SOLO G2[®] INDICATOR

INSTALLATION & OPERATION MANUAL



WARNING!

REVIEW THIS ENTIRE MANUAL BEFORE INSTALLING THIS PRODUCT!

2430 Stanwell Dr, Concord, CA 94520 USA 1-800-893-6723 Fax: 925-686-6713 www.forceflow.com / Info@forceflow.com

SOLO G2[®] INDICATOR

INSTALLATION & OPERATION MANUAL

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SOFTWARE VERSION PR413

1

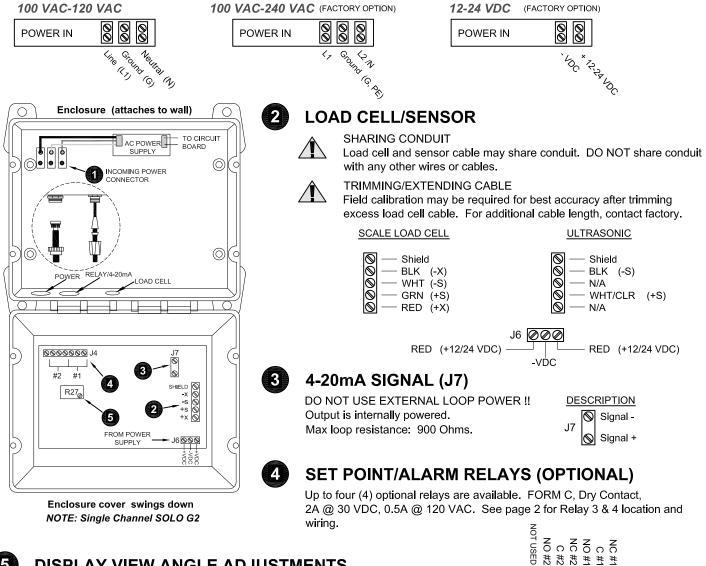
SINGLE CHANNEL ONLY SOLO G2 INDICATOR INSTALLATION & WIRING

- ALWAYS SHUT OFF MAIN POWER, BEFORE OPENING FRONT OF CASE !! ALWAYS FOLLOW LOCK OUT TAG OUT PROCEDURES !!
- INDICATOR IS NOT APPROVED FOR USE IN HAZARDOUS LOCATIONS. IF YOUR INSTALLATION CONSTITUTES AN EXPLOSIVE OR COMBUSTIBLE ENVIRONMENT, CONSULT FACTORY AND SEE PRECAUTIONS ON PAGE 12.
- LOAD CELL CONNECTORS HAVE SCREW-TYPE TERMINALS TO ASSIST IN CONNECTING WIRES. REMOVE THE CONNECTOR FROM THE BOARD BEFORE ATTACHING WIRES.

NOTE: Number in black circles refer to corresponding numbers on drawing below.

POWER HOOK-UP

TURN OFF MAIN POWER BEFORE CONNECTING !! Use a dedicated, surge protected circuit. DO NOT connect any other inductive loads, relays, etc. to this power line ! Resulting power surges can damage the electronics !!! Use far left bottom port and connect per following: (NOTE: Use 1/2" conduit connector).





DISPLAY VIEW ANGLE ADJUSTMENTS

When indicator cannot be mounted at eye level, adjust display sharpness using the 30-turn, no stop potentiometer R27.



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Electrical Hazard

Disconnect Power Supply

Before Opening or Servicing.

DANGER

1

DUAL CHANNEL ONLY SOLO G2 INDICATOR INSTALLATION & WIRING

ALWAYS SHUT OFF MAIN POWER, BEFORE OPENING FRONT OF CASE !! ALWAYS FOLLOW LOCK OUT TAG OUT PROCEDURES !!

