+GF+ GF 2581 FlowtraMag[®] Meter

3-2581.090 Rev 2 04/21

Operating Instructions

DN25 (1 in.) DN40 (1.5 in.) DN50 (2 in.) DN50 (2 in.) DN 80 (3 in.)

DN100 (4 in.)









Description

The GF 2581 FlowtraMag is a full-bore plastic PVC in-line style magnetic flowmeter. The PVC body with Titanium or *Hastelloy®* C electrodes has no moving parts and is two to three times lighter in weight compared to traditional metal magneters on the market. It is designed for high accuracy flow measurement in short pipe runs, making it an ideal solution for industrial applications where performance and ease of use are important.

The FlowtraMag is available in pipe sizes of DN25 (1 in.), DN40 (1.5 in.), DN50 (2 in.), DN80 (3 in.) and DN100 (4 in.), optimized for performance in short pipe runs often associated with final effluent lines, well heads and water treatment skids.

Features include:

- No moving parts
- No pressure drop
- Lighter in weight compared to traditional metal magmeters
- Reduced straight run requirements, ideal for final effluent lines, well heads and skids
- Factory calibrated with certificate (±1% of reading accuracy)
- Partially filled pipe detection status indicator
- Visual LED indicators make sensor status clear and easy to read Reverse flow direction configurable with 0252 Configuration Tool or GF Config Tool Bluetooth[®] App
- One device with three different outputs: field selectable Frequency or Digital (S³L), and analog 4 to 20 mA, in both passive and active configuration
- On-the-fly configuration with GF Config Tool Bluetooth[®] App
- Bluetooth[®] 4.2 capable, support iOS and Android for simple user configuration with instantaneous flow reading

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Warranty Information

Refer to your local Georg Fischer Sales office for the most current warranty statement.

All warranty and non-warranty repairs being returned must include a fully completed Service Form and goods must be returned to your local GF Sales office or distributor. Product returned without a Service Form may not be warranty replaced or repaired.

GF products with limited shelf-life (e.g. pH, ORP, chlorine electrodes, calibration solutions; e.g. pH buffers, turbidity standards or other solutions) are warranted out of box but not warranted against any damage, due to process or application failures (e.g. high temperature, chemical poisoning, dry-out) or mishandling (e.g. broken glass, damaged membrane, freezing and/or extreme temperatures).

Safety Information

- 1. Depressurize and vent system prior to installation or removal.
- 2. Confirm chemical compatibility before use.
- 3. DO NOT exceed maximum temperature or pressure specs.
- 4. ALWAYS wear safety goggles or face shield during
- installation and/or service.
- 5. DO NOT alter product construction.
- If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired
- 7. This device is not approved for use or installation in hazardous locations.

Caution / Warning / Danger

 Indicates a potential hazard. Failure to follow all warnings may lead to equipment damage, injury, or death
 Electrocution Danger Alerts user to risk of potential of injury or death via electrocution.
 Electrostatic Discharge (ESD) Alerts user to risk of potential damage to product by ESD..
 Personal Protective Equipment (PPE) Always utilize the most appropriate PPE during installation and service of GF products.
 Pressurized System Warning Sensor may be under pressure, take caution to vent

Sensor may be under pressure, take caution to vent system prior to installation or removal. Failure to do so may result in equipment damage and/or serious injury.

 Hand Tighten Only

 Overtightening may permanently damage product threads and lead to failure. (union nut only)

 Do Not Use Tools

 Use of tool(s) may damage product beyond repair and potentially void product warranty. (union nut only)

Note / Technical Notes

Highlights additional information or detailed procedure.

Chemical Compatibility

Georg Fischer products are manufactured in a variety of wetted materials to suit various liquids and chemicals.

All plastic materials including typical piping types (PVC) are more or less permeable to contained media, such as water or volatile substances, including some acids. This effect is not related to porosity, but purely a matter of gas diffusion through the plastic.

If the plastic material is compatible with the medium according to the application guidelines, the permeation will not damage the plastic itself. However, if the plastic encloses other sensitive components, as is the case with GF FlowtraMag meter, these may be affected or damaged by the media diffusing through the plastic body.

Unit is factory shipped configured to measure water.

Operating Pressure/Temperature Graph



Hastelloy[®] is a registered trademark of Haynes International.

Specifications

General

Pipe Size Range	.DN25 (1 in.), DN40 (1.5 in.),
	DN50 (2 in.), DN80 (3 in.),
	DN100 (4 in.)
Flow Range - Titanium or Has	telloy C
Minimum	.0.02 m/s (0.07 ft/s)
Maximum	. 10 m/s (33 ft/s)
DN25 (1 in.)	.0.53 to 266.35 LPM
	(0.14 to 70.36 GPM)
DN40 (1.5 in.)	1.36 to 662.34 LPM
	(0.36 to 174.97 GPM)
DN50 (2 in.)	2.23 to 1112.60 LPM
	(0.59 to 293.92 GPM)
DN80 (3 in.)	5.11 to 2493.75 LPM
	(1.35 to 658.78 GPM)
DN100 (4 in.)	.8.72 to 4357.83 LPM
	(2.30 to 1151.22 GPM)
Repeatability	± 0.5% of reading @ 25 °C (77 °F)
Accuracy	.± 1% ± 0.01 m/s (0.033 ft/s)
-	(reference condition 50 µS/cm and
	water based)
Minimum Conductivity	.20 µS/cm - water based
Suspended Solids	.5%
Power Cable Wire	. 7.6 m (25 ft) 2-conductor shielded
Output Cable Wire	. 7.6 m (25 ft) 5-conductor shielded
• May be extended up to 305	m (1,000 ft), field splice or special
order.	

