M MAGFLO<sup>®</sup> 4. Commissioning

4.2 Keypad and display layout



Keypad

The keypad is used to set the flowmeter. The function of the keys is as follows:

TOP UP KEY		This key (hold 2 sec.) is used to switch between operator menu and setup menu. In the transmitter setup menu, a short press will cause a return to the previous menu.
FORWARD KEY	Ð	This key is used to step forward through the menus. It is the only key normally used by the operator.
BACKWARD KEY	F	This key is used to step backward through the menus.
CHANGE KEY	† <mark>⊸</mark> ↓	This key changes the settings or numerical values.
SELECT KEY		This key selects the figures to be changed.
LOCK/UNLOCK KEY		This key allows the operator to change settings and gives access to submenus.

Display

The display is alphanumerical and indicates flow values, flowmeter settings and error messages.

The upper line is for primary flow readings and will always show either flow rate, totalizer 1 or totalizer 2. The line is divided into 3 fields.

- S: Sign field
- P: Primary field for numerical value
- U: Unit field

The centre line is the title line (T) with individual information according to the selected operator or setup menu.

The lowest line is the subtitle line (ST) which either will add information to the title line or keep individual information independent of the title line.

# F: The alarm field. **X** Two flashing triangles will appear by a fault condition.

M: The mode field. The symbols indicate the following.

Communication mode	$\checkmark$	Basic settings	$\mathcal{A}$	Operator active
Service mode	₽	Output	•	Operator inactive
Operator menu	→	External input		
Product identity	н	Sensor characteristics		
Language mode	$\ge$	Reset mode		

L: The lock field. Indicates the function of the lock key.

Ū	Ready for change	▼	Access to submenu
	Value locked	ę	RESET MODE: Zero setting of totalizers and initialization of setting

# SITRANS F M MAGFLO<sup>®</sup> 4. Commissioning

## 4.3.1 Basic settings



Comma for flow rate, totalizer 1 and totalizer 2 can be individually positioned.

- open the respective window.
- ensure that the cursor is positioned below the comma. Use the SELECT KEY  $\blacksquare$  .
- move the comma to the requested position. Use the CHANGE KEY 🔂 .

Units are changed by means of the CHANGE KEY 😧 with the cursor placed below the unit selected. Select units (cursor moved) by means of the SELECT KEY 🖳 .

# Totalizer 2 is not visible when batch is selected as digital output.

Q<sub>max.</sub> 2 - is only visible when it has been choosen as external input.

### SITRANS F M MAGFLO<sup>®</sup> 4. Commissioning

# 4.3.2 Outputs

Current output Proportional to flowrate (Terminal 31 and 32)



Fatal: 1.3 mA, permanent: 2 mA, warning: 3 mA

The current output must be set off when not used.

# Digital output Pulse/volume (Terminal 56, 57, 58)



# 4.3.3 External input

Digital output

(Terminal 56, 57, 58)

Frequency



Batch control is available on MAG 6000 only.

# SITRANS F M MAGFLO® 4. Commissioning



4.3.5 Language mode



# SITRANS F M MAGFLO<sup>®</sup> 4. Commissioning

# 4.3.6 Service mode



All previous settings are reinitialised when service mode is exited using the top up key 📧 .

# The error system

The error system is divided into an error pending list and a status log list. Time is gained as days, minutes and hours since the error has occurred. The first 9 standing errors are stored in error pending. When an error is removed it is removed from error pending. The latest 9 errors are stored in the status log. When an error is removed it is still kept in status log. Errors in status log is stored for 180 days.

Error pending and status log are accessible when enabled in the operator menu.

#### SITRANS F M MAGFLO<sup>®</sup> 5. Service

### 5. Service Often problems with unstable/wrong measurements occur due to insufficient/wrong earthing or potential equalization. Please check this connection. If OK, the SITRANS F M MAGFLO® transmitter can be checked as described under 9.1 and sensor under 9.3 in the handbook.

5.1 Transmitter check list When checking SITRANS F M MAGFLO® installations for malfunction the easiest method to check the transmitter is to replace it with another MAG 5000/6000 transmitter with a similar power supply. A replacement can easily be done as all settings are stored in and downloaded from the

SENSORPROM® unit - no extra settings need to be made.



If no spare transmitter is available - then check transmitter according to check table.