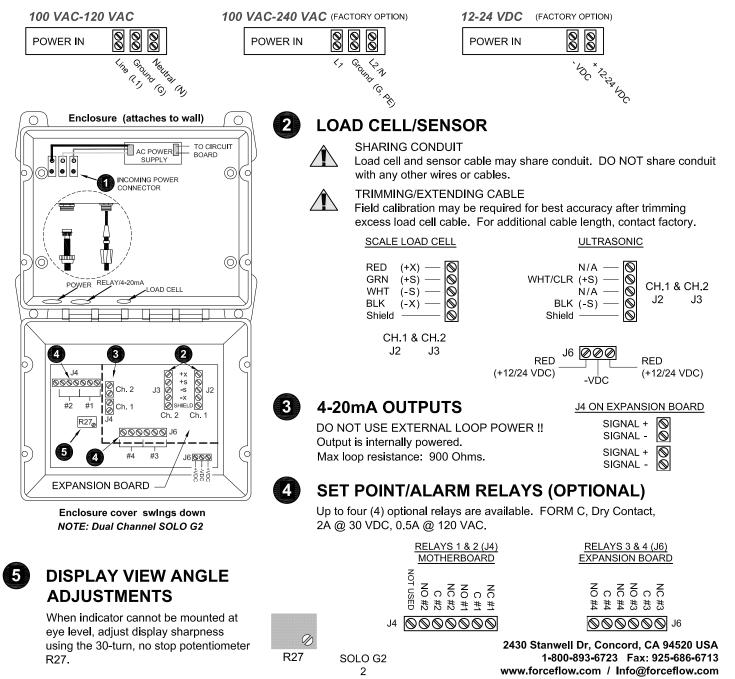
INDICATOR IS NOT APPROVED FOR USE IN HAZARDOUS LOCATIONS. IF YOUR INSTALLATION CONSTITUTES AN EXPLOSIVE OR COMBUSTIBLE ENVIRONMENT, CONSULT FACTORY AND SEE PRECAUTIONS ON PAGE 12.

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Electrical Hazard

DANGER

Electrical Hazard Disconnect Power Supply Before Opening or Servicing.

SOLO G2 INSTALLATION CHECKLIST

CAUTION: STATIC ELECTRICITY PROTECTION

CAUTION should be observed whenever enclosure is open to avoid damage by static electricity. DO NOT touch any of the circuit board, other than the intended contacts noted in these instructions. Carpets, especially, can build up static electricity.

CAUTION: LIGHTNING - SURGE PROTECTION

Be sure that all power coming into the facility is sufficiently protected from transient lightning strikes and power surges. Improper protection may void your warranty.

1.

MOUNT INDICATOR

- Mount at eye level if possible.
- DO NOT mount indicator in direct sunlight to avoid long term UV damage to keypad.

2. WIRE INDICATOR - TURN OFF ALL POWER BEFORE WIRING !

- ALWAYS follow standard "LOCK-OUT", "TAG-OUT" procedures.
- Connect dedicated, clean, surge protected power circuit through 1/2" conduit connector.
- Connect load cell cable or sensor cable through 1/4" cord connector. (pre-wired at factory)
- Connect 4-20mA outputs.
- Connect optional relays.
- Power up indicator.
- Adjust display view angle if indicator is not mounted at eye level.

3.

SEAL INDICATOR ENCLOSURE TO MAINTAIN 4X RATING !!!

