PT3002 Flow Sensor Transmitter

Installation and Programming Instructions

Instrucciones de instalación y programación

Power supply sold separately
Part# M80204

El suministro de energía se vende por separado.
N.° de parte M80204

PT3002 Pulse Transmitter with LCD Display
Part#M80206

Transmisor de pulsos PT3002 con pantalla LCD
N.° de parte M80206

ENG

ESP

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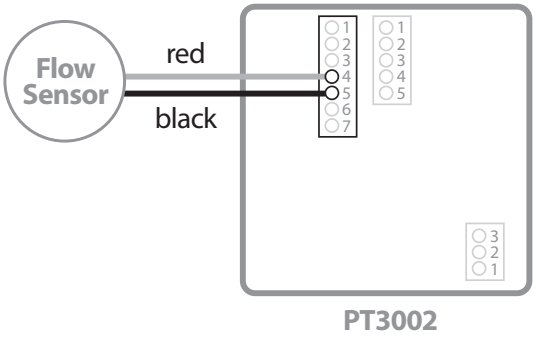
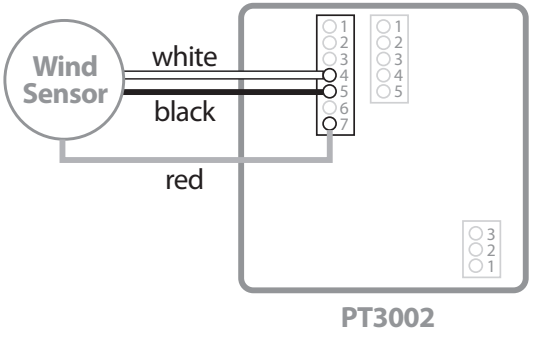
Contents

Wiring Instructions

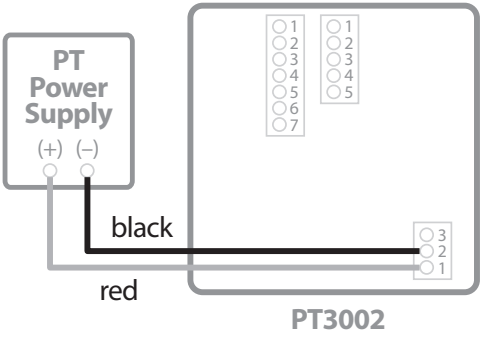
NOTE: Refer to the PT3002 Flow Monitor and NEMACAB Installation sheet for more detailed instructions.



Wire red wire from flow sensor to terminal four on terminal block with seven terminals. Wire black wire from flow sensor to terminal five on terminal block with seven terminals. See wiring diagram label on side of PT3002.



Wire white wire from wind sensor to terminal four on terminal block with seven terminals. Wire black wire from wind sensor to terminal five on terminal block with seven terminals. Wire red wire from wind sensor to terminal seven on terminal block with seven terminals. See wiring diagram label on side of PT3002.

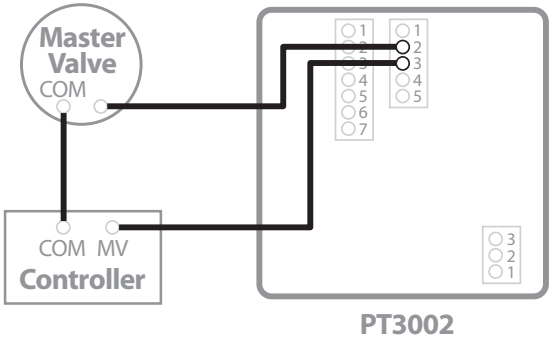


Wire the red lead (+) from the PT Power Supply to the terrminal one on the three port terminal block. Wire the black / white (-) wire to terminal two of the three port terminal block.

Wiring Instructions (cont.)

For Use As A High Flow Shut Off Device With A Stand Alone Controller

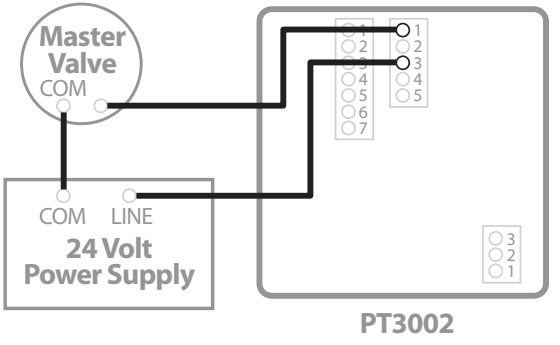
Using a Normally Closed Master Valve



Wire one leg of the master valve solenoid wire to the Relay 1 NC 2 terminal. Wire the Relay 1 COM 3 terminal to the master valve terminal in the controller.

Note: Wire master valve common to controller common as in any normal installation.

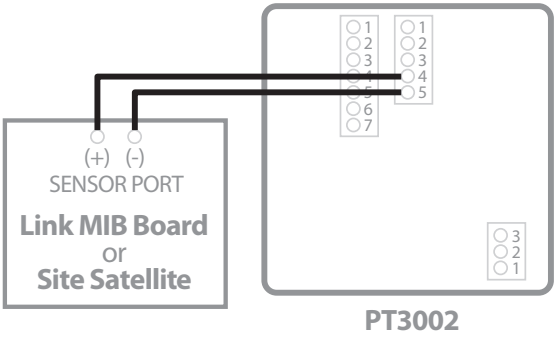
Using a Normally Open Master Valve



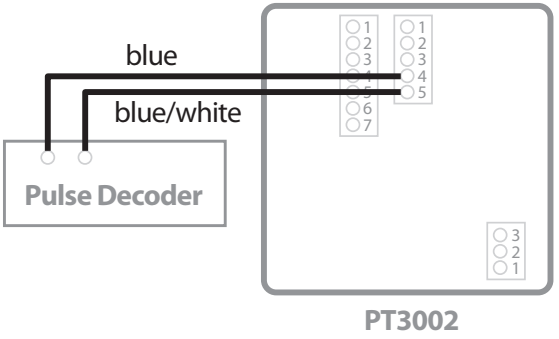
Wire one leg of the master valve solenoid wire to the Relay 1 NO 1 terminal. Wire the second leg of the solenoid to an auxiliary 24 volt power supply. Wire the Relay 1 COM 3 to the other leg of the auxiliary power supply. When a high flow condition occurs the internal relay closes, powering the normally open master valve and closing it.