Wetted Materials

Flow Tube Body	PVC
Electrode	Titanium, grade 2 or
	Hastelloy C-276
O-rings	FKM or EPDM

Electrical

Power Requirements

DC Power (Functional Rating) 24 VDC, max 24W (12 to 32 VDC) Reverse Polarity Protected Up to 35 VDC Over-Voltage Max. Rating....... 35 VDC Please use a power supply that has been IEC 60950/61010/60601 Certified and will not be used outside of its electrical ratings and matches the environmental conditions of the flow meter.

Current Output

A per ANSI-ISA 50.00.01 class H
4 to 20 mA
User selectable
. 12 to 32 VDC
.± 32 μA (25 °C @ 24 VDC)
.5 μΑ
.3.8 mA to 21 mA
None, 3.6 mA or 22 mA
. 305 m (1,000 ft)
. 600 Ω @ 24 VDC
imilar equipment

Frequency Output

Digital (S³L) Output

Digital (S³L)4.5 to 5.5 VDC Serial ASCII, TTL level 9600 bps

Digital (S³L) Output continued

Compatible with GF 8900, 9900, 9950 and 0486 Profibus Concentrator Max. Cable Length...... Application dependent

Sensor Configuration

GF Config Tool Bluetooth[®] App 2.4 GHz RF Transceiver Compatible with Bluetooth[®] Low Energy (BLE) 4.2 Specification GF Config Tool App available in iOS and Android App Stores

0252 Configuration Tool

Environmental Requirements

Enclosure	NEMA 4X / IP65
Relative Humidity	0 to 95% (non-condensing)
Altitude	.4,000 m (13,123 ft)
Storage Temperature	10 °C to 60 °C (14 °F to 140 °F)
Operating Temperature	
Ambient	10 °C to 60 °C (14 °F to 140 °F)
Media	.0 °C to 60 °C (32 °F to 140 °F)
UL environmental Rating	UL 50, Type 6P Storage
Maximum Operating	
Pressure	. 10 bar @ 23 °C (145 psi @ 73 °F)
DN25 (1 in.), DN40 (1.5 in.)	
and DN50 (2 in.)	. 3.5 bar @ 60 °C (51 psi @ 140 °F)
DN80 (3 in.) and	
DN100 (4 in.)	.2.27 bar @ 60 °C (33 psi @ 140 °F)

Shipping Weights - Titanium or Hastelloy C, EPDM or FKM

DN25 (1 in.)	3.4 kg (7.5 lbs)
DN40 (1.5 in.)	4.1 kg (9.0 lbs)
DN50 (2 in.)	4.5 kg (9.9 lbs)
DN80 (3 in.)	7.5 kg (16.5 lbs)
DN100 (4 in.)	8.3 kg (18.3 lbs)

Sensor Weights - Titanium or Hastelloy C

DN25 (1 in.)	2.7 kg (5.9 lbs)
DN40 (1.5 in.)	2.9 kg (6.3 lbs)
DN50 (2 in.)	
DN80 (3 in.)	5.8 kg (12.7 lbs)*
DN100 (4 in.)	6.26 kg (13.9 lbs)*
*excludes mounting hard	ware

Standards and Approvals

CE UL, CUL Recognized Component NSF (Titanium only, does not include Flange gaskets) RoHS compliant Manufactured under ISO 9001, ISO 14001 and ISO 45001

Ohina RoHS (visit gfps.com for details)

FC Declaration of Conformity according to FCC Part 15 This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and,
- (2) This device must accept any interference received, including interference that may cause undesired operation.

🚯 Bluetooth



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WARNING!

ASTM and Metric pipe cutout dimensions are different.

1 in.

ASTM union ends and union nuts shown



1.5 in.

ASTM union ends and union nuts shown



2 in.

4





DN25

Metric union ends and union nuts shown







DN50

Metric Union ends and union nuts shown





WARNING!

ASTM and Metric pipe cutout dimensions are different.

3 in.

Flange bolt kits and gaskets not shown (Sold separately)



4 in.

Flange bolt kits and gaskets not shown (Sold separately)



DN80

Flange bolt kits and gaskets not shown (Sold separately)



DN100

Flange bolt kits and gaskets not shown (Sold separately)



Sensor Location

The 2581 FlowtraMag requires a minimum of 3x ID upstream and 2 x ID downstream of the sensor for best performance.



Gravity and Discharge Lines

It is recommended to install a u-trap to ensure the pipe remains full at all times and to minimize air bubbles. A vacuum breaker may be required downstream of the FlowtraMag to ensure pipe doesn't drain and fill with air.