#### SITRANS F M MAGFLO® 5. Service

# 5.2 Trouble shooting MAG transmitter

Symptom     Output signals     Error code     Cause     Remedy       Empty display     Minimum     I. No power supply     Power supply Check MAG 5000/6000 for bended pins on the connector       No flow signal     Minimum     I. No power supply     Power supply Check MAG 5000/6000       No flow signal     Minimum     I. Current output disabled     Turn on current output 2. Digital output disabled     Turn on digital output 3. Reverse flow direction     Check cables/connections       F00     Incorrect or no coll current     Check cables/connections     Power supply       F10     Incorrect or no coll ourent     Check cables/connections     Power supply       Indicates flow with no flow in pipe     P41     Inkid 5000/6000 defective     Replace MAG 5000/6000.       P41     Initializing error     Switch off MAG 5000/6000.     P41     Initializing error     Switch off MAG 5000/6000.       Unstable flow signal     Unstable     Unstable     Measuring pipe enpty     Ensure that electrode cable is connected and sufficiently screened       Unstable flow signal     Undefined     1. Pulsating flow     Increase time constant       2. Conductivity of medium too low     Conducitivity of medium too low     Ensure sufficient pot	[	1		1	1
signals     code     Power supply     Power supply       Empty display     Minimum     1. No power supply     Power supply     Check MAG 5000/6000 for bendad pins on the connactor       No flow signal     Minimum     1. Current output disabled     Turn on current output       Provide     1. Current output disabled     Turn on current output       Provide     1. Current output disabled     Turn on current output       Provide     1. Reverse flow direction     Check cables/connections       W31     Measuring pipe empty     Ensure that the measuring pipe is full       Provide     P42     1. No load on current output     Check cables/connections       Undefined     P42     1. No load on current output     Check cables/connections       2. MAG 5000/6000 defective     Replace MAG 5000/6000     Wath of MAG 5000/6000, watt 5 and switch on again       Indicates flow     Undefined     Measuring pipe empty     Select empty pipe cut-off       Ensure that electrode cable is insufficiently screened     Ensure that electrode cable     Is connected and sufficiently screened       Unstable     Unstable     1. Puisating flow     Increase time constant       1. Puisating flow <t< th=""><th>Symptom</th><th>Output</th><th>Error</th><th>Cause</th><th>Remedy</th></t<>	Symptom	Output	Error	Cause	Remedy
Empty display     Minimum     1. No power supply     Power supply between supply     Power supply Check MAS 5000/6000 for bended pins on the connector       No fiow signal     Minimum     1. Current output disabled     Turn on current output       2. MAG 5000/6000 defective     Replace MAG 5000/6000     Turn on digital output       3. Reverse flow direction     Charge direction     Charge direction       8. Reverse flow direction     Charge direction     Charge direction       9. Undefined     P42     Internal error     Replace MAG 5000/6000       1. No load on current output     Check AddeSconnections     2. MAG 5000/6000     P44       1. No load on current output     Check cables/connections     2. MAG 5000/6000     P44       1. No load on current output     Check cables/connections     2. MAG 5000/6000     P44       1. Initializing error     Switch off MAG 5000/6000     P44     Initializing error     Switch off MAG 5000/6000       1. Putsable     Measuring pipe empty     Ensure that electrode cable is nutrificiently screened     Increase time constant       1. Putsable     Inverse flow medum and sensor     Increase time constant     Ensure that electrode cable is nutrificiently screened     Increase tim		signals	code		
No flow signal     Minimum     Check MAG 5000/6000 for bended pins on the connector       No flow signal     Minimum     1. Current output disabled     Turn on current output       2. Digital output disabled     Turn on current output     Check AGS 5000/6000       F0     Incorrect or no coll current     Check cables/connections       W31     Measuring pipe empty     Ensure that the measuring pipe is full       F00     Incorrect or no coll current     Check cables/connections       Undefined     P42     1. No load on current output     Check cables/connections       2. MAG 5000/6000 defective     Replace MAG 5000/6000     Indicates flow       with no flow in pipe     P41     Initializing error     Select empty pipe cut-off       Unstable flow signal     Undefined     Measuring pipe empty     Select empty pipe cut-off       Unstable flow signal     Unstable     Increase time constant     Increase time constant       10. Vistable flow signal     Undefined     Increase time constant     Ensure that electrode cable is connected and sufficiently screened       Unstable flow signal     Undefined     Increase time constant     Ensure matum dees not contain air bubbles       10 <td< th=""><th>Empty display</th><th>Minimum</th><th></th><th>1. No power supply</th><th>Power supply</th></td<>	Empty display	Minimum		1. No power supply	Power supply
No flow signal     Minimum     2. MAG 5000/6000 defective     Replace MAG 5000/6000       No flow signal     Minimum     1. Current output disabled     Turn on current output       2. Digital output disabled     Turn on digital output     3. Reverse flow direction     Change direction       W3     Measuring pipe empty     Ensure that the measuring pipe is full     Pipe is full       F60     Internal error     Replace MAG 5000/6000     Pipe is full       Undefined     P42     1. No load on current output     Check cables/connections       2. MAG 5000/6000 defective     Replace MAG 5000/6000     Pati     Initializing error     Switch off MAG 5000/6000       Indicates flow with no flow in pipe     Undefined     Measuring pipe empty     Select empty pipe cut-off     Ensure that the measuring pipe is full       Electrode contection missing/ electrode cable is insufficiently screened     screened     Increase time constant     Increase time constant       1. Nutsable flow signal     Unstable     1. Putsating flow     Increase time constant     Ensure that the measuring error     4. Air bubbles in medium     equalization     Screened     Increase time constant       1. Ourotaci installation     Check installation <th></th> <th></th> <th></th> <th></th> <th>Check MAG 5000/6000 for</th>					Check MAG 5000/6000 for