For Output to Maxicom® or Site Control

(complete step 1 on pages 6 to 8 and step 2b on pages 11 to 12)

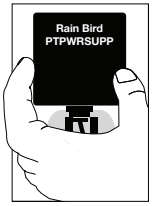


Wire the Pulse 1 Out terminal four to the positive (+) terminal of the sensor port on a link MIB board or Site Satellite. Wire Pulse 2 Out terminal five to the negative (–) terminal of the sensor port on a link MIB board or Site Satellite.



Wire the Pulse 1 Out terminal four to the blue wire of a pulse decoder if using two wire communications between CCU and satellite Controller. Wire Pulse 2 Out terminal five to the blue / white wire of a pulse decoder.

Initial Powerup



Plug the PT3002 Flow Monitor power supply into a 120 VAC electrical outlet.

When the PT3002 is first powered up, it runs through internal self checks, while displaying "PT3002 DIC Initializing." At the end of this cycle its normal display will appear.

Display and Key Pad

Menu 1-Switch to main menu
2-Backward/Previous menu

Enter 1-Save value
2-Forward/Next menu

▲ 1-Select Menu option
2-Increase numerical value

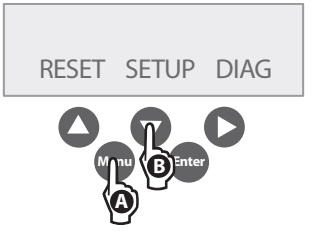
▼ 1-Select Menu option
2-Decrease numerical value

▶ 1-Select Menu option
2-Move cursor to the right

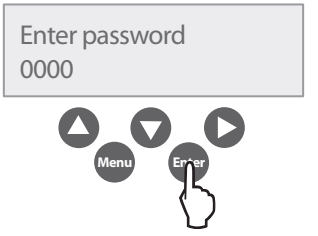
General Programming

Step 1

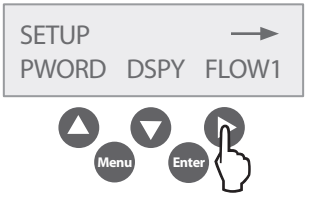
1. Press MENU (A) to enter Programming Mode. Press ▼ (B) to go to the Password Screen.



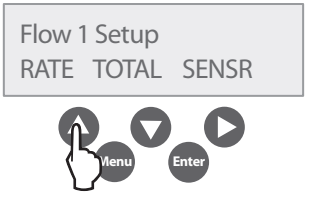
2. Use the arrow keys to enter a 4 digit password then press ENTER OR press ENTER to bypass using a password.



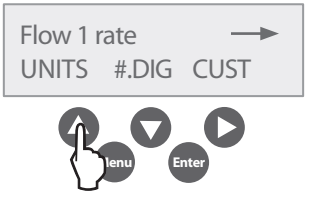
3. At the Setup menu, press ▶ to go to the Flow 1 Setup Screen.



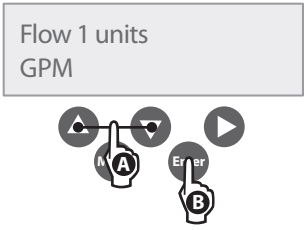
4. Press ▲ to go to the Flow 1 Rate Screen.



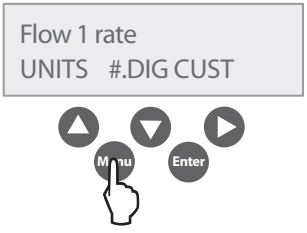
5. Press ▲ to Set Units.



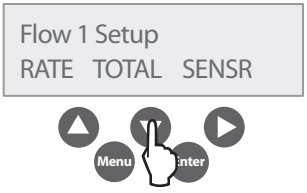
6. Set UNITS for GPM* by using ▲ or ▼ (A) then press ENTER (B) (the PT3002 saves the setting). (**Note:** GPM used as an example throughout this manual.)



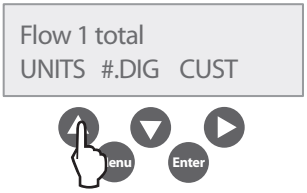
7. Press MENU once to go to the Flow 1 Setup Screen.



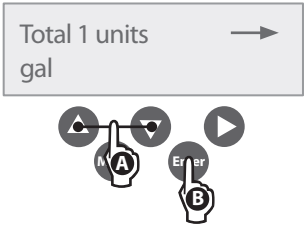
8. Press ▼ to Set TOTAL.



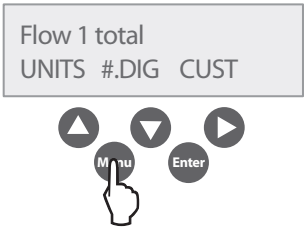
9. Press ▲ to Set UNITS.



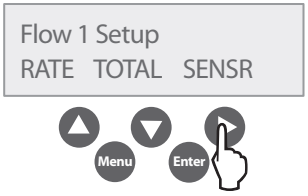
10. Set UNITS for gal by using ▲ or ▼ (A) then press ENTER (B) (the PT3002 saves the setting)



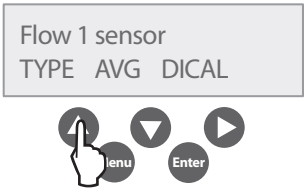
11. Press MENU twice to go to the Flow 1 Setup Screen.



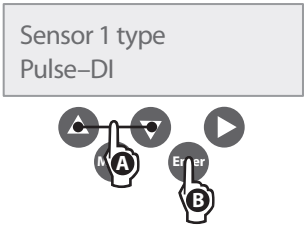
12. Press ▶ to Set SENSOR.



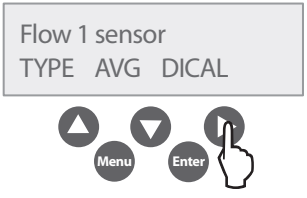
13. Press ▲ to Set TYPE.