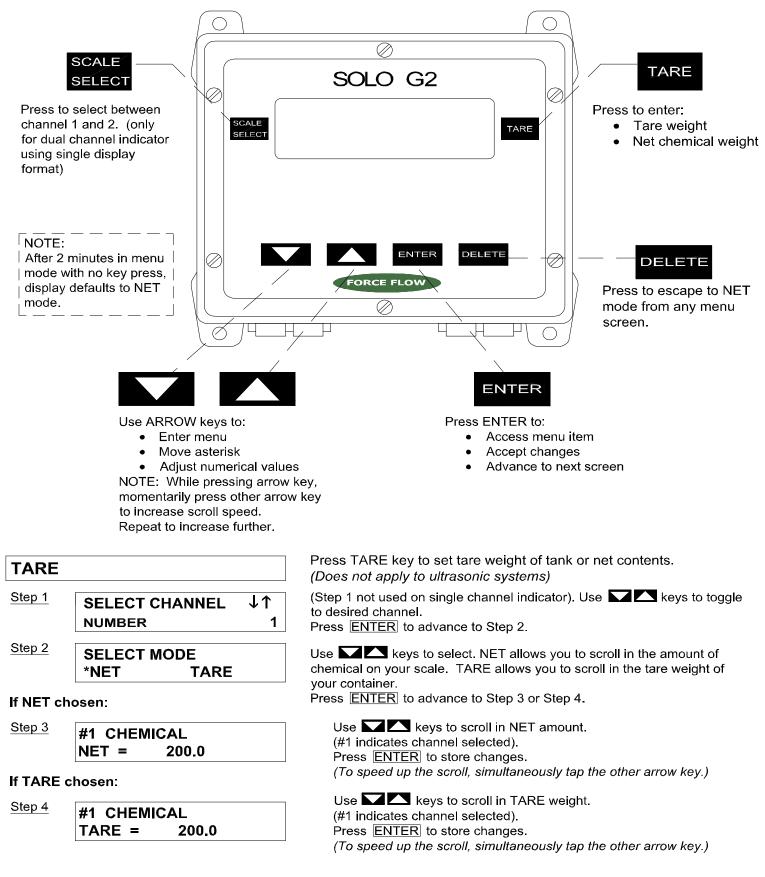
- Tighten all four (4) door screws to maintain NEMA 4X seal on box.
- Check all cord connectors for tight seal.
- Check all 1/2" conduit connectors for tight seal.

4. FORMAT INDICATOR

- Check all current settings in USER menus. Make changes as needed for your specific application.
- 5. SET SCALE ZERO (MENU ITEM 2, "SET ZERO")

- 6. REVIEW MENU ITEM 8, "DIAGNOSTICS"
 - Go to VIEW/SET FACTORS and write the new ZERO COUNTS number in space provided on label located on inside of enclosure door for future reference.

OPERATING INSTRUCTIONS



SOLO G2 INDICATOR

USER MENU (Press **M** to enter Menu)

The "USER MENU" has 9 menu items. These are functions that are used during equipment start-up, or if your chemical operation has changed.

Use keys to scroll through the menu items. Press ENTER key to access selected menu item. Press DELETE key to escape from any place in the menu.

NOTE: After 2 minutes, indicator will "time out" to NET mode if no key is pressed.

DIGITAL DISPLAY:

1 DISPLAY UNITS

ACTION REQUIRED:

This function allows you to select how your chemical will be displayed. Weight (lbs or kgs) or Volume (gallons or liters).

--SCALE--

Step 1

#1 DISPLAY UNITS *WT VOL

Use To select WT (lb/kg) or VOL (gal/L) as display units.

If WT is selected at, press ENTER to advance to Menu Item 2 "SET ZERO".

If VOL is selected, press ENTER to advance to Step 2 below.

--ULTRASONIC--

Use to select WT (lb/kg) or VOL (gal/L) as display units. Step 1 **#1 DISPLAY UNITS** Press ENTER to advance to Step 1a below. *WT VOL Use **I** to enter inside tank diameter to calibrate sensor to tank. Step 1a **#1 TANK DIA INCHES =** 64.2

If WT is selected, press ENTER to advance to Step 2 below.

If VOL is selected, press ENTER to advance to Menu Item 2, "SET ZERO".

Step 2 **#1 SPEC GRAVITY** NUMBER = 1.132 Use **W** to enter specific gravity of chemical. Press ENTER to advance to Menu Item 2, "SET ZERO". 925-686-6700

Step 4

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USER MENU Cont...