No flow signal     Minimum     2. MAG 5000/6000 defective     Replace MAG 5000/6000       No flow signal     Minimum     2. Digital output disabled     Turm on digital output       2. Digital output disabled     Turm on digital output     3. Reverse flow direction     Change direction       W31     Measuring pipe empty     Ensure that the measuring pipe is full     Piele MAG 5000/6000       P40     Inded on current output     Check cables/connections     Replace MAG 5000/6000       Indicates flow with no flow in pipe     P41     Initializing error     Select empty pipe cut-off     Replace MAG 5000/6000, wait 5 s and switch on again pipe is full       Instable     Undefined     Measuring pipe empty     Select empty pipe cut-off     Ensure that the measuring pipe is full       Itow signal     Unstable     Instable     1. Pulsating flow     Increase time constant       Itoo low     Select end may sensor     Select rode cable     screened     screened       Measuring error     Undefined     Increase time constant     Ensure faultienty screened     screened       Itoo low     Select end concentration of particle of fibres     Ensure faultienty     screnet       Itoo low <t< th=""><th></th><th></th><th></th><th></th><th>bended pins on the connector</th></t<>					bended pins on the connector
No flow signal     Minimum     1. Current output disabled     Turn on current output       2. Digital output disabled     Turn on current output     Turn on current output       3. Reverse flow direction     Change direction       W31     Measuring pipe empty     Ensure that the measuring pipip is full       F60     Internal error     Replace MAG 5000/6000       P41     Initializing error     Switch off MAG 5000/6000, walt 5 and switch on again       Indicates flow with no flow in pipe     P41     Initializing error     Switch off MAG 5000/6000, walt 5 and switch on again       Indicates flow with no flow in pipe     Undefined     Measuring pipe empty     Select empty pipe cut-off is OFF     Ensure that the measuring pipe is full       Electrode cable is insufficiently screened     Conductivity of medium     Use special electrode cable is connected and sufficiently screened     Increase time constant       Unstable flow signal     Unstable     1. Pulsating flow     Increase time constant     Ensure that electrode cable is connected and sufficiently screened       Unstable flow signal     Undefined     1. No SENSORPROM® unit     Ensure medium does not contain are bubbles       6     1. High concentration of particles or fibres     Increase time constant				2. MAG 5000/6000 defective	Replace MAG 5000/6000
Indicates flow with no flow signal     Undefined     Perverse flow direction     Chack cables/connections       Indicates flow with no flow signal     Undefined     P42     1. No load on current output     Check cables/connections       Indicates flow with no flow signal     Undefined     P42     1. No load on current output     Check cables/connections       Indicates flow with no flow signal     Undefined     P41     Initializing error     Switch off MAG 5000/6000, wait 5 s and switch on again with no flow in pipe is full       Unstable flow signal     Unstable     Measuring pipe empty     Ensure that the measuring pipe is full       Electrode connection missing/ electrode cable is insufficiently screened     Select empty pipe cut-off is OFF     Ensure that electrode cable is constant       1. Pulsating flow     Increase time constant     Ensure that electrode cable is constant     Ensure that electrode cable is constant       2. Conductivity of medium to sensor     Electrodic noise potential between medium and sensor     Ensure medium does not contain air bubbles       5. High concentration of particles of fibres     Increase time constant     Increase ElexoSORPROM® unit       P40     No SENSORPROM® unit     Replace SENSORPROM® unit     Replace SENSORPROM® unit or reset SENSORPROM® unit       F61	No flow signal	Minimum		1. Current output disabled	Turn on current output
Measuring error     Undefined     1. Reverse flow direction     Change direction       F70     Incorrect or no col ourrent     Check cables/connections       Undefined     P42     Internal error     Replace MAG 5000/6000       Undefined     P42     In load on current output     Check cables/connections       2. MAG 5000/6000 defective     Replace MAG 5000/6000, Initializing error     Switch off MAG 5000/6000, wait 5 s and switch on again       Indicates flow with no flow in pipe     Undefined     Measuring pipe empty     Select empty pipe cut-off       Empty pipe cut-off is OFF     Ensure that the measuring pipe is full     Ensure that electrode cable       Unstable flow signal     Unstable     1. Pulsating flow     Increase time constant       2. Conductivity of medium too low     Use special electrode cable     Ensure medium does not contain air bubbles       4. Air bubbles in medium tocles or fibres     Ensure medium does not contain air bubbles     Increase time constant       P44     CT SENSORPROM® unit F74     Replace SENSORPROM® unit Heplace SENSORPROM® unit     Replace SENSORPROM® unit Replace SENSORPROM® unit F61     Pd40     No SENSORPROM® unit F62     Replace SENSORPROM® unit Heplace SENSORPROM® unit F74     Replace SENSORPROM® unit F74     Replace SENSORPROM® un				2. Digital output disabled	Turn on digital output
Measuring error     Undefined     F70     Incorrect or no coli current     Check cables/connections       Indicates flow with no flow in pipe     Undefined     F42     1. No load on current output     Check cables/connections       Indicates flow with no flow in pipe     Undefined     F42     1. No load on current output     Check cables/connections       Indicates flow with no flow in pipe     Undefined     F41     Initializing error     Switch off MAG 5000/6000       Instable flow signal     Undefined     Measuring pipe empty     Select empty pipe cut-off       Ensure that the measuring pipe is full     Ensure that the measuring pipe is full     Ensure that the measuring pipe is full       Unstable flow signal     Unstable     1. Pulsating flow     Increase time constant       2. Conductivity of medium too low     Screened     Use special electrode cable is connection and sufficiently screened       4. Air bubbles in medium flow signal     Ensure sufficient potential between medium and sensor     Ensure sufficient potential equalization       4. Air bubbles in medium for sense SENSORPROM® unit fel     Increase time constant     Increase time constant       651     High concentration of par- ticles or fibres     Increase SENSORPROM® unit or reset SENSORPROM® unit resetace SENSORPROM® u				3. Reverse flow direction	Change direction
Measuring pipe empty     Ensure that the measuring pipe is full       Indefined     P42     1. No load on current output     Check cables/connections       Undefined     P41     1. No load on current output     Check cables/connections       Indicates flow with no flow in pipe     Undefined     P41     Initializing error     Switch off MAG 5000/6000, wait 5 s and switch on again       Indicates flow with no flow in pipe     Undefined     Measuring pipe empty     Select empty pipe cut-off       Instable flow signal     Unstable     Ensure that the measuring pipe is full     Ensure that the measuring pipe is full       Unstable flow signal     Unstable     1. Pulsating flow     Increase time constant       2. Conductivity of medium to olow     Sepcial electrode cable     Ensure sufficient potential between medium and equalization       4. Air bubbles in medium     Ensure sufficient potential between medium and equalization     Ensure sufficient potential equalization       F61     Deficient SENSORPROM® unit     Replace SENSORPROM® unit or reset SENSORPROM® unit or reset SENSORPROM® unit equal set on provide of the			F70	Incorrect or no coil current	Check cables/connections