14. Press ▲ or ▼ (A) until "Pulse –DI" appears, then press ENTER (B). The PT3002 saves the setting and brings you back to the screen below.

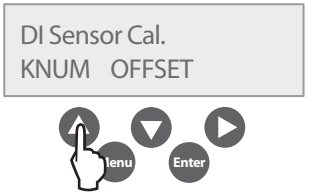


15. Press to Set DICAL.

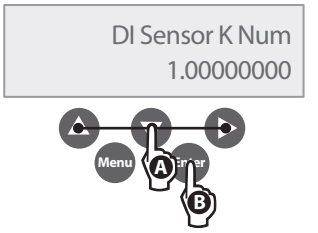


Step 1 cont.

16. Press ▲ to Set SENSOR K FACTOR.

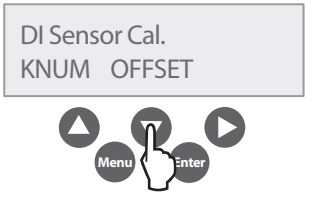


17. Use the ▲ ▼ ▶ keys to enter the K FACTOR (A) then press ENTER (B) (the PT3002 saves the setting and returns to the Sensor Calibration Screen)

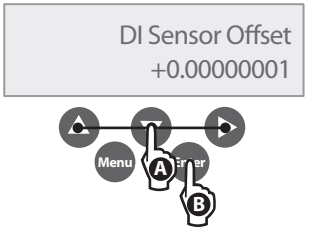


Note: *See instructions pages 21 - 24 for Rain Bird Flow Sensor K & Offset information or instruction sheet included with Rain Bird Flow Sensors.*

18. Press ▼ to Set SENSOR OFFSET.

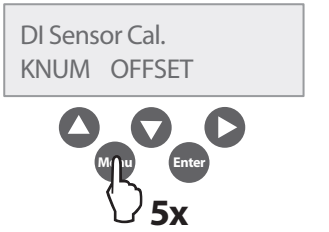


19. Use the ▲ ▼ ▶ keys to enter the OFFSET (A) then press ENTER (B) (the PT3002 saves the setting and returns to the Sensor Calibration Screen)

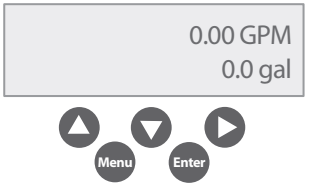


Note: *See instructions pages 21 - 24 for Rain Bird Flow Sensor K & Offset information or instruction sheet included with Rain Bird Flow Sensors.*

20. Press MENU until you arrive at the GPM / Total Screen.



21. The screen will look as to the right.



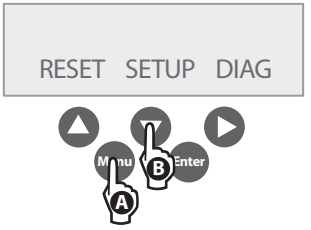
Follow Step 2a or Step 2b to complete setup.

Step 2a

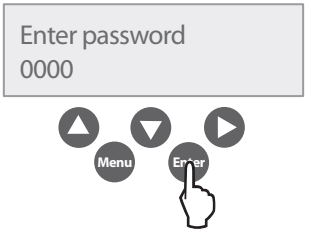
Set Up as a High Flow Shut Off Device With a Stand Alone Controller

Be Sure Unit is Set Up Through Step 1 Above Before Continuing

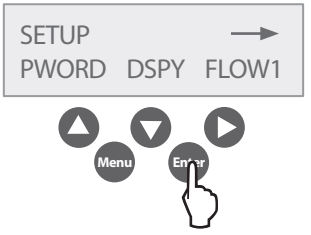
1. Press MENU (A) to enter Programming Mode. Press ▼ (B) to go to the Password Screen.



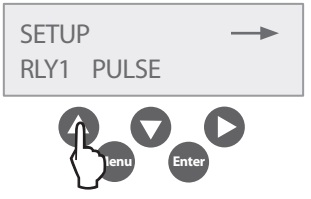
2. Use the arrow keys to enter a 4 digit password then press ENTER OR press ENTER to bypass using a password.



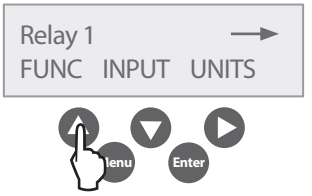
3. At the Setup screen, press ENTER.



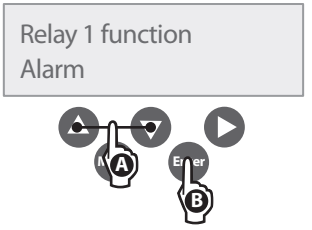
4. Press for RLY1.



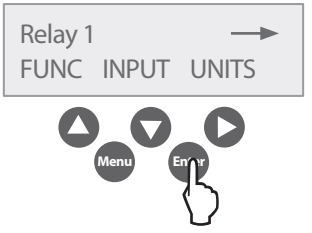
5. Press ▲ for FUNC.



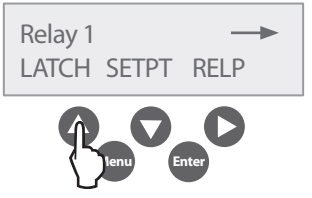
6. Press ▲ or ▼ (A) until ALARM appears. Press ENTER (B) to SAVE.



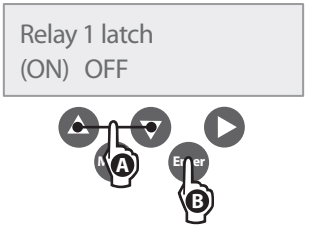
7. Press ENTER.



8. Press ▲.

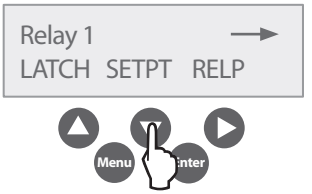


9. Press ▲ or ▼ (A) until brackets are around "ON" then press ENTER (B).

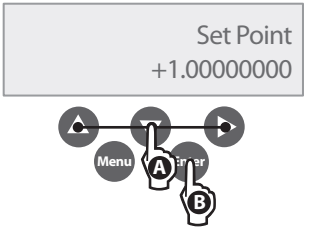


Step 2a cont.