l	DIGITAL DISPLAY:	ACTION REQUIRED:
2 SET ZERO		Allows user to "zero" the scale or sensor when scale or tank is empty. If tank is not empty but weight of chemical in tank is known, SET ZERO allows
Step 1	USER MENU $\downarrow \uparrow 2$	user to adjust display to read this known weight.
	SET ZERO	Press ENTER to advance to Step 2.
<u>Step 2</u>	ARE YOU SURE? *NO YES	If "NO" is selected, press <u>ENTER</u> to advance to Menu Item 3 "DISPLAY FORMAT". If "YES" is selected, press <u>ENTER</u> to advance to Step 3.
<u>Step 3</u>	SELECT CHANNEL ↓↑ NUMBER = 1	(NOT FOUND ON SINGLE CHANNEL INDICATOR) Scroll through available channels using . Press ENTER to select scale or sensor channel number and advance to Step 4.
<u>Step 4</u>	TNK/SCALE EMPTY? *NO YES	Is Tank or Scale empty? Use Let Let Keys to select YES or NO. If "YES" is selected press ENTER to zero the scale and advance to Menu Item 3 "DISPLAY FORMAT".
<u>Step 5</u>	of chemical currently in tank (scale) of #1 MIN CAL VALUE LBS = 0.00	r height of chemical currently in tank (ultrasonic sensor) must be known. Use keys to scroll to content weight or height. Then press ENTER to store changes and advance to Menu Item 3 "DISPLAY FORMAT".
3 DISP	LAY FORMAT	Configure how many channels are displayed simultaneously, and whether the auto scan is engaged.
<u>Step 1</u>	USER MENU ↓↑ 3 DISPLAY FORMAT	Press ENTER key to advance to Step 2. If the SOLO G2 is set up for only 1 channel, this section is not accessible.
<u>Step 2</u>	SELECT FORMAT ↓↑ * SINGL DUAL	Selecting "single" displays net weight on top line and bar display on bottom. Selecting "dual" displays channel #1 NET on top line and channel #2 NET on the bottom line.
		Use Keys to to select. Then press ENTER : If Single is selected, advances to Step 3. If Dual is selected, advances to Menu Item 4 "FILTER BAND".
<u>Step 3</u>	AUTO SCAN ? * NO YES	If AUTO SCAN is activated the SOLO G2 will automatically scan both channels without the operator having to touch any keys. If "NO" is selected, advances to Menu Item 4 "FILTER BAND". If "YES" is selected, advances to Step 4.
<u>Step 3</u>		If Single is selected, advances to Step 3. If Dual is selected, advances to Menu Item 4 "FILTER BAND". If AUTO SCAN is activated the SOLO G2 will automatically scan both channels without the operator having to touch any keys. If "NO" is selected, advances to Menu Item 4 "FILTER BAND".

Use keys to to select. Press ENTER to advance.

	Allows you to set the scan time period in seconds from one channel to the next.
SECONDS = 6	Use 🔽 🔼 keys to select. Press ENTER to store chang

Use keys to select. Press ENTER to store changes and advance to Menu Item 4 "FILTER BAND".

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USER MENU Cont...

DIGITAL DISPLAY:	ACTION REQUIRED:
4 FILTER BAND	Allows you to steady a fluctuating display. This function will only help smooth out fairly rapid fluctuations. Slow, long term fluctuations (over minutes or hours), will likely not be corrected by changing the filter value. Contact factory for assistance in correcting slow, long term display
Step 1USER MENU↓↑ 4FILTER BAND	fluctuations. Press ENTER to advance to Step 2.
Step 2#1FILTER BANDWEIGHT =0.70	Increase value to increase filtering. For example, if the display is rapidly jumping +/- 5.0, increase the value to slightly greater than 5.0, such as 6.0, to smooth out displayed reading. As the filter value increases, the display may take longer to reflect sudden weight changes. Use keys to increase or decrease value. Then press ENTER : If Single channel, advances to Menu Item 5 "MOTION BAND". If Dual channel, allows adjustment of channel 2.
Step 1	Menu operations such as ZERO and FIELD CALIBRATION require the SOLO G2 in certain steps to store a weight value before moving to the next step. MOTION BAND determines how steady the weight reading is required to be before the SOLO G2 accepts the value and continues on. The greater the value, the greater the fluctuation allowed.
Step 1 USER MENU ↓↑ 5 MOTION BAND	Press ENTER to advance to Step 2.
Step 2#2MOTION BANDWEIGHT =0.7	Changing this value alters the required signal stability which could lead to inaccurate field calibration and zero adjustment. Please consult factory before adjusting this value.