Internal error     Pipe is full       F60     Internal error     Replace MAG 5000/6000       Undefined     P42     1. No load on current output     Check cables/connections       2. MAG 5000/6000 defective     Replace MAG 5000/6000     Wath of MAG 5000/6000, wait 5 s and switch on again       Indicates flow with no flow in pipe     Undefined     Measuring pipe empty     Select empty pipe cut-off       Indicates flow with no flow in pipe     Medefined     Measuring pipe empty     Select empty pipe cut-off       Unstable flow signal     Unstable     Instable flow signal     Electrode connection missing/ electrode cable is insufficiently screened     Ensure that electrode cable is connected and sufficiently screened       Unstable flow signal     Unstable     1. Pulsating flow     Increase time constant       2. Conductivity of medium and sensor     Ensure sufficient potential between medium and sensor     Ensure sufficient potential       Measuring error     Undefined     Incorrect installation     Check installation       P40     No SENSORPROM® unit     Install SENSORPROM® unit     recease SENSORPROM® unit       F61     Deficient SENSORPROM® unit     Replace SENSORPROM® unit     recease SENSORPROM® unit       F62 <t< th=""><th></th><td></td><td>W31</td><td>Measuring pipe empty</td><td>Ensure that the measuring</td></t<>			W31	Measuring pipe empty	Ensure that the measuring
F60     Internal error     Replace MAG 5000/6000       Undefined     P42     1. No load on current output     Check cables/connections       2. MAG 5000/6000     P41     Initializing error     Switch off MAG 5000/6000, wait 5 s and switch on again       Indicates flow with no flow in pipe     Undefined     Measuring pipe empty     Select empty pipe cut-off       Instable flow signal     Unstable     Instable flow connection missing/ electrode cable is insufficiently screened     Ensure that electrode cable is connected and sufficiently screened       Unstable flow signal     Unstable     1. Pulsating flow     Increase time constant       2. Conductivity of medium developmental between medium and sensor     Ensure that electrode cable is one to contain air bubbles       3. Electrical noise potential between medium and sensor     Ensure function of particles or fibres     Increase time constant       Measuring error     Undefined     Incorrect installation     Check installation     Check installation       P40     No SENSORPROM® unit     Install SENSORPROM® unit     Replace SENSORPROM® unit       P41     CT SENSORPROM® unit     Replace SENSORPROM® unit     Replace SENSORPROM® unit       P40     No SENSORPROM® unit     Replace SENSORPROM® unit <t< th=""><th></th><td></td><td></td><td></td><td>pipe is full</td></t<>					pipe is full
Undefined     P42     1. No load on current output     Check cables/connections       2. MAG 5000/6000 defective     Replace MAG 5000/6000     Revice MAG 5000/6000       P41     Initializing error     Switch off MAG 5000/6000       with no flow in pipe     Undefined     Measuring pipe empty     Select empty pipe cut-off       Empty pipe cut-off is OFF     Ensure that the measuring pipe is full     Electrode cable is insufficiently screened     is connected and sufficiently screened       Unstable flow signal     Unstable     1. Pulsating flow     Increase time constant       2. Conductivity of medium sensor     Use special electrode cable     Ensure sufficient potential equalization       between medium and sensor     Sensor Hat bubbles     Ensure sufficient potential between medium and sensor     Ensure sufficient potential equalization       Measuring error     Undefined     Incorrect installation     Check installation       F61     No SENSORPROM <sup>®</sup> unit     Install SENSORPROM <sup>®</sup> unit or reset SENSORPROM <sup>®</sup> unit explace SENSORPROM <sup>®</sup> unit       F62     Wrong type of SENSORPROM <sup>®</sup> unit unit     Replace SENSORPROM <sup>®</sup> unit englace SENSORPROM <sup>®</sup> unit englace SENSORPROM <sup>®</sup> unit englace SENSORPROM <sup>®</sup> unit englace SENSORPROM <sup>®</sup> unit iunit       F62     Vorg type of SENSORPROM <sup>®</sup> unit englace SENSORP			F60	Internal error	Replace MAG 5000/6000
P41     Initializing error     Replace MAG 5000/6000 wait 5 s and switch on again with no flow in pipe       Indicates flow with no flow in pipe     Undefined with no flow in pipe     Measuring pipe empty     Select empty pipe cut-off Ensure that the measuring pipe is full       Unstable flow signal     Unstable flow signal     Unstable flow signal     Instable flow signal     Increase time constant flow signal     Increase time constant flow signal       Unstable flow signal     Unstable flow signal     Install sensor     Ensure sufficient potential between medium and sensor     Ensure sufficient potential equalization       Keasuring error     Undefined     Incorrect installation flow no SENSORPROM <sup>®</sup> unit     Increase time constant it to cor fores       Measuring error     Measuring flow corect SENSORPROM <sup>®</sup> unit     Install SENSORPROM <sup>®</sup> unit or reset SENSORPROM <sup>®</sup> unit flow reset SENSORPROM <sup>®</sup> unit flow signal     Replace SENSORPROM <sup>®</sup> unit flow signal       Measuring approx. 50%		Undefined	P42	1. No load on current output	Check cables/connections
P41     Initializing error     Switch of MAG 5000/6000, wait 5 s and switch on again       Indicates flow with no flow in pipe     Undefined     Measuring pipe empty     Select empty pipe cut-off       Empty pipe cut-off is OFF     Ensure that the measuring pipe is full     Ensure that the measuring pipe is full       Unstable flow signal     Unstable     I. Pulsating flow     Increase time constant       2. Conductivity of medium too low     2. Conductivity of medium too low     Use special electrode cable       3. Electrical noise potential between medium and sensor     Ensure sufficient potential equalization     Ensure sufficient potential equalization       Measuring error     Undefined     Increase time constant     Increase time constant       Measuring error     Undefined     Incorrect installation     Check installation       Measuring error     Undefined     Incorrect installation     Check installation       F61     Deficient SENSORPROM <sup>®</sup> unit     Install SENSORPROM <sup>®</sup> unit     replace SENSORPROM <sup>®</sup> unit       F62     Wrong type of SENSORPROM <sup>®</sup> unit     Replace SENSORPROM <sup>®</sup> unit     replace SENSORPROM <sup>®</sup> unit       F62     Wrong type of SENSORPROM <sup>®</sup> unit     Replace SENSORPROM <sup>®</sup> unit     replace SENSORPROM <sup>®</sup> unit				2. MAG 5000/6000 defective	Replace MAG 5000/6000