2581 FlowtraMag DN25 (1 in.) 2581 FlowtraMag DN40 (1.5 in.) 2581 FlowtraMag DN50 (2 in.)

Union Ends Hand Tighten Only!

- 1. Choose a mounting location that satisfies the requirements.
- 2. Select appropriate (Metric or ASTM) union end for installation.
- Install sensor with flow arrow pointing in the direction of flow. 3.

Note: Gland fittings should point upstream of flow.



Application Tip: For Metric pipe installation, change Union End to Metric.





Wiring Configuration

When using the 2581 FlowtraMag with frequency or Digital (S³L), all of the connections from the 2581 FlowtraMag to external equipment (PLC, Datalogger, Chart Recorder, Flow meter, etc.) are made using the red and white wires. See wiring diagrams for further details.



Electromagnetic Compatibility (EMC) Recommendations

Complex instrumentation systems such as the 2581 FlowtraMag and the associated devices may face challenges involving Electromagnetic Interference (EMI). EMI interference may be coupled to the system via cables (conducted interference) or broadcast via electrical radiation (radiated interference).

Radiated interference may be mitigated by relocating the source or increasing the distance from the source. Metal shielding may be used.

Conducted interference can be mitigated by careful wiring practices. Because EMI may follow multiple paths, it will be necessary to observe the effectiveness of various grounding options.

2581 FlowtraMag Power Cable

- In electrically noisy environments, connect the power cable shield (drain) wire to a clean low impedance earth ground.
- If there is a single power supply for all 2581 FlowtraMag system components (Instruments, PLCs and VFDs), route signal wiring directly to the instruments. Do not use ground points common to other wiring. Avoid creating ground loops.
- If separate power supplies are used, connect all power grounds to a common low impedance ground.

2581 FlowtraMag Output Cable

 In electrically noisy environments, connecting the Signal Output cable shield (drain) wire to a clean low impedance earth ground may help reduce signal noise and preserve communication. Observe the difference between connecting or not connecting the shield. Avoid creating ground loops.

Frequency/S³L Output

- The S³L/Frequency cable shares the ground with the 2581 FlowtraMag Power Supply. Use a common DC power supply for the 2581 FlowtraMag and the monitoring flow instrument.

4 to 20 mA Output

- If the 4 to 20 mA is used to control a highly inductive load such as a Variable Freq Drive or a DC motor, use separate DC power supplies for the 2581 FlowtraMag and the 4 to 20 mA device, active mode should be used.
- In Passive mode the 2581 FlowtraMag loop output cable shares the ground with the 2581 FlowtraMag Power Supply. Use the same DC power supply for the 2581 FlowtraMag and the 4 to 20 mA device.
- In Active mode the 2581 FlowtraMag loop output cable is isolated from the 2581 FlowtraMag Power Supply. The 4 to 20 mA receiving device can use a different Power Supply.



Recommended:

The directional arrow should be pointed **DOWNSTREAM** for correct operation. If the 2581 FlowtraMag is installed on a vertical pipe, the cable ports should be turned to point downward. This will prevent condensation from being channeled into the enclosure.

Application Tip:

If your flow is in the reverse direction, it is possible to set up reverse flow via the GF Signet 0252 Configuration Tool or GF Config Tool **Bluetooth** App.



Default Configurations

	DN25 (1 in.)	DN40 (1.5 in.)	DN50 (2 in.)	DN80 (3 in.)	DN100 (4 in.)
Units	GPM	GPM	GPM	GPM	GPM
Totalizer Units	Gallons	Gallons	Gallons	Gallons	Gallons
K-Factor Values	852.716 pulse/gal	342.9120 pulse/gal	204.139 pulse/gal	91.0772 pulse/gal	52.1188 pulse/gal
Averaging	Low	Low	Low	Low	Low
Sensitivity	3.5182	8.7486	14.696	32.9390	57.561
Low Flow Cutoff	0.1407	0.3499	0.5878	1.3176	2.3024
4 mA Setpoint	0	0	0	0	0
20 mA Setpoint	70.3630	174.9718	293.9200	658.7815	1151.2153
Error Current	22	22	22	22	22
Passive/Active	Passive	Passive	Passive	Passive	Passive
S3L/Freq	Freq	Freq	Freq	Freq	Freq



Wiring with Frequency Other Manufacturer's Equipment



Wiring with Digital (S³L) Output

Digital (S³L) Output (Compatible with 8900 Multi-Parameter Controller, 9900 and 9950 Transmitter)

- To select S³L, use Bluetooth[®]App.
- 24 VDC power at a minimum of 1 amp is always be connected to the 2581 FlowtraMag.
- The 8900 will display 0 (Zero) flow rate during periods of reverse flow. The 9900 and 9950 will display negative numbers to indicate reverse flow.
- The maximum cable length from the 2581 FlowtraMag to the 8900 or 9900 depends on the 8900 or 9900 configuration. Refer to the 8900, 9900 or 9950 manual for complete information.



App Configuration - App Set Up

Bluetooth® App Setup Steps - iOS version

Search for GF Configuration Tool in the App store. Download the GF Config Tool.