10. Press ▼ for SET POINT.



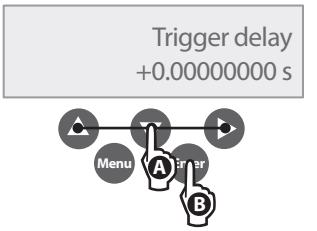
11. Use the ▲ ▼ ▶ keys (A) to set the Flow Threshold Amount. (This amount, once exceeded, will cause the PT3002 to break the common and close the master valve, stopping flow.) Press ENTER (B) when done.



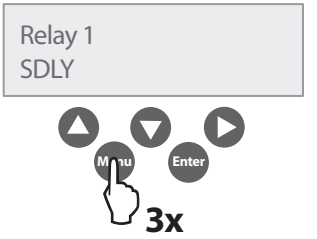
12. Press ENTER.

13. Press ▲ .

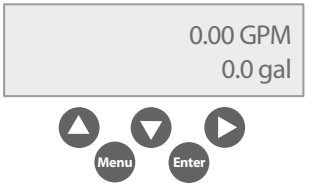
14. Use the ▲ ▼ ▶ keys (A) to set the number of desired seconds for the PT3002 to wait before breaking the valve common and closing the Master Valve once a High Flow occurs. Press ENTER (B) to SAVE.



15. Press MENU until you arrive at the GPM / Total Screen.



16. The screen will look as to the right.

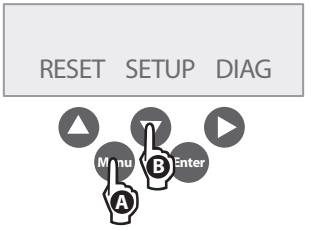


Step 2b

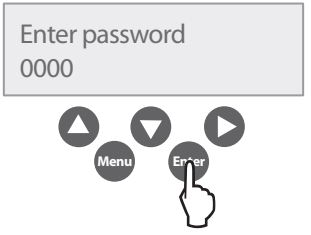
Set Up For Use With Central Control

Be Sure Unit is Set Up Through Step 1 Above Before Continuing

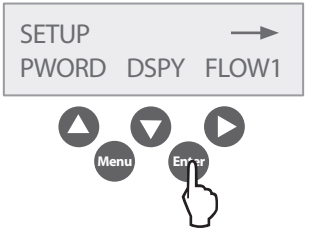
1. Press MENU (A) to enter Programming Mode. Press ▼ (B) to go to the Password Screen.



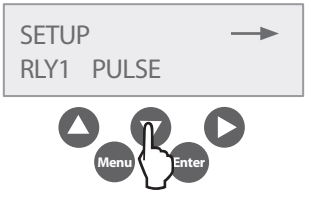
2. Use the arrow keys to enter a 4 digit password then press ENTER OR press ENTER to bypass using a password.



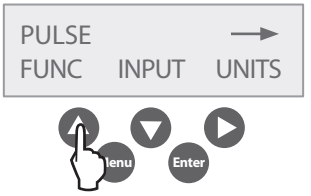
3. At the Setup screen, press ENTER.



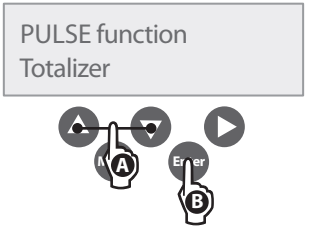
4. Press ▼ for PULSE.



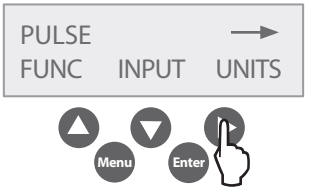
5. Press ▲ for FUNC.



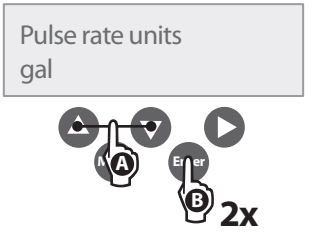
6. Press ▲ or ▼ (A) until "TOTALIZER" is displayed and then press ENTER (B).



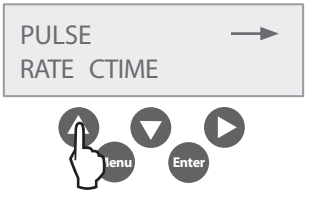
7. Press ▶ to set PULSE RATE UNITS.



8. Press ▲ or ▼ (A) until "gal" is displayed. Press ENTER (B) to SAVE, then press ENTER again.

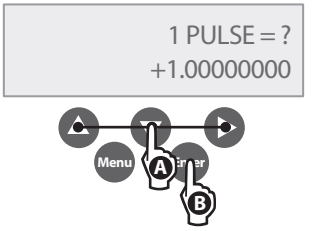


9. Press ▲ to SET RATE.

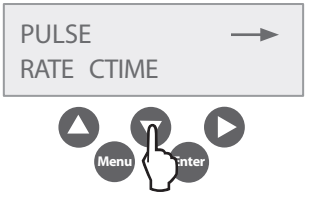


Step 2b cont.

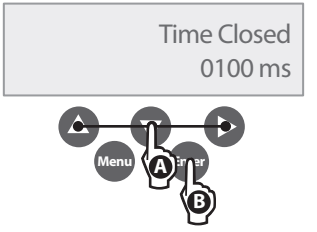
10. Use the ▲ ▼ ▶ keys (A) to SET PULSE. (**Note:** this will normally be set to +1.00000000). Press ENTER (B) to SAVE.



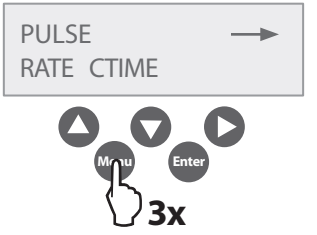
11. Press ▼ to SET CLOSETIME.