|--|

925-686-6700

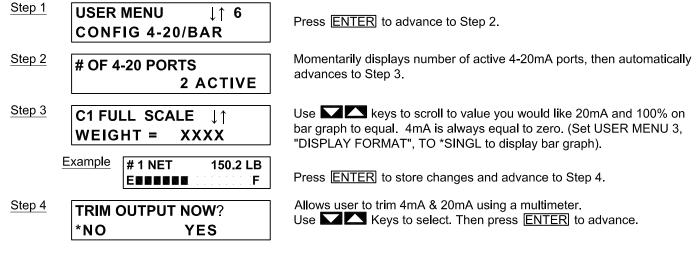
USER MENU Cont...

DIGITAL DISPLAY:

6 CONFIG 4-20mA OUT/BARGRAPH

ACTION REQUIRED:

Allows you to set full scale value (20mA) to span output and bar graph. Includes 4-20mA trim function.



If NO chosen:

If "NO" is selected, you will advance to channel 2, or Menu Item 7 "ALARMS/SETPOINTS".

If YES chosen:

If YES cr	nosen:		
<u>Step 5</u>	1 TRIM 4 mA REF # = 11111	Use Lange keys to change value Step 6.	e, then press ENTER to advance to
<u>Step 6</u>	1 TRIM 20 mA REF # = 11111		e, then press ENTER to store changes Steps 5 & 6 for additional ports), or Menu
7 ALA	RMS/SETPOINTS	This function allows you to choose optional alarms/set points to trigger	
<u>Step 1</u>	USER MENU ↓↑ 7 ALARMS/SETPOINTS	Press ENTER to advance to Step	2.
Step 2	#1 RELAY SCALE NUMBER =	Use Then press ENTER to advance to	
Step 3	#1 SETPT TYPE *LOW HIGH	Select set point type using	keys. Press ENTER to store
		LOW - for descending alarm/set po HIGH - for ascending alarm/set poi	
<u>Step 4</u>	#1 SETPT VALUE LBS = 125		/alue that you wish the relay to trigger. reading corresponds to this point. Press ance to Step 5.
		NOTE: Units based on selection in	MENU 2, "DISPLAY UNITS".
<u>Step 5</u>	#1 SETPT DISPLAY *NO YES	Use WWW keys to choose if you on display. Press ENTER to retur relay, or to Menu Item 8 "DIAGNOS	rn to Step 2 if unit has more than one
<u> </u>	Example SCALE ALARM 1HI 2LO	Alternates every few seconds with	main NET display.
		SOLO G2	2430 Stanwell Dr, Concord, CA 94520 USA 1-800-893-6723 Fax: 925-686-6713

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USER MENU Cont...