- 1. Press **GET.** App will install on phone or other wireless device.
- 2. Return to home screen and look for App icon, click the blue GF Config Tool icon
- 3. Continue to Sensor Setup Section (next page)





Bluetooth® App Setup Steps - Android version

Download the ${\rm GF}$ Configuration Tool App by scanning the QR code or searching in Google Play directly.

- 1. When prompted press Install
- 2. Return to home screen and look for App icon, click the blue GF Config Tool icon
- 3. Continue to Sensor Setup section (next page.)







iOS version

When the 2581 FlowtraMag is in operation, when in close proximity to the 2581 FlowtraMag (less than 20 ft), open the GF Config Tool App to begin a search nearby devices and go thru the pairing process. Click on connect next to device you are pairing to.

- Pair the device by entering the 1. device Code/Pin. The default Passkey is the last 6 digits of the product serial number.
- Click Pair/OK 2.
- Make any adjustments to the 3. 2581 FlowtraMag, if necessary, by tapping the Hamburger Menu (menu list) or Gear (edit settings).

Note: If the GF Config Tool password has been lost or forgotten, connect blue wire to white wire while unit is powered (for 2 to 5 seconds.) Password will reset to factory original (last 6 digits of serial number.)

Android version (Version 8 or newer)

When the 2581 FlowtraMag is in operation, when in close proximity to the 2581 FlowtraMag (less than 20 ft), open the GF Config Tool App to begin a search nearby devices and go thru the pairing process. Click on connect next to device you are pairing to.

- 1. Pair the device by entering the device Code/Pin. The default Passkey is the last 6 digits of the product serial number.
- Click Pair/OK 2.
- 3. Make any adjustments to the 2581 FlowtraMag, if necessary, by tapping the Hamburger Menu (menu list) or Gear (edit settings).





App Configuration - Monitor and Real Time Log

Monitoring flow and totalizer

Live Logging while connected to mobile / tablet device, set 1 sec or more increments

iOS version



Busiling Base gal/min 09/11/2020, 15:35:06 Logging Interval (in seconds)



Note:

The logging screen only logs current screen view in real-time when connected to the app.

Android version







App Configuration - Sensor Setup Continued

Application Setup

To set Averaging, Sensitivity, Low Flow Cut Off, Position of Flow, Flow Units and Totalizer Unit.

Flow Units gal/min V Totalizer U gal K-Factor 204.139 Low Sensitivity 14.697 Low Flow Cut Off 0.58998 With A READ WRITE SAVE LOAD

Loop

Set 4 mA, 20 mA, Error condition of the current output alarm (3.6 or 22 mA), adjust your 4 to 20 mA setting and select output mode.

Loop adjustment is a live update.



Information

....

Sensor information, Bluetooth Device Tag, Permanent Totalizer, Resettable Totalizer, Calibration Adjustment Factor, Zero Offset Adjustment

3:39 🕫		al 🗢 🖿	No SIM 🗈 🌃		\$ 100 3:48
	Information	Next >	<	Information	Next
			Body Material		
Bluetooth Device Tag			PVC		
Flowtra	aMag 209991		Body Size		
Device Passke	a ka		d060_D	N050/2in Sch80	
20999	n		Teteliese		
			Permanent Tota	lizer	
Sensor Serial	Number		468712	4.5	9
61903	209991		Resettable Tota	lizer	
Sensor Part N	umber		631617.	6	9
3-258	0-P-50			Reset Totalizer	
Sensor Order	Number				
??????	????		Cal Adjustment	Made to the Factory Calibrati	on
Body Material			0%		
PVC			Zero Offset Adju	ustment	
Body Size			0		m,
d060_	DN050/2in Sch80				
READ	WRITE SAVE	LOAD	READ	WRITE SAVE	LOAD

Note: You must press WRITE to save your changes to the <u>sensor</u>.

Otherwise it saves to your phone only.

To switch between digital $(S^{3}L)$ and Frequency and/or 4 to 20 Active or Passive, use the GF Config Tool App. On the loop screen, use the drop down to select digital $(S^{3}L)$ or Freq and/or Active or Passive 4 to 20 mA. Press WRITE after making selection.

If the GF Config Tool password has been lost or forgotten, connect blue wire to white wire of the sensor output cable while unit is powered (for 2 to 5 seconds.) Disconnect blue wire from white wire after 5 seconds. Password will reset to factory original (last 6 digits of serial number.)

To delete saved 2581 FlowtraMag in iOS:

Swipe right and select the trash can icon.

To delete saved 2581 FlowtraMag in Android: Swipe right, "Are you sure you want to delete this device?", choose Yes or No.



Technical Note

The totalizer in the 2581 FlowtraMag is independent from the totalizer in the 9900/9950 transmitters. If the totalizer is reset on the 2581 FlowtraMag, it does not reset the totalizer on the 9900 or 9950.

Calibration

Custom Calibration of Rate, Volumetric, Zero Flow Calibration.



Then press **DONE** or press on **GF logo** to get back to re-connect screen.

Close App

iOS device with home button

Double click the home button. Find the minimized app and swipe up to close the app to clear the App Cache.

iOS device without home button

Swipe up from the bottom. Find the minimized App and swipe up to close the app to clear the App Cache.