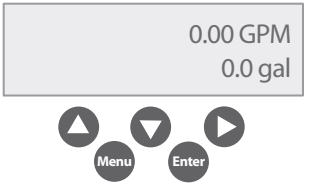
12. Use the ▲ ▼ ▶ keys (A) to SET CLOSETIME. (**Note:** this will normally be set 100 ms). Press ENTER (B) to SAVE.



13. Press MENU three (3) times to return to Flow Total Screen.



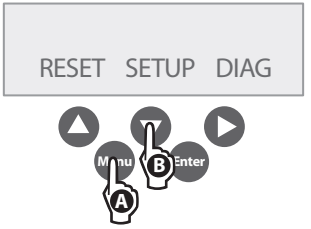
14. The screen will look as to the right.



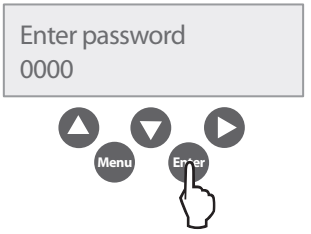
Step 3a

Anemometer Set Up

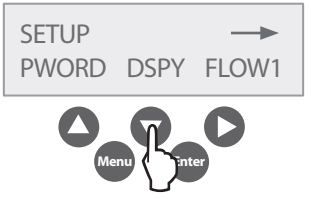
1. Press MENU (A) to enter programming mode. May require pressing MENU multiple times until the screen (right) is reached. Press ▼ (B) to go to the Password screen.



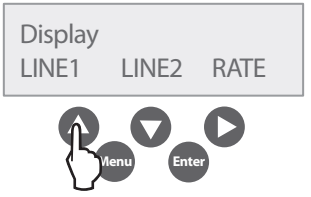
2. Use the arrow keys to enter a 4 digit password and then press ENTER OR press ENTER to bypass using a password.



3. At the Setup Menu press ▼ to go to the Display screen.

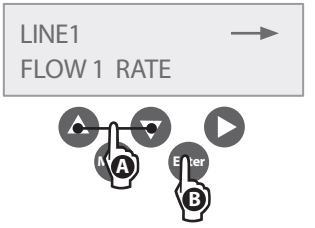


4. Press ▲ to go to the LINE 1 screen.

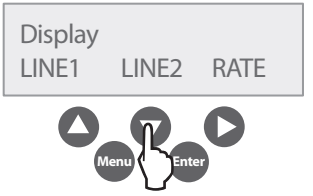


5. Set Flow 1 to "Rate" by pressing ▲ or ▼ (A) to toggle through options. Select 'RATE" and press ENTER (B). Screen will flash Saved and return to Display screen.

   (Flow 1 options are Rate or Total)

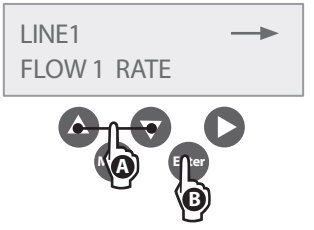


6. Press ▼ to go to the LINE 2 screen.

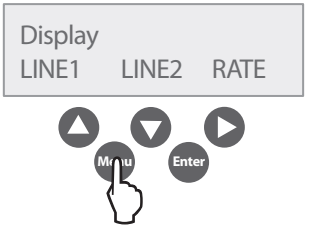


7. Set Flow 1 to "Rate" by pressing ▲ or ▼ (A) to toggle through options. Select 'RATE" and press ENTER (B). Screen will flash Saved and return to Display screen.

   (Flow 1 options are Rate or Total)

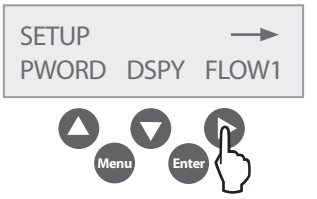


8. Press MENU once to return to SETUP screen.

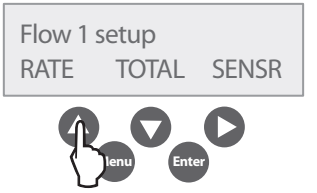


Step 3a cont.

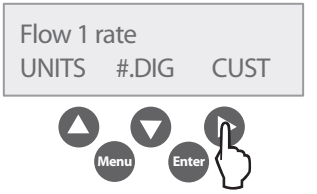
9. At the Setup menu press to go to the Flow 1 Setup Screen.



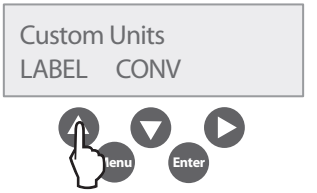
10. Press ▲ to go to the Flow 1 Rate screen.



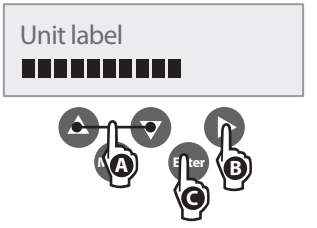
11. Press to go to the Custom Units screen.



12. Press ▲ to go to the Unit LABEL screen.



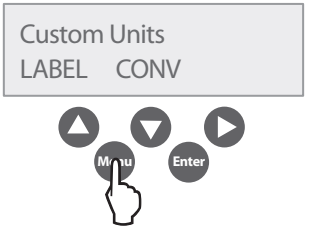
13. Unit labels may be up to 10 alpha and/or numeric characters. Use ▲ or ▼ (A) to select alpha or numeric character. Use ▶ (B) to move to next character position.



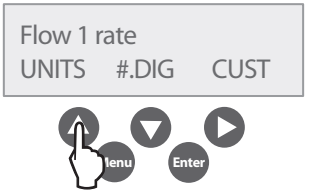
When complete press ENTER (C). The screen will flash Saved and return to the Custom units screen.

For example to set up "MPH"; continue to press ▲ until the letter "M" appears. Press ▶ to move to the next character. Continue to press ▲ until the letter "P" appears. Press ▶ to move to the next character. Continue to press ▲ until the letter "H" appears. Press ENTER.

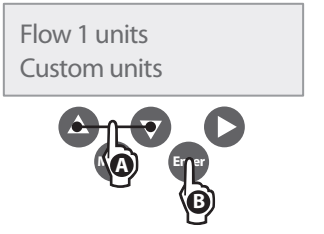
14. Press MENU once to return to the Flow 1 rate screen.