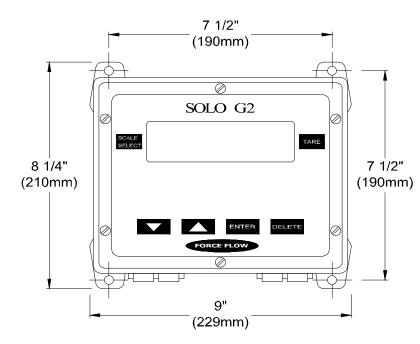
<u>1</u>	DIGITAL DISPLAY:	ACTION REQUIRED:
8 DIA	GNOSTICS	This function is used for troubleshooting, and is usually used by a factory trained technician. Contact a Force Flow technician at 800-893-6723 (or 925-686-6700) for assistance.
<u>Step 1</u>	USER MENU ↓↑ 8 DIAGNOSTICS	Press ENTER to advance to Step 2. Press DELETE to exit to NET screen. Use Call A keys to scroll to other menu items.
<u>Step 2</u>	VIEW/SET FACTORS *NO YES	VIEW/SET FACTORS: View or change current zero and span factors. Choose "NO" to advance to Step 7. Choose "YES" to advance to Step 3 (Dual Channel), Step 4 (Single Channel).
<u>Step 3</u>	SELECT CHANNEL ↓↑ NUMBER = 1	DUAL CHANNEL ONLY Use Keys to select channel. Press ENTER to advance to Step 4. Press DELETE to advance to Step 7.
<u>Step 4</u>	#1 ZERO COUNTS NUMBER = 23281	ZERO COUNTS is a reference number that corresponds to the current zero location of the channel. After zeroing the channel using MENU 2, SET ZERO, record this new ZERO COUNTS number on the label inside the enclosure for future reference. To restore zero, use
	ADJUST FACTOR? *NO YES	 If I is pressed to adjust ZERO COUNTS, warning is displayed. If "YES" is selected and ENTER is pressed, ZERO COUNTS is displayed again and adjustment can then be made. If "NO" is selected and ENTER is pressed, advances to Step 5.
<u>Step 5</u>	#1 MIN CAL VALUE NET = 0.0	MIN CAL VALUE refers to NET amount entered if tank/scale not empty when channel zeroed, or existing amount in tank or on scale when field calibration begun. DO NOT ADJUST WITHOUT FACTORY ASSISTANCE.
<u>Step 6</u>	#1 SPAN FACTOR NUMBER = 2.32423	SPAN FACTOR is a reference number that corresponds to the current calibration of the channel. After the channel is calibrated at the factory, the SPAN FACTOR is recorded on the label inside the enclosure for future reference. If the channel is re-calibrated in the field, this factor will change. To restore factory calibration, use keys to enter the value recorded on the label, then press ENTER to store.
	ADJUST FACTOR? *NO YES	 If I is pressed to adjust factor, warning is displayed. If "YES" is selected and ENTER is pressed, SPAN FACTOR is displayed again and adjustment can then be made. If "NO" is selected and ENTER is pressed, advances to Step 7.
<u>Step 7</u>	RAW A/D READINGS *NO YES	RAW A/D READINGS allows you to view raw A/D counts which can be useful in determining if processor is running. If "YES" is selected and <u>ENTER</u> is pressed, advances to Step 8. If "NO" is selected and <u>ENTER</u> is pressed, advances to Step 9.
If YES cl	hosen:	Raw A/D values displayed.
<u>Step 8</u>	3282 5970	Press ENTER or DELETE (Ch #1) (Ch #2) to advance to Step 9.

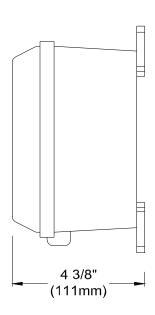
FORCE FLOW

USER MENU Cont...

<u>I</u>	DIGITAL DISPLAY:	ACTION REQUIRED:
8 DIA	GNOSTICS (Cont)	
<u>Step 9</u>	READ BASE UNITS *NO YES	BASE UNITS: View current NET value in units of measure that SOLO G2 uses for background operations. SCALE=WEIGHT (Ib or kg), ULTRASONIC=DISTANCE (inches or cm). If "YES" is selected and ENTER is pressed, advances to Step 10. If "NO" is selected and ENTER is pressed, advances to USER MENU 9, "FIELD CALIBRATION".
<u>Step 10</u>	333 LB 555 IN	BASE UNITS displayed. Channel Layout: Press ENTER or DELETE to advance (Ch #1) to USER MENU 9, "FIELD CALIBRATION".
9 FIEL	D CAL	Your indicator has been factory calibrated. This function allows you to field calibrate your indicator by setting the zero and span with known weights or values.
<u>Step 1</u>	USER MENU ↓↑ 9 FIELD CAL	Press ENTER to advance to Step 2.
<u>Step 2</u>	DEL FACTORY CAL ↓↑ *NO YES	If "NO" is selected, advances to Menu Item 1 "DISPLAY UNITS". If "YES" is selected, advances to Step 3.
<u>Step 3</u>	SELECT CHANNEL ↓↑ NUMBER = 1	Use keys to select. Press ENTER to advance. Use keys to select which Channel to calibrate. Press ENTER to advance to Step 4.
<u>Step 4</u>	TANK / SCALE EMPTY? *NO YES	Use to select. If "NO", press ENTER to advance to Step 5. If "YES", press ENTER to advance to Step 6.
<u>Step 5</u>	#1 MIN CAL VALUE LBS =	Use to enter starting value ("0" if tank or scale empty). Press ENTER to store value and advance to step 6.
<u>Step 6</u>	#1 APPLY MAXIMUM THEN PRESS ENTER	Apply weight or fill with known amount. When finished, press ENTER to advance to Step 7.
<u>Step 7</u>	#1 ENTER MAX. VAL LBS = 100.0	Use to enter amount added in previous step. Press ENTER to store value and advance to Step 8.
<u>Step 8</u>	CALIBRATE MORE? *NO YES	Use keys to select. Press ENTER to advance. (Select "NO" to exit. Select "YES" to return to Step 3 and calibrate other channel).