Calibration

No calibration is necessary to begin using the 2581 FlowtraMag. The application and performance settings are pre-set to meet the requirements of most applications. The FlowtraMag is shipped from the factory with the following calibration:

FlowtraMag Model	K-Factor pulse/L	K-Factor pulse/Gal	Flow Rate @20 mA L/min	Flow Rate @20 mA Gal/min
DN25 (1 in.)	225.264	852.716	266.350	70.363
DN40 (1.5 in.)	90.588	342.912	662.340	174.972
DN50 (2 in.)	53.928	204.139	1112.600	293.920
DN80 (3 in.)	24.060	91.077	2493.760	658.781
DN100 (4 in.)	13.768	52.119	4357.800	1151.200

Application Note:

The unit is factory calibrated for recommended setup. See calibration certificate for complete details. User has the option to custom calibrate based on their application.

Customization and Performance Settings

For customization and performance settings, use the GF Config Tool App or the Signet 0252 Configuration Tool and software. Refer to the Signet 0252 Configuration Tool manual for details to adjust the following parameters:

4 to 20 mA span: Factory setting is 4 mA = 0 and 20 mA = 10 m/s (32.8 ft/sec) equivalent flow rate, refer to the calibration table, and can also be customized to any range.

Low Flow Cutoff: Factory setting is 0.02 m/s (0.07 ft/s) equivalent flow rate, and can be customized to any user preferences.

Averaging Time:Factory setting is Low. Can be customized: Off, Low, Med, High.Sensitivity:Factory setting is 0.5 m/s (1.64 ft/s) equivalent flow rate, and can be customized to user preferences.



Averaging and Sensitivity Settings

- Because ideal flow conditions are often impossible to achieve, the fluids flow is often erratic, which causes erratic readings in control features (e.g., relays, 4 to 20 mA loops, etc.) that are associated with the flow rate.
- The best solution to these problems is to correct any piping deficiency that causes the instability. This may involve longer straight runs upstream, taking steps to ensure pipe remains full during flow conditions, and other installation changes. In many situations, however, these measures are simply not possible.
- The 2581 FlowtraMag provides two tools that are designed to "work around" these deficiencies. The Averaging and the Sensitivity features should be studied before making adjustments.

Averaging Time in Seconds (Factory set: Low)

• Set the time the meter will use as the averaging period. The ranges are Off, Low (10 s), Med (40 s) and High (120 s). Use higher averaging times to smooth the display and current output where the flow in the pipe is erratic.

Quick Response Sensitivity (Factory Set: 0.5 m/s (1.64 ft/s) equivalent)

• Sets an amount of flow rate change at a given reference flow rate required to momentarily allow the 2581 FlowtraMag to change from the selected averaging time to a faster response. The reference flow rate should be near the range of normal operation. Turn the averaging setting to off and observe the flow rate variation, enter a sensitivity amount that is two times larger than the amount of flow variation.

No AVERAGING, no SENSITIVITY

With AVERAGING set to Off and with SENSITIVITY set to zero, the 2581 FlowtraMag responds to every unstable shift in the flow. The dashed red line represents the actual output of the flow sensor in unstable flow conditions.

AVERAGING only

With AVERAGING set to Medium and SENSITIVITY still set to zero the flow rate is stabilized, but a sharp change in flow rate is not represented for 50 seconds or longer (dotted green line).

AVERAGING and SENSITIVITY

With AVERAGING at Medium and SENSITIVITY set to a moderate amount, the flow rate is stabilized, while the sudden shift in flow is reflected very quickly (solid blue line).

NOTE: The SENSITIVITY function is ineffective if the AVERAGING function is set to off (seconds).

LED Status Indicators

LEDs on the 2581 FlowtraMag circuit board are useful to identify problems with the meter and the flow conditions.

LED Condition	Indication
All Off	The power is off or the sensor is not connected
Solid Blue	Normal operation, full pipe, no flow
Blinking Blue	Normal operation, blink rate is proportional to flow rate
Solid Purple	Partially filled pipe, flow rate is zero
Blinking Purple	Partially filled pipe, blink rate is proportional to flow rate
Blinking Red	Measurement out of range. If condition persists, will turn to solid red after 1 minute
Solid Red	Instrument error, defective electronic component. Contact Technical Support
😵 Green	🚯 - Connected device
💕 White	🚯 - No connections



Configuration - 0252 Tool

This is an outline. For complete instructions, please refer to the 0252 Configuration Tool manual.

+GF+		
	1.	Select default unit by type, then click ok.
2450	2.	Then click on Read from the device.
255x • Treate Default of Type • 1 loch / DN 25 • 1.5 loch / DN 40 • 2 loch / DN 50 • 3 loch / DN 75 • 4 loch / DN 100 • OK • 256x • • • • • • • • • • • • • • •		
2 Read Write Save Load Default	3.	The Application tab, select flow unit (drop down menu), totalizer unit (drop down menu), Averaging (drop down menu), Sensitivity,
Application Loop Information Monitor Calibration		Low Flow Cut Off and Direction of the Flow
Flow Units gal/min V	Л	(drop down mend).
Totalizer Units gal ~	4.	correction or change,
K-Factor NaN pulses per gallon		information to device, then click Read
Averaging Low Y		device again.
Sensitivity 14.695860000 🖨 gal/min		
Low Flow Cut Off 0.587834600 Image gal/min Flow Units	gal/min	~
Positive Flow With Arrow V K-Factor Averaging	Mgal ac/ft ac/ft bbl cm3 t3 t3 gal mp gal	v pulses per gallon
Sensitivity	mp Mgal n3	gal/min
Low Flow Cut Off	- n3 Mgal nl	gal/min
Positive Flow	ML With Arrow	~
4		
Read Write Save	Load	Default