15. Press ▲ to go to Flow 1 units screen.

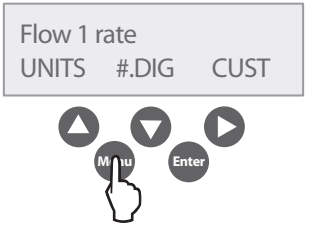


16. Set Flow 1 units to "Custom units" by pressing ▲ or ▼ (A) to toggle through options. Select 'Custom units" and press ENTER (B). Screen will flash "SAVED" and return to Flow 1 rate screen.

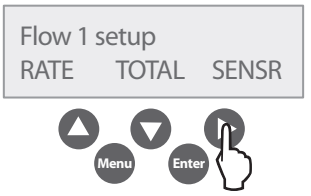


(Flow 1 units options are bbl/hr, bbl/min, bbl/s, acre-ft/hr, acre-ft/min, acre-ft/s, m^3/hr, m^3/min, m^3/s, ft^3/hr, ft^3/min, ft^3/s, L/hr, LPM, L/s, Mgal/day, gal/hr, gal/s, GPM and Custom units)

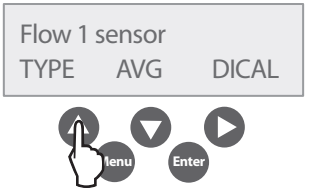
17. Press MENU to return to the Flow 1 setup screen.



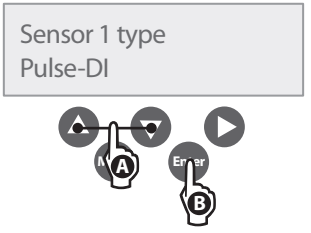
18. Press ▶ to go to the Flow 1 Sensor screen.



19. Press ▲ to go to the Sensor 1 Type screen.

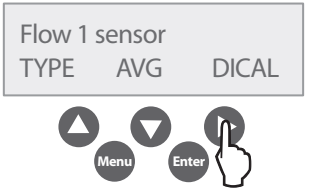


20. Press ▲ or ▼ (A) to see type options. Use the Pulse-DI option. Press ENTER (B). The screen will flash "SAVED" and return to the Flow 1 Sensor screen.

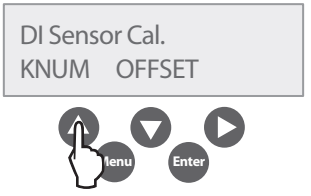


(Options are: Analog, Sine-K Factor, Pullup-K Factor, Pulse-K Factor and Pulse-DI

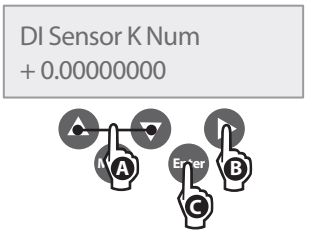
21. Press ▶ to go to the DI Sensor Cal. screen.



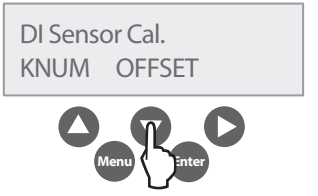
22. Press ▲ to go to the DI Sensor K NUM screen.



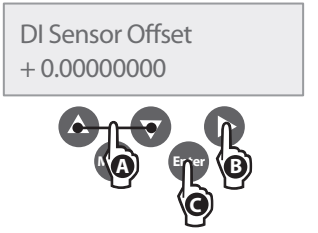
23. K is numeric. Use the K supplied by the manufacturer. Use ▲ or ▼ (A) to select number. Use ▶ (B) to move to next character position. When complete press ENTER (C). The screen will flash "SAVED" and return to the DI Sensor Cal. (Rain Bird Anemometer = 1.6965)



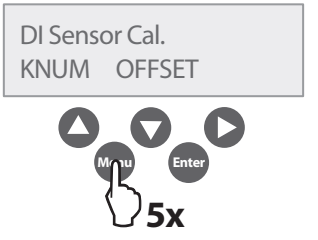
24. Press ▼ to go to the DI Sensor Offset screen.



25. Offset is numeric. Use the offset supplied by the manufacturer. Use ▲ or ▼ (A) to select number. Use ▶ (B) to move to next character position. When complete press ENTER (C). The screen will flash "SAVED" and return to the DI Sensor Cal. (Rain Bird Anemometer = 0.059)

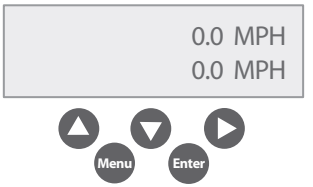


26. Press the MENU five times to return to the wind speed display screen.



Step 3b cont.

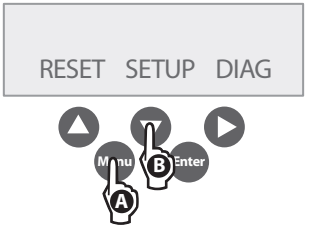
27. Finsihed.



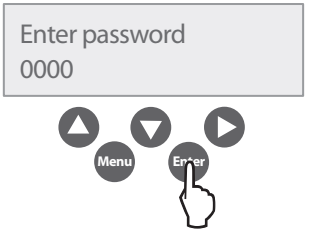
Step 3b

Anemometer Programming

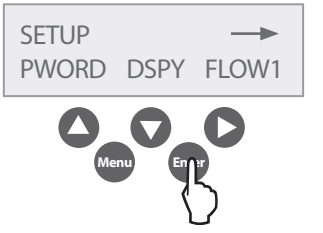
1. Press MENU (A) to enter programming mode. May require pressing MENU multiple times until the screen (right) is reached. Press ▼ (B) to go to the Password screen.



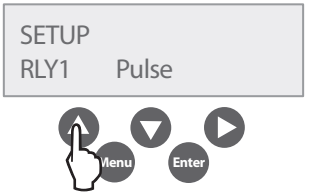
2. Use the arrow keys to enter a 4 digit password and then press ENTER OR press ENTER to bypass using a password.