Indicates flow with no flow in pipe     Undefined with no flow in pipe     Measuring pipe empty Empty pipe cut-off is OFF     Ensure that the measuring pipe is full       Unstable flow signal     Unstable unstable flow signal     Unstable unstable     Increase time constant     Electrode connection missing/ screened     Ensure that electrode cable is connected and sufficiently screened       Unstable flow signal     Unstable flow signal     Unstable flow signal     Increase time constant     Use special electrode cable estroaction of par- ticles or fibres       Measuring error     Undefined     Incorrect installation     Ensure medium does not contain air bubbles       Measuring error     Undefined     Incorrect installation     Check installation       P44     CT SENSORPROM® unit     Increase time constant       P44     CT SENSORPROM® unit     Replace SENSORPROM® unit with MAG CT transmitter unit       F61     Deficient SENSORPROM® unit     Replace SENSORPROM® unit with MAG CT transmitter       F62     Voring type of SENSORPROM® unit     Replace SENSORPROM® unit twith MAG CT transmitter       F71     Loss of internal data     Replace MAG 5000/6000       Maximum     W30     Flow exceeds 100% of Q <sub>max</sub> .     Change volume/pulse Change oupulse width       Volume/pulse too			P41	Initializing error	Switch off MAG 5000/6000,
Indicates flow with no flow in pipe     Undefined     Measuring pipe empty Empty pipe cut-off is OFF     Select empty pipe cut-off       Unstable flow signal     Unstable     Ensure that the measuring pipe is full     Ensure that the measuring pipe is full       Unstable flow signal     Unstable     Increase time constant     Ensure that electrode cable is connected and sufficiently screened       0     Unstable     Increase time constant     Ensure that electrode cable is connected and sufficiently screened       1     Pulsating flow     Increase time constant     Ensure sufficient potential equalization       2     Conductivity of medium too low     Ensure sufficient potential equalization     Ensure sufficient potential equalization       8     Electrical noise potential between medium and sensor     Ensure medium does not contain air bubbles       6     Incorrect installation     Check installation       1     Incorrect installation     Check installation       P44     CT SENSORPROM® unit     Install SENSORPROM® unit or reset SENSORPROM® unit unit       F61     Deficient SENSORPROM® unit     Replace SENSORPROM® unit Wrong type of SENSORPROM® unit       F62     Deficient SENSORPROM® unit     Replace SENSORPROM® unit in trin       F71 <td< th=""><th></th><th></th><th></th><th></th><th>wait 5 s and switch on again</th></td<>					wait 5 s and switch on again
with no flow in pipe     Fmpty pipe cut-off is OFF     Ensure that the measuring pipe is full       Unstable flow signal     Unstable     Instable     Electrode cable is insufficiently screened     Ensure that electrode cable is connected and sufficiently screened       Unstable flow signal     Unstable     Instable     Increase time constant       2. Conductivity of medium too low     Use special electrode cable equalization     Ensure sufficient potential equalization       8     Electrical noise potential between medium and sensor     Ensure medium does not contain air bubbles       6     S. High concentration of par- ticles or fibres     Increase time constant       Measuring error     Undefined     Incorrect installation     Check installation       P40     No SENSORPROM® unit     Install SENSORPROM® unit or reset SENSORPROM® unit errese SENSORPROM® unit     Replace SENSORPROM® unit with MAG CT transmitter       F61     Deficient SENSORPROM® unit     Replace SENSORPROM® unit errese     Replace SENSORPROM® unit with MAG CT transmitter       F62     Wrong type of SENSORPROM® unit F71     Loss of internal data     Replace SENSORPROM® unit errese       Maximum     W21     Pulse overflow • Volume/pulse too small • Pulse width too large     Change pulse width       • Pulse width too	Indicates flow	Undefined		Measuring pipe empty	Select empty pipe cut-off
In pipe     pipe is full       Unstable flow signal     Unstable     Electrode connection missing/ electrode cable is insufficiently screened     Ensure that electrode cable is connected and sufficiently screened       Unstable flow signal     Unstable     1. Pulsating flow     Increase time constant       2. Conductivity of medium too low     Use special electrode cable     Ensure sufficient potential between medium and sensor     Ensure sufficient potential equalization       8. Electrical noise potential between medium and sensor     Ensure medium does not contain air bubbles     Ensure medium does not contain air bubbles       6. Air bubbles in medium     Ensure sufficient potential between titles or fibres     Increase time constant       Measuring error     Undefined     Incorrect installation     Check installation       P40     No SENSORPROM® unit     Replace SENSORPROM® unit or reset SENSORPROM® unit with MAG CT transmitter with MAG CT transmitter       F61     Deficient SENSORPROM® unit     Replace SENSORPROM® unit init     Replace SENSORPROM® unit F62     Replace SENSORPROM® unit F63     Deficient SENSORPROM® unit F64     Replace SENSORPROM® unit init     Replace SENSORPROM® unit init     Replace SENSORPROM® unit F71     Loss of internal data     Replace SENSORPROM® unit init     Replace SENSORPROM® unit init     Pulse overflow init     <	with no flow			Empty pipe cut-off is OFF	Ensure that the measuring
Image: Maximum Provided and set of the set	in pipe				pipe is full
Unstable flow signal     Unstable     Unstable     I. Pulsating flow     Increase time constant       2. Conductivity of medium too low     Use special electrode cable     Ensure sufficiently ensure equalization     Ensure sufficient potential equalization     Ensure sufficient potential equalization       4. Air bubbles in medium too low     Ensure sufficient potential estween medium and sensor     Ensure sufficient potential equalization       Measuring error     Undefined     Incorrect installation     Check installation       P40     No SENSORPROM® unit     Install SENSORPROM® unit or reset SENSORPROM® unit in the field       F61     Deficient SENSORPROM® unit int     Replace SENSORPROM® unit int       F62     Wrong type of SENSORPROM® unit int     Replace SENSORPROM® unit int       F63     Deficient SENSORPROM® unit int     Replace MAG 5000/6000       Maximum     W30     Flow exceeds 100% of Q <sub>max</sub> . i Volume/pulse too small or Pulse width too large     Change pulse width       Me				Electrode connection missing/	Ensure that electrode cable