Application Loop Information Monitor Calibration	5. The Loop tab select or
4m A Set Point 0.000000000 ♀ gal/min 20m A Set Point 174.970000000 ♀ gal/min Error Current ◯ 3.6 m A	set point, set your current alarm condition and type o output mode.
4mA Adjust 4mA Adjust 20mA Adjust 20 20mA Adjust 20 Current Output Mode Active Frequency / S3L Output Mode Frequency	If the user has any correction or change, you must Write the informatior to device, then click Read device again.
	Note: The 0252 Configuration Tool will be unable to connect to sensor whe set to frequency.
Read Write Sav	e Load Default
Read Write Sav Application Loop Information Monitor Calibration Serial Number	e Load Default 6. The Information tab displays product information, calibration adjustment information, totalizer information, and Bluetooth [®] data.
Read Write Sav Application Loop Information Monitor Calibration Serial Number	e Load Default 6. The Information tab displays product information, calibration adjustment information, totalizer information, and Bluetooth® data. If the user has any correction or change, you must Write the informatior to device, then click Read device again.
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Read Write Save Application Loop Information Montor Calibration Sensor Data Sensor Part Number Sensor Oder Number <t< td=""><td> Load Default 6. The Information tab displays product information, calibration adjustment information, totalizer information, and Bluetooth® data. If the user has any correction or change, you must Write the information to device, then click Read device again. </td></t<>	 Load Default 6. The Information tab displays product information, calibration adjustment information, totalizer information, and Bluetooth® data. If the user has any correction or change, you must Write the information to device, then click Read device again.

Configuration - 0252	Tool				
7					
Application Loop Information Monitor Ca	bration €			7.	The Monitor tab can graph or log the information to
Last Reading					your local drive via file type with the extension .CSV
			— gal_min		
					The Colibration
				0.	tab allows custom calibration via method of rate, volumetric, zero flow calibration and reset flow calibration
	8	Rate			
Application Loop Information Monitor Cal	ibration		Flow Rate Calil	ing	
	Calibration	Allow readin Once the flow reading is stable, e	ig to stabilize. Inter the correct flow and click Set	gal_h	
Click to Start Rate Calibration	Rate	To cancel the calibration	h, click the Cancel button.	×	
Click to Start Volumetric Calibration	Zero Flow		Se Flow Rate Calib Cal Factor Adju 97.1712 %	bration was Successful usted	
				ОК	
	Reset Calibration		Application Loop Informa	ation Monitor Calibration	
Reset Flow Calibration	Flow		Volumetric	Volumetric Cali	vation
Reset Zero Flow Calibration	Zero			Live Read	na l
			dispensed during the calibration Click the Start Calibration button when the flui Once the desired amount has been dispensed.	id flow is started. , stop the flow and	2
			Enter the amount of fluid dispensed and click the To cancel the calibration click the Canc	ton. ∋ Set Volt cel buttoi	×
				Volume Calibr Cal Factor Adj 101.741 %	ation was Successful usted
			Set Actua	al Amourr	ОК
			ZeroF	Flow	
		D-d Wa			Zero How Calibration
			Load The	e Zero Flow calibration adjusts the sen conditions. Important! sensor needs to be filled with fluid and	the fluid flow stopped.
			Allo	w the live reading to stabilize and then Button. To cancel the calibration click the I	press Set 2 *** X
					Zero Flow Calibration was Successful Zero Offset Adjusted -0.0070628 m/s
					ОК

Troubleshooting

Symptom	Possible Cause	Solution
No LED Lights	Unit is not powered or the power wiring is reversed.	Check power wiring, voltage should be 12 to 32 VDC at 24W.
Solid Blue	There is no flow. If user expects to see flow, the Low Flow Cutoff value may be set too high.	Change the Low Flow Cutoff value in user menu using GF Configuration Bluetooth [®] Tool or 0252 Configuration Tool.
Solid Purple	Partially filled pipe. Flow rate is zero.	User should be aware that the pipe could be filled > 50% and water in the pipe is stagnant or the water is below 50% and water could be stagnant or moving.
Blinking Red	Flow measurement is out of range. If error persists, the LED will become solid RED after one minute.	The spiking of the flow outside the normal range could be caused by excessive EMI or water splattering through a partially filled pipe and creating flow spikes. The spiking will end once the disturbance is not present anymore.
Frequency output does not work	 Bluetooth selection is S³L. Improper wiring. 	 Select frequency from GF Config Tool or 0252 Configuration Tool. Check wiring. Use the wiring diagram picture in the 2581 FlowtraMag manual.
Frequency, Digital or Current Output is Erratic	 Electrical Noise interference with the flow measurement. Possible air pockets traveling through the piping system. Pipe is not full and water flow creates splashing of the electrodes. Excess turbulence in fluid flow profile. 	 Verify the grounding of the 2581 FlowtraMag and of the nearby VFDs and Pumps. If possible, use grounding rings or connect metal portions of the piping to closest ground. Check the piping and use vents if possible, otherwise wait for the air pockets to be eliminated through the system. Try to keep the pipe full, by installing vertical. Follow product manual recommended xD installation distances.
Output is not Zero when flow is stopped	 Low Flow Cutoff flow value is lower than the zero flow noise level. Electrical noise is interfering with the measurement. Defective 2581 FlowtraMag. 	 Adjust the Low Flow Cutoff value to be above the noise level. Verify/Modify Grounding. Contact Technical Support.
Forgotten password	Forgotten/lost password	Connect blue wire to white wire while unit is powered (for 2 to 5 seconds.) Password will reset to factory original (last 6 digits of serial number.)