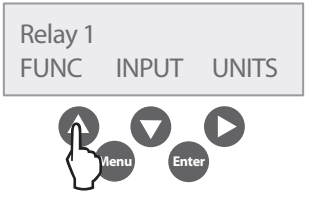
3. At the Setup Menu press ENTER to go to the Setup screen.



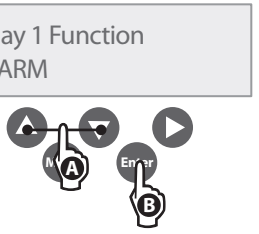
4. Press ▲ to go to the Relay 1 screen.



5. Press ▲ to go to Relay 1 function screen.

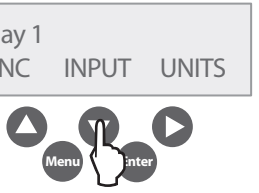


6. Set Relay 1 function to "Alarm" by pressing ▲ or ▼ (A) to toggle through options. Select 'Alarm" and press ENTER (B). Screen will flash "SAVED" and return to Relay 1 screen.

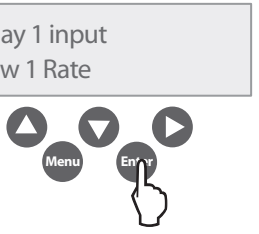


(Relay 1 function options are Totalizer, Manual Control and Alarm)

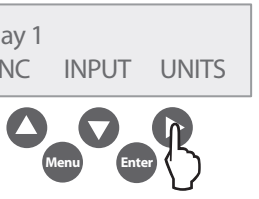
7. Press ▼ to go to the Relay 1 input screen.



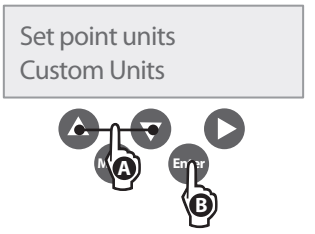
8. Press ENTER. The screen flashes "SAVED" and returns to Relay 1 screen.



9. Press ▶ to go to Set point units screen.

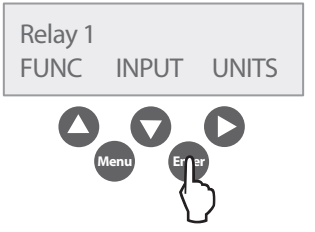


10. Set, set point units to "Custom units" by pressing ▲ or ▼ (A) to toggle through options. Select 'Custom units" and press ENTER (B). Screen will flash "SAVED" and return to Flow 1 rate screen.

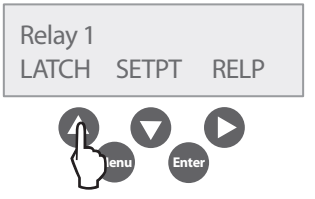


(Flow 1 units options are bbl/hr, bbl/min, bbl/s, acre-ft/hr, acre-ft/min, acre-ft/s, m^3/hr, m^3/min, m^3/s, ft^3/hr, ft^3/min, ft^3/s, L/hr, LPM, L/s, Mgal/day, gal/hr, gal/s, GPM and Custom units)

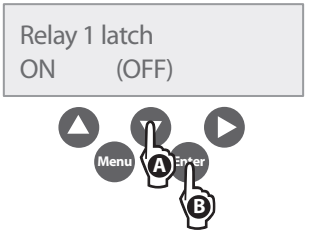
11. Press ENTER to go to next Relay 1 screen.



12. Press ▲ to go to Relay 1 latch screen.

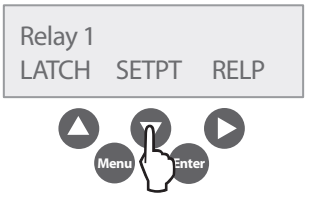


13. Press ▼ (A) to select OFF and press ENTER (B). Screen flashes "SAVED" and returns to Relay 1 screen.

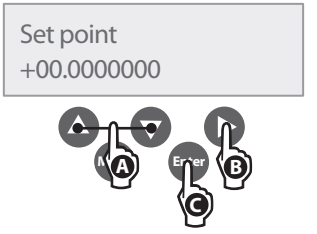


Step 3b cont.

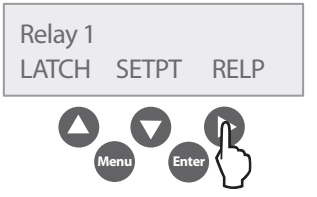
14. Press ▼ to go to Set point screen.



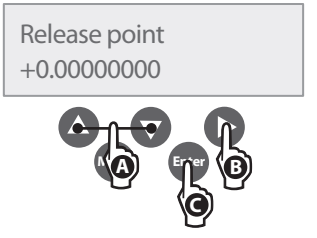
15. Set Point is numeric. Set the number of Miles Per Hour at which you desire to activate the relay. Use ▲ or ▼ (A) to select number. Use ▶ (B) to move to next character position. When complete press ENTER (C). The screen will flash "SAVED" and return to the Relay 1 screen.



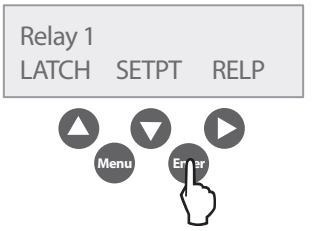
17. Press ▶ to go to Release point screen.



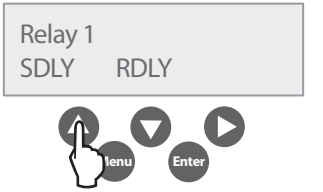
18. Release point is numeric. Set the number of Miles Per Hour at which you desire to release the relay. Use or (A) to select number. Use (B) to move to next character position. When complete press ENTER (C). The screen will flash "SAVED" and return to the Relay 1 screen.



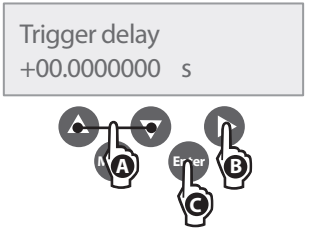
19. Press ENTER to go to Relay 1 screen.