Unstable flow signal     Unstable unstable     Unstable flow signal     Unstable     I. Pulsating flow     Increase time constant       I. Pulsating flow     Use special electrode cable     Increase time constant     Increase time constant       I. Pulsating flow     Iselectrical noise potential between medium and sensor     Ensure sufficient potential equalization     Ensure medium does not contain air bubbles       Measuring error     Undefined     Increase time constant     Increase time constant       P44     No SENSORPROM® unit     Install SENSORPROM® unit     Install SENSORPROM® unit       P44     CT SENSORPROM® unit     Replace SENSORPROM® unit with MAG CT transmitter     Replace SENSORPROM® unit fe1     Deficient SENSORPROM® unit unit     Replace SENSORPROM® unit with MAG CT transmitter       F61     Deficient SENSORPROM® unit unit     Replace SENSORPROM® unit with MAG CT transmitter     F62       F63     Deficient SENSORPROM® unit unit     Replace SENSORPROM® unit evide volume/pulse too small evide volume/pulse too small evide volume/pulse too small evide width too large     Change volume/pulse Change pulse width       Maximum     Wissing one electrode connection     Check cables     Change pulse width       Loss of totalizer approx. 50%     OK     W20     Initializing error				electrode cable is insufficiently	is connected and sufficiently
Unstable flow signal     Unstable flow signal     Unstable     I. Pulsating flow     Increase time constant       2. Conductivity of medium too low     Use special electrode cable     Use special electrode cable       8. Electrical noise potential between medium and sensor     Ensure sufficient potential equalization     Ensure medium does not contain air bubbles       8. Air bubbles in medium     Ensure medium does not contain air bubbles     Increase time constant       8. Air bubbles in medium     Ensure medium does not contain air bubbles     Increase time constant       8. Air bubbles or fibres     Increase time constant     Increase time constant       9. Massing error     Undefined     Incorrect installation     Check installation       9. P44     CT SENSORPROM® unit     Replace SENSORPROM® unit or reset SENSORPROM® unit with MAG CT transmitter       9. F61     Deficient SENSORPROM® unit     Replace SENSORPROM® unit unit     Replace SENSORPROM® unit with MAG CT transmitter       9. F62     Wrong type of SENSORPROM® unit     Replace SENSORPROM® unit tor reset SENSORPROM® unit F71     Replace SENSORPROM® unit F71     Replace MAG 5000/6000       Maximum     W30     Flow exceeds 100% of Q <sub>max</sub> Check Q <sub>max</sub> , (Basic Settings)       W21     Pulse overflow evolume/pulse too small				screened	screened
flow signal 2. Conductivity of medium too low Use special electrode cable   3. Electrical noise potential between medium and sensor Ensure sufficient potential equalization   4. Air bubbles in medium Ensure medium does not contain air bubbles   5. High concentration of par- ticles or fibres Incorrect installation   Measuring error Undefined Incorrect installation   P40 No SENSORPROM® unit Install SENSORPROM® unit or reset SENSORPROM® unit   P44 CT SENSORPROM® unit Replace SENSORPROM® unit or reset SENSORPROM® unit   F61 Deficient SENSORPROM® unit Replace SENSORPROM® unit unit   F62 Wrong type of SENSORPROM® unit Replace SENSORPROM® unit replace SENSORPROM® unit   F63 Deficient SENSORPROM® unit Replace SENSORPROM® unit unit   F64 Deficient SENSORPROM® unit replace SENSORPROM® unit Replace SENSORPROM® unit replace SENSORPROM® unit replace SENSORPROM® unit replace MAG 5000/6000   Maximum W30 Flow exceeds 100% of Q <sub>max</sub> . Check Q <sub>max</sub> . (Basic Settings)   W21 Pulse width too large Change volume/pulse change uplase width   Measuring approx. 50% OK W20 Initializing error Reset totalizer manually totalizer unit	Unstable	Unstable		1. Pulsating flow	Increase time constant
Measuring approx. 50%     Maximum     too low     too low     too low       Measuring approx. 50%     Maximum     Ensure sufficient potential between medium and sensor     Ensure medium does not contain air bubbles       Measuring error     Undefined     Increase time constant ticles or fibres     Increase time constant       P40     No SENSORPROM® unit     Install SENSORPROM® unit     Pate SENSORPROM® unit       P44     CT SENSORPROM® unit     Replace SENSORPROM® unit or reset SENSORPROM® unit       F61     Deficient SENSORPROM® unit     Replace SENSORPROM® unit       F62     Wrong type of SENSORPROM® unit     Replace SENSORPROM® unit       F71     Loss of internal data     Replace SENSORPROM® unit       F71     Loss of internal data     Replace MAG 5000/6000       Maximum     W30     Flow exceeds 100% of Omax.     Check Qmax. (Basic Settings)       W21     Pulse width too large     Change volume/pulse connection     Change volume/pulse       Loss of totalizer     OK     W20     Initializing error     Reset totalizer manually	flow signal			2. Conductivity of medium	Use special electrode cable
Measuring approx. 50% Maximum S. Electrical noise potential between medium and sensor Ensure sufficient potential equalization   Measuring approx. 50% Undefined Incorrect installation Check installation   P4 No SENSORPROM® unit Increase time constant   P40 No SENSORPROM® unit Increase time constant   P44 CT SENSORPROM® unit Increase time constant   P44 CT SENSORPROM® unit Replace SENSORPROM® unit or reset SENSORPROM® unit or reset SENSORPROM® unit or reset SENSORPROM® unit   F61 Deficient SENSORPROM® unit Replace SENSORPROM® unit   F62 Wrong type of SENSORPROM® unit Replace SENSORPROM® unit   F63 Deficient SENSORPROM® unit Replace SENSORPROM® unit   F64 Deficient SENSORPROM® unit Replace SENSORPROM® unit   F63 Deficient SENSORPROM® unit Replace SENSORPROM® unit   F64 Deficient SENSORPROM® unit Replace SENSORPROM® unit   F63 Deficient SENSORPROM® unit Replace SENSORPROM® unit   F64 Deficient SENSORPROM® unit Replace SENSORPROM® unit   F71 Loss of totalizer Replace SENSORPROM® unit   F71 Loss of totalizer Replace SENSORPROM® unit   F71 Loss of totalizer Replace SENSORPROM® unit   F71 Loss of				too low	
Measuring approx. 50% OK QK QK Totalizer rol Measuring error OK QK Totalizer rol Check cables Check cables				3. Electrical noise potential	Ensure sufficient potential
Measuring error     Undefined     isensor     Ensure medium does not contain air bubbles       Measuring error     Undefined     Incorrect installation     Check installation       P40     No SENSORPROM® unit     Install SENSORPROM® unit     Install SENSORPROM® unit       P44     CT SENSORPROM® unit     Replace SENSORPROM® unit     reset SENSORPROM® unit       F61     Deficient SENSORPROM® unit     Replace SENSORPROM® unit     int       F62     Wrong type of SENSORPROM® unit     Replace SENSORPROM® unit     int       F63     Deficient SENSORPROM® unit     Replace SENSORPROM® unit     int       F63     Deficient SENSORPROM® unit     Replace SENSORPROM® unit     int       F71     Loss of internal data     Replace MAG 5000/6000     int       Maximum     W30     Flow exceeds 100% of Q <sub>max</sub> .     Check Q <sub>max</sub> . (Basic Settings)       W21     Pulse overflow     •     Volume/pulse too small     Change pulse width       •     Pulse width too large     Change pulse width     Check cables       approx. 50%     OK     W20     Initializing error     Reset totalizer manually       data				between medium and	equalization