Troubleshooting

Symptom	Possible Cause	Solution	
Measurement inaccurate	 Improper calibration. Sensor fault as indicated by the Red LED. Media conductivity is lower than 20 μS/cm. 	 Use the GF Config Tool App or 0252 Configuration Tool to reset flow and/or zero calibration. If user intends to calibrate using installed reference, proceed with zero and/or one point flow calibration. Cycle power, make sure there is no excessive electrical noise interference. If Red LED stays on, contact Technical Support. Check application and make sure the conductivity is above the specified 20 µS/cm. 	
User cannot communicate using the 0252 Tool	 There is no digital (S³L) communication. The digital (S³L) wiring is improper. 	 Select S³L from GF Config Tool or 0252 Configuration Tool. Check wiring as per manual. 	
User cannot communicate using the Bluetooth®	 The GF Config Tool App is not installed properly. The GF Config Tool App has not been identified properly. The GF Config Tool App does not connect. 	 Check the Bluetooth[®] white light to be on. Use the GF Config Tool App to identify the FlowtraMag to connect to (use elimination method if more Bluetooth[®] units present.) Record the FlowtraMag's IDs, or delete unused sensors. Restart GF Config Tool App. 	
4 to 20 mA output is incorrect	 The 4 to 20 mA in the 2581 FlowtraMag is not scaled properly. The Instrument used with the FlowtraMag has the 4 to 20 mA input not matching the 2581 FlowtraMag. The setting and/or wiring for active / passive 4 to 20 mA is done incorrectly. Defective hardware. 	 Scale the current output in the 2581 FlowtraMag correctly using the GF Config Tool App or the 0252 Configuration Tool. Change the Instrument scaling to match the 2581 FlowtraMag. For active AO, select ACTIVE from the GF Config Tool or 0252 Configuration Tool. In this case, current output connects directly to AO 4 to 20 mA connector with correct polarity, see wiring in the 2581 FlowtraMag manual. For passive AO, select PASSIVE from the GF config Tool or 0252 Configuration Tool. Wiring is done from AO 4 to 20 mA connector using the loop power, as indicated in the 2581 FlowtraMag manual wiring diagram. If the Green LED bar, % output indicates correctly the % flow and the current output is not working properly, first check AO selection in GF Config Tool or 0252 Configuration Tool. If AO selection is correct, call Technical Support. 	
Current Output at 3.6 mA or 22 mA	There is an error condition in the 2581 FlowtraMag.	Check status LED and follow existing guideline for troubleshooting.	

Notes

Ordering Information

Mfr. Part No.	Code	Description
3-2581-PT01-101	159 001 970	FlowtraMag, PVC, Titanium, FKM O-Ring, Union, DN25 (1 in.)
3-2581-PT15-101	159 001 971	FlowtraMag, PVC, Titanium, FKM O-Ring, Union, DN40 (1.5 in.)
3-2581-PT02-101	159 001 972	FlowtraMag, PVC, Titanium, FKM O-Ring, Union, DN50 (2 in.)
3-2581-PT03-101	159 001 973	FlowtraMag, PVC, Titanium, FKM O-Ring, Flange, DN80 (3 in.)
3-2581-PT04-101	159 001 974	FlowtraMag, PVC, Titanium, FKM O-Ring, Flange, DN100 (4 in.)
3-2581-PH01-101	159 001 975	FlowtraMag, PVC, Hastelloy C, FKM O-Ring, Union, DN25 (1 in.)
3-2581-PH15-101	159 001 976	FlowtraMag, PVC, Hastelloy C, FKM O-Ring, Union, DN40 (1.5 in.)
3-2581-PH02-101	159 001 977	FlowtraMag, PVC, Hastelloy C, FKM O-Ring, Union, DN50 (2 in.)
3-2581-PH03-101	159 001 978	FlowtraMag, PVC, Hastelloy C, FKM O-Ring, Flange, DN80 (3 in.)
3-2581-PH04-101	159 001 979	FlowtraMag, PVC, <i>Hastelloy C,</i> FKM O-Ring, Flange, DN100 (4 in.)
3-2581-PT01-102	159 001 980	FlowtraMag, PVC, Titanium, EPDM O-Ring, Union, DN25 (1 in.)
3-2581-PT15-102	159 001 981	FlowtraMag, PVC, Titanium, EPDM O-Ring, Union, DN40 (1.5 in.)
3-2581-PT02-102	159 001 982	FlowtraMag, PVC, Titanium, EPDM O-Ring, Union, DN50 (2 in.)
3-2581-PT03-102	159 001 983	FlowtraMag, PVC, Titanium, EPDM O-Ring, Flange, DN80 (3 in.)
3-2581-PT04-102	159 001 984	FlowtraMag, PVC, Titanium, EPDM O-Ring, Flange, DN100 (4 in.)
3-2581-PH01-102	159 001 985	FlowtraMag, PVC, Hastelloy C, EPDM O-Ring, Union, DN25 (1 in.)
3-2581-PH15-102	159 001 986	FlowtraMag, PVC, Hastelloy C, EPDM O-Ring, Union, DN40 (1.5 in.)
3-2581-PH02-102	159 001 987	FlowtraMag, PVC, Hastelloy C, EPDM O-Ring, Union, DN50 (2 in.)
3-2581-PH03-102	159 001 988	FlowtraMag, PVC, Hastelloy C, EPDM O-Ring, Flange, DN80 (3 in.)
3-2581-PH04-102	159 001 989	FlowtraMag, PVC, Hastelloy C, EPDM O-Ring, Flange, DN100 (4 in.)