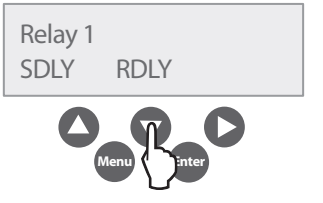
20. Press ▲ to go to Trigger delay screen.



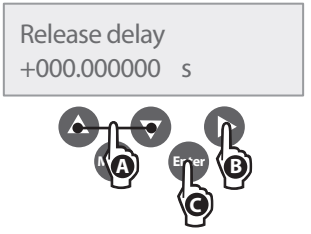
21. Trigger delay is numeric. Set the number of seconds the MPH should continuously be equal to or greater than the Set Point (relay activation). Use ▲ or ▼ (A) to select number. Use ▶ (B) to move to next character position. When complete press ENTER (C). The screen will flash "SAVED" and return to the Relay 1 screen.



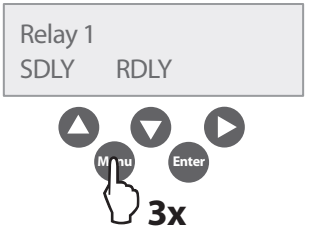
22. Press ▼ to go to Release delay screen.



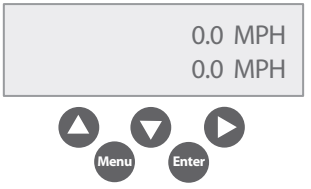
23. Release delay is numeric. Set the number of seconds the MPH should continuously be equal to or greater than the Release Point (release relay). Use ▲ or ▼ (A) to select number. Use ▶ (B) to move to next character position. When complete press ENTER (C). The screen will flash "SAVED" and return to the Relay 1 screen.



24. Press MENU three times to return to MPH display screen.

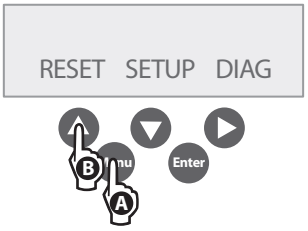


25. Finsihed.

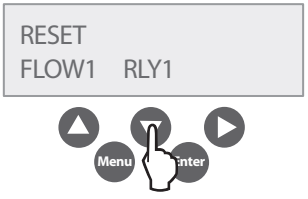


Resetting the 3002 After a High Flow Occurrence

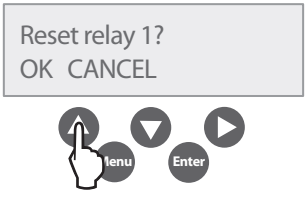
1. Press MENU (A) to enter Programming Mode. Press ▲ (B) to go to the Reset Screen.



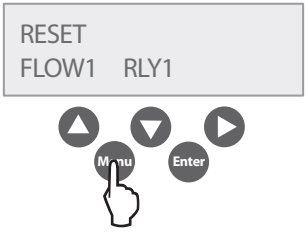
2. Press ▼ to Reset Relay.



3. Press ▲ (OK) to Reset.

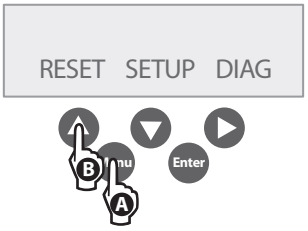


4. Press MENU twice to return to the GPM / Total Screen.

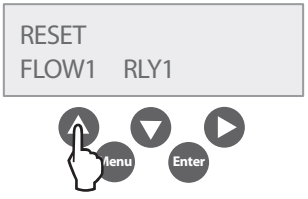


Resetting the 3002 To Zero Total Flow Readings

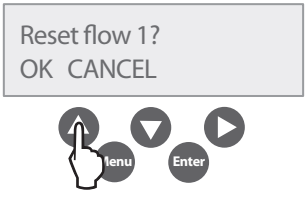
1. Press MENU (A) to enter Programming Mode. Press ▲ (B) to go to the Reset Screen.



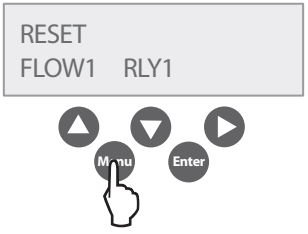
2. Press ▲ to Reset Flow.



3. Press ▲ (OK) to Reset.



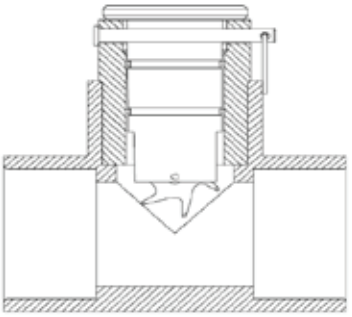
4. Press MENU twice to return to the GPM / Total Screen.



Appendix A

For Tee Type Flow Sensors and Anemometer Rain Bird Models Fs200B, FS150B, FS100B, FS400P, FS300P, FS200P, FS150P, FS100P, FS075P, FS050P and ANEMOMETER.

The following table indicates the suggested flow range for Rain Bird Flow Sensors. Rain Bird Sensors will operate both above and below the indicated flow rate. However, good design practice dictates the use of this range for best performance. Sensors should be sized for flow rather than pipe size.



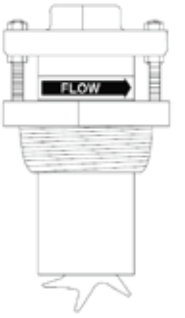
Rain Bird Flow Sensor and Anemometer: K Value, Offset and Suggested Operating Range

Model	Description	K Value	Offset	Suggested Operating Range (Gallons/Minute)	Suggested Operating Range (Liters/Minute)	Suggested Operating Range (Cubic Meters/Hour)
Brass Tee's						
FS200B	2" Brass T Flow Sensor	2.747	0	4.9 - 294	18.5 - 1112	1.1 - 66.7
FS150B	1 1/2" Brass T Flow Sensor	1.06526	0.0892	2 - 82.6	6.3 - 313	0.4 - 18.7
FS100B	1" Brass T Flow