SOLO G2 SPECIFICATION SHEET





SPECIFICATIONS for SOLO G2 INDICATOR

Channels: 1 or 2 Input: (1) or (2) 350 ohms Load Cells or 4-20mA signals Output: 4-20mA (Source Signal) Increments: 0.1, 0.2, 0.5, 1, 2, 5 Display 2 lines, 16 digits, LCD, 0.4" character Tare Adjustment: Push button scroll Operating Temperature: 32-122 degree F, 0-50 degrees C Power: 110-120 VAC, 50/60 Hz (220 VAC 50/60 Hz available upon request) (12-24 VDC operation available upon request) (12-24 VDC operation available upon request-power to be supplied by others) Connectors: Power and output: 1/2" nylon conduit connectors Load Cell: 1/2" nylon cord connector Enclosure: NEMA 4X, UL listed, structural foam molded enclosure Accuracy: Overall system accuracy 0.1% - 0.25% full scale

MODEL NUMBERS:

SRG2-1	(Single Channel)
SRG2-2	(Dual Channel)

OPTIONS:

LEVEL ALARM / SET POINTS:

The SOLO features four (4) optional adjustable set point relays, that can be used for alarm or control applications. The relays are Form C, Dry Contacts rated at 2A at 30 VDC, 0.5A at 120 VAC.

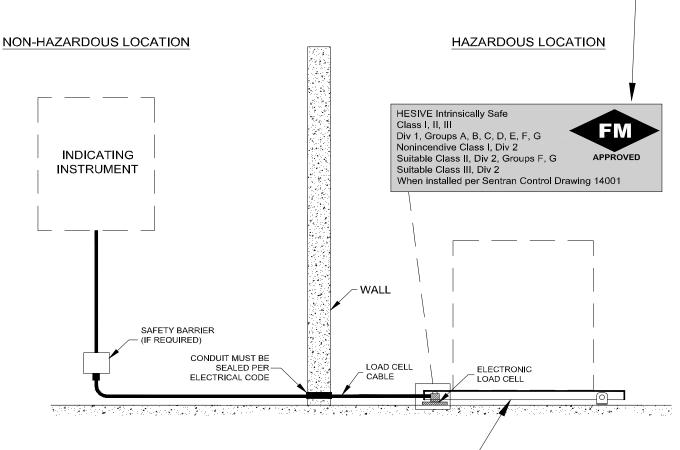
HAZARDOUS AREA INSTALLATION -WARNINGS & PRECAUTIONS-

- Refer to local building codes for hazardous location restrictions.
- Anchor platform in level location.
- Anchor platform with building code approved fasteners.

Indicator is not approved for use in hazardous locations. If your installation constitutes an explosive or combustible environment, please consult factory for safety precautions.

For further technical information or for applications engineering assistance, please contact Force Flow at 925-686-6700, 1-800-893-6723, info@forceflow.com.

For hazardous locations, verify electronic load cell(s) furnished with your scale have the following ______ label to meet safety requirements.