Measuring error Undefined 4. Air bubbles in medium Ensure medium does not contain air bubbles   Measuring error Undefined Incorrect installation Check installation   P40 No SENSORPROM® unit Install SENSORPROM® unit Replace SENSORPROM® unit or reset SENSORPROM® unit   P44 CT SENSORPROM® unit Replace SENSORPROM® unit Replace SENSORPROM® unit   F61 Deficient SENSORPROM® unit Replace SENSORPROM® unit   F62 Wrong type of SENSORPROM® unit Replace SENSORPROM® unit   F63 Deficient SENSORPROM® unit Replace SENSORPROM® unit   F63 Deficient SENSORPROM® unit Replace SENSORPROM® unit   F71 Loss of internal data Replace MAG 5000/6000   Maximum W30 Flow exceeds 100% of Q <sub>max</sub> . Check Q <sub>max</sub> . (Basic Settings)   W21 Pulse overflow - Change volume/pulse   • • Volume/pulse too small Change volume/pulse   • Volume/pulse too small Change pulse width   • Nissing one electrode Check cables   • OK W20 Initializing error Reset totalizer manually   ##### OK Totalizer roll over Reset totalizer or increase totalizer or increase				sensor	
Measuring error     Undefined     Incorrect installation     Check installation       P40     No SENSORPROM® unit     Increase time constant       P44     CT SENSORPROM® unit     Replace SENSORPROM® unit or reset SENSORPROM® unit or reset SENSORPROM® unit       F61     Deficient SENSORPROM® unit     Replace SENSORPROM® unit or reset SENSORPROM® unit       F62     Wrong type of SENSORPROM® unit unit     Replace SENSORPROM® unit       F63     Deficient SENSORPROM® unit     Replace SENSORPROM® unit       F71     Loss of internal data     Replace SENSORPROM® unit       Maximum     W30     Flow exceeds 100% of Q <sub>max</sub> .     Check Q <sub>max</sub> . (Basic Settings)       W21     Pulse overflow • Volume/pulse too small • Pulse width too large     Change volume/pulse Change pulse width       Loss of totalizer data     OK     W20     Initializing error     Reset totalizer manually totalizer unit				4. Air bubbles in medium	Ensure medium does not
Measuring error   Undefined   Incorrect installation   Check installation     P40   No SENSORPROM® unit   Install SENSORPROM® unit     P44   CT SENSORPROM® unit   Replace SENSORPROM® unit     result   P44   CT SENSORPROM® unit   Replace SENSORPROM® unit     result   P44   CT SENSORPROM® unit   Replace SENSORPROM® unit   result     F61   Deficient SENSORPROM® unit   Replace SENSORPROM® unit   Replace SENSORPROM® unit   result     F62   Wrong type of SENSORPROM® unit   Replace SENSORPROM® unit   Replace SENSORPROM® unit   result     F63   Deficient SENSORPROM® unit   Replace SENSORPROM® unit   Replace SENSORPROM® unit   result     Maximum   W30   Flow exceeds 100% of Q <sub>max</sub> .   Check Q <sub>max</sub> . (Basic Settings)   Volume/pulse too small   Change volume/pulse     Volume/pulse too small   Volume/pulse too small   Change pulse width   Change pulse width     Loss of totalizer   OK   W20   Initializing error   Reset totalizer manually     data   OK   W20   Initializing error   Reset totalizer or increase totalizer unit					contain air bubbles
Measuring error     Undefined     Incorrect installation     Check installation       P40     No SENSORPROM® unit     Install SENSORPROM® unit     Install SENSORPROM® unit       P40     No SENSORPROM® unit     Replace SENSORPROM® unit     or reset SENSORPROM® unit       P44     CT SENSORPROM® unit     Replace SENSORPROM® unit     or reset SENSORPROM® unit       F61     Deficient SENSORPROM® unit     Replace SENSORPROM® unit     reset SENSORPROM® unit       F62     Wrong type of SENSORPROM® unit     Replace SENSORPROM® unit     reset SENSORPROM® unit       F63     Deficient SENSORPROM® unit     Replace SENSORPROM® unit     reset SENSORPROM® unit       F63     Deficient SENSORPROM® unit     Replace SENSORPROM® unit     reset sensorprom® unit       F63     Deficient SENSORPROM® unit     Replace SENSORPROM® unit     reset sensorprom® unit       F1     Loss of internal data     Replace MAG 5000/6000     reset sensorprom       W21     Pulse overflow     Volume/pulse too small     Change volume/pulse       V01ume/pulse too small     Volume/pulse too small     Change pulse width       V1use width too large     Change pulse width     reset totalizer manually				5. High concentration of par-	Increase time constant
Measuring error     Undefined     Incorrect installation     Check installation       P40     No SENSORPROM® unit     Install SENSORPROM® unit     Install SENSORPROM® unit       P44     CT SENSORPROM® unit     Replace SENSORPROM® unit or reset SENSORPROM® unit with MAG CT transmitter       F61     Deficient SENSORPROM® unit     Replace SENSORPROM® unit unit     Replace SENSORPROM® unit       F62     Wrong type of SENSORPROM® unit     Replace SENSORPROM® unit     Replace SENSORPROM® unit       F63     Deficient SENSORPROM® unit     Replace SENSORPROM® unit     Replace SENSORPROM® unit       F71     Loss of internal data     Replace MAG 5000/6000     Maximum       W20     Flow exceeds 100% of Q <sub>max.</sub> Check Q <sub>max.</sub> (Basic Settings)       W21     Pulse overflow     -       • Volume/pulse too small     • Volume/pulse too small     Change volume/pulse       • Pulse width too large     Check cables     -       approx. 50%     OK     W20     Initializing error     Reset totalizer manually       data     OK     W20     Initializing error     Reset totalizer or increase totalizer unit				ticles or fibres	
P40   No SENSORPROM® unit   Install SENSORPROM® unit     P44   CT SENSORPROM® unit   Replace SENSORPROM® unit or reset SENSORPROM® unit with MAG CT transmitter     F61   Deficient SENSORPROM® unit   Replace SENSORPROM® unit unit     F62   Wrong type of SENSORPROM® unit   Replace SENSORPROM® unit     F63   Deficient SENSORPROM® unit   Replace SENSORPROM® unit     F63   Deficient SENSORPROM® unit   Replace SENSORPROM® unit     F71   Loss of internal data   Replace MAG 5000/6000     Maximum   W30   Flow exceeds 100% of Q <sub>max</sub> .   Check Q <sub>max</sub> . (Basic Settings)     W21   Pulse overflow   Change volume/pulse   Change pulse width     • Volume/pulse too small   • Volume/pulse too small   Check cables     • Pulse width too large   Change pulse width   Check cables     approx. 50%   OK   W20   Initializing error   Reset totalizer manually     #####   OK   Totalizer roll over   Reset totalizer or increase totalizer unit	Measuring error	Undefined		Incorrect installation	Check installation
P44CT SENSORPROM® unitReplace SENSORPROM® unit or reset SENSORPROM® unit with MAG CT transmitterF61Deficient SENSORPROM® unitReplace SENSORPROM® unit with MAG CT transmitterF62Wrong type of SENSORPROM® unit unitReplace SENSORPROM® unit Replace SENSORPROM® unitF63Deficient SENSORPROM® unit unitReplace SENSORPROM® unit Replace SENSORPROM® unitF63Deficient SENSORPROM® unit unitReplace SENSORPROM® unit Replace SENSORPROM® unitF71Loss of internal dataReplace MAG 5000/6000MaximumW30Flow exceeds 100% of Qmax. • Volume/pulse too small • Pulse width too largeChange volume/pulse Change pulse widthMeasuring approx. 50%OKW20Initializing error • Notalizer rol overReset totalizer manually##### Signs in displayOKTotalizer roll overReset totalizer or increase totalizer unit			P40	No SENSORPROM® unit	Install SENSORPROM® unit
Measuring approx. 50%OKW20Initializing errorChange volume/pulse connectionCheck cables connectionMaximumOKTotalizer roll overReset totalizer or increase totalizer unit			P44	CT SENSORPROM <sup>®</sup> unit	Replace SENSORPROM <sup>®</sup> unit