Ordering Information

Accessories

Mfr. Part No.	Code	Description
3-0252	159 001 808	0252 Configuration Tool (optional for configuring with PC)
5523-0222	159 000 392	Cable (per foot), 2 cond. w/shield, 22 AWG
5523-0224	159 855 034	Cable (per foot), 6 cond. w/shield, 22 AWG

3-2581-PX01-10X Accessories:

PVC 80 Type 375 Union FKM (SxS) 1 in. (ASTM)
1.234IDX.139 FKM O-ring RMS 1071 (1 in.) (2 required per unit)
PVC 80 Type 375 Union EPDM (SxS) 1 in. (ASTM)
NSF 1.234IDX.139 EPDM O-ring (1 in.) (2 required per unit)
Union End, PVC, PN16, d32DN25 (Metric)

3-2581-PX15-10X Accessories:

857 375 015	857 375 015	PVC 80 Type 375 Union FKM (SxS) 1.5 in. (ASTM)
1220-0327	159 812 040	1.725IDX.210 FKM O-ring RMS1071 (1.5 in.) (2 required per unit)
897 375 015	897 375 015	PVC 80 Type 375 Union EPDM (SxS) 1.5 in. (ASTM)
1224-0327	159 812 045	NSF 1.725IDX.210 EPDM O-RING (1.5 in.) (2 required per unit)
161 375 906C	161 375 906C	Union End, PVC, PN16, d50DN40 (Metric)

3-2581-PX02-10X Accessories:

857 375 020	857 375 020	PVC 80 Type 375 Union FKM (SxS) 2 in. (ASTM)
1220-0331	159 812 041	2.225X.210 FKM O-RING RMS1071 (2 in.) (2 required per unit)
897 375 020	897 375 020	PVC 80 Type 375 Union EPDM (SxS) 2 in. (ASTM)
1224-0331	159 812 046	NSF 2.225X.210 EPDM O-RING (2 in.) (2 required per unit)
161 375 907C	161 375 907C	Union End, PVC, PN16, d63DN50 (Metric)

3-2581-PX03-10X Accessories:

854-030	854-030	3 in. PVC80 Van-Stone Flange (S)
37X 002 117	37X 002 117	FKM Full Face Flange Gasket - 150# ANSI Bolt Pattern - 3 in.
37X 002 008	37X 002 008	EPDM Full Face Flange Gasket - 150# ANSI Bolt Pattern - 3 in.
37Z 000 068	37Z 000 068	Van Stone Flange 316SS Bolt Kit, 4-hole, 3 in. ASTM
721 790 113	721 790 113	DN80 Flange Adapter, PVC-U, Metric (Use with backing flange 721 700 013)
721 700 013	721 700 013	DN80 Backing Flange, PVC-U, Metric
749 440 713	749 440 713	DN80 FKM Profile Flange Gasket, Metric
748 440 713	748 440 713	DN80 EPDM Profile Flange Gasket, Metric

3-2581-PX04-10X Accessories:

854-040	854-040	4 in. PVC80 Van-Stone Flange (S)
37X 002 118	37X 002 118	FKM Full Face Flange Gasket - 150# ANSI Bolt Pattern - 4 in.
37X 002 009	37X 002 009	EPDM Full Face Flange Gasket - 150# ANSI Bolt Pattern - 4 in.
37Z 000 069	37Z 000 069	Van Stone Flange 316SS Bolt Kit, 8-hole, 4 in. ASTM
721 790 114	721 790 114	DN100 Flange Adapter, PVC-U, Metric (Use with backing flange 721 700 014)
721 700 014	721 700 014	DN100 V-Flange Ring PVC-U, Metric
749 440 714	749 440 714	DN100 FKM Profile Flange Gasket, Metric
748 440 714	748 440 714	DN100 EPDM Profile Flange Gasket, Metric

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