NOTE: **EXAMPLE ONLY** - Your scale may look different than the unit pictured.



COMMITTED TO CUSTOMER SERVICE & PRODUCT SUPPORT

From the initial writing of a specification through the installation and operation of the equipment,100% satisfaction is our goal. At Force Flow, we know that a superior customer service and support team is crucial to the success of our company.

PERFORMANCE GUARANTEE

With the purchase of every Force Flow product comes our performance guarantee. If you are unhappy about the performance of one of our products in your chlorination or chemical feed application, you may request a performance guarantee from the selling distributor. Under the performance guarantee, if within 30 days of the original installation you are not completely satisfied with the performance of the Force Flow product, you may return or exchange it for the full purchase price. To qualify, all performance guarantees must be pre-approved by the factory service manager before returning the equipment to the factory.

WARRANTY

Force Flow warrants all scales, ultrasonic sensors and indicators against defects in materials and workmanship under normal use for a period of FIVE (5) YEARS from the date the product ships from Force Flow. If a defect arises and a valid claim is received within the warranty period, at its option, Force Flow will either (1) repair the defective equipment at no charge, or (2) exchange the product with a product that is new or (3) refund the purchase price of the product. All warranty claims must be returned to factory. Contact factory for Return Merchandise Authorization (RMA#).

TECHNICAL & APPLICATION SUPPORT

Force Flow factory engineers have strong technical backgrounds with many years of chlorine and chemical feed application experience. If you require technical information, application support or help with a custom project, please contact an application engineer on our HELP HOTLINE 1-800-893-6723 USA/Canada or email info@forceflow.com. Also, see our website at www.forceflow.com.

SERVICE

Our policy is to get all repairs, warranty work and retrofits completed and shipped within 48 hours of their arrival at the factory. Trained technicians and a large parts inventory make this happen. We understand that there is nothing more frustrating than sending something back to the manufacturer and wondering when you will see it again. 2-Day turnaround on repairs--that is our policy! For prompt service, call our TOLL FREE HELP HOTLINE at 1-800-893-6723.

www.forceflow.com / info@forceflow.com

2430 Stanwell Dr, Concord, CA 94520 USA 1-800-893-6723 Fax: 925-686-6713



2430 STANWELL DRIVE, CONCORD, CA 94520 USA Phone (925) 686-6700 Fax (925) 686-6713 <u>info@forceflow.com</u> www.forceflow.com

DECLARATION OF CONFORMITY

APPLICATION OF COUNCIL DIRECTIVE: 89/336/EEC

Standards To Which Conformity Is Declared:

EN50081-1:1992 EN55022 Class B EN61000-3-2 EN61000-3-3

EN50082-1:1998 EN61000-4-2 EN61000-4-3 ENV50204 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-8 EN61000-4-11

Manufacture's Name:

Force Flow

Manufacture's Address

2430 Stanwell Drive Concord, CA 94520 (925) 686-6700, Fax (925) 686-6713

Equipment Description: Industrial Scale

Equipment Class:

Product:

SOLO G2 Model SRG2

Generic-Light Industrial

I the undersigned, herby declare that the equipment specified above, conforms to the Directive(s) and Standard(s).

Place:	Concord, California 94520
Full Name:	John K. Galloway
Position:	VP/ General Manager



DECLARATION OF CONFORMITY

APPLICATION OF COUNCIL DIRECTIVE: 2006/95/EG (formerly 72/23/EEC)

Standards To Which Conformity is Declared:	EN 61010-1:1993
Manufacture's Name:	Force Flow
Manufacture's Address:	2430 Stanwell Drive Concord, CA 94520 (925) 686-6700 Fax (925) 686-6713
Equipment Description:	Industrial Scale
Equipment Class:	Class 1
Product:	SOLO G2
Model Numbers:	Model SRG2

I the undersigned, herby declare that the equipment specified above, conforms to the Directive(s) and Standard(s).

Place:	Concord, California 94520
Full Name:	John K. Galloway
Position:	VP/ General Manager