Measuring approx. 50%   OK   W20   Initializing error   Check cables     W21   Nesser totalizer manually   Missing one electrode connection   Check cables     Measuring approx. 50%   OK   W20   Initializing error   Reset totalizer manually					or reset SENSORPROM <sup>®</sup> unit
F61   Deficient SENSORPROM® unit   Replace SENSORPROM® unit     F62   Wrong type of SENSORPROM®   Replace SENSORPROM® unit     F63   Deficient SENSORPROM® unit   Replace SENSORPROM® unit     F63   Deficient SENSORPROM® unit   Replace SENSORPROM® unit     F71   Loss of internal data   Replace MAG 5000/6000     Maximum   W30   Flow exceeds 100% of Q <sub>max</sub> .   Check Q <sub>max</sub> . (Basic Settings)     W21   Pulse overflow   Change volume/pulse     • Volume/pulse too small   Change pulse width     • Pulse width too large   Change pulse width     Missing one electrode   Check cables     connection   Initializing error   Reset totalizer manually     data   OK   W20   Initializing error   Reset totalizer or increase totalizer or increase totalizer or increase					with MAG CT transmitter
F62   Wrong type of SENSORPROM®   Replace SENSORPROM® unit     Init   F63   Deficient SENSORPROM® unit   Replace SENSORPROM® unit     F63   Deficient SENSORPROM® unit   Replace SENSORPROM® unit     F71   Loss of internal data   Replace MAG 5000/6000     Maximum   W30   Flow exceeds 100% of Q <sub>max</sub> .   Check Q <sub>max</sub> . (Basic Settings)     W21   Pulse overflow   •   Volume/pulse too small   Change volume/pulse     •   Pulse width too large   Change pulse width   Check cables     approx. 50%   Missing one electrode connection   Check cables     Loss of totalizer data   OK   W20   Initializing error   Reset totalizer manually     #####   OK   OK   Totalizer roll over   Reset totalizer or increase totalizer or increase			F61	Deficient SENSORPROM® unit	Replace SENSORPROM <sup>®</sup> unit
Imit   Imit   F63   Deficient SENSORPROM® unit   Replace SENSORPROM® unit     F63   Deficient SENSORPROM® unit   Replace MAG 5000/6000     Maximum   W30   Flow exceeds 100% of Qmax.   Check Qmax. (Basic Settings)     W21   Pulse overflow    Change volume/pulse     • Volume/pulse too small   • Volume/pulse too small   Change pulse width     • Pulse width too large   Change pulse width   Check cables     approx. 50%   Missing one electrode connection   Check cables     Loss of totalizer data   OK   W20   Initializing error   Reset totalizer manually     #####   OK   OK   Totalizer roll over   Reset totalizer or increase totalizer or increase totalizer unit			F62	Wrong type of SENSORPROM®	Replace SENSORPROM <sup>®</sup> unit
F63   Deficient SENSORPROM® unit   Replace SENSORPROM® unit     F71   Loss of internal data   Replace MAG 5000/6000     Maximum   W30   Flow exceeds 100% of Q <sub>max</sub> .   Check Q <sub>max</sub> . (Basic Settings)     W21   Pulse overflow   •   Volume/pulse too small   Change volume/pulse     •   Volume/pulse too small   •   Change pulse width     •   Pulse width too large   Change pulse width     Measuring approx. 50%   Missing one electrode connection   Check cables     Loss of totalizer data   OK   W20   Initializing error   Reset totalizer manually     #####   OK   OK   Totalizer roll over   Reset totalizer or increase totalizer or increase totalizer unit				unit	
F71   Loss of internal data   Replace MAG 5000/6000     Maximum   W30   Flow exceeds 100% of Q <sub>max.</sub> Check Q <sub>max.</sub> (Basic Settings)     W21   Pulse overflow   •   Change volume/pulse     •   Volume/pulse too small   •   Change pulse width     •   Pulse width too large   Change pulse width     Measuring approx. 50%   Missing one electrode connection   Check cables     Loss of totalizer data   OK   W20   Initializing error   Reset totalizer manually     #####   OK   Totalizer roll over   Reset totalizer or increase totalizer or increase totalizer unit			F63	Deficient SENSORPROM <sup>®</sup> unit	Replace SENSORPROM <sup>®</sup> unit
Maximum   W30   Flow exceeds 100% of Qmax.   Check Qmax. (Basic Settings)     W21   Pulse overflow   Change volume/pulse     • Volume/pulse too small   • Volume/pulse too small   Change volume/pulse     • Pulse width too large   Change pulse width     Measuring approx. 50%   Missing one electrode connection   Check cables     Loss of totalizer data   OK   W20   Initializing error   Reset totalizer manually     #####   OK   Totalizer roll over   Reset totalizer or increase totalizer unit			F71	Loss of internal data	Replace MAG 5000/6000
W21 Pulse overflow • Volume/pulse too small Change volume/pulse   • Pulse width too large Change pulse width   Measuring approx. 50% Missing one electrode connection Check cables   Loss of totalizer data OK W20 Initializing error Reset totalizer manually   ##### OK Totalizer roll over Reset totalizer or increase totalizer unit		Maximum	W30	Flow exceeds 100% of Q <sub>max.</sub>	Check Q <sub>max.</sub> (Basic Settings)
• Volume/pulse too small Change volume/pulse   • Pulse width too large Change pulse width   Measuring approx. 50% Missing one electrode connection Check cables   Loss of totalizer data OK W20 Initializing error Reset totalizer manually   ##### Signs in display OK Totalizer roll over Reset totalizer or increase totalizer unit			W21	Pulse overflow	
Measuring approx. 50% Missing one electrode connection Check cables   Loss of totalizer data OK W20 Initializing error Reset totalizer manually   ##### Signs in display OK Totalizer roll over Reset totalizer or increase totalizer unit				Volume/pulse too small	Change volume/pulse
Measuring approx. 50%   Missing one electrode connection   Check cables     Loss of totalizer data   OK   W20   Initializing error   Reset totalizer manually     #####   OK   OK   Totalizer roll over   Reset totalizer or increase totalizer unit				Pulse width too large	Change pulse width
approx. 50% connection   Loss of totalizer data OK W20 Initializing error Reset totalizer manually   ##### Signs in display OK Totalizer roll over Reset totalizer or increase totalizer unit	Measuring			Missing one electrode	Check cables
Loss of totalizer OK W20 Initializing error Reset totalizer manually   data OK OK Totalizer roll over Reset totalizer or increase totalizer unit	approx. 50%			connection	
data OK Totalizer roll over Reset totalizer or increase totalizer unit   Signs in display OK Totalizer roll over Reset totalizer unit	Loss of totalizer	ок	W20	Initializing error	Reset totalizer manually
##### OK Totalizer roll over Reset totalizer or increase totalizer unit	data				
signs in display totalizer unit	#####	ок		Totalizer roll over	Reset totalizer or increase
	Signs in display				totalizer unit

We have checked the contents of this manual for agreement with the hardware and software described. Since deviations cannot be precluded entirely, we cannot guarantee full agreement. However, the data in this manual are reviewed regularly and any necessary corrections included in subsequent editions. Suggestions for improvement are always welcomed.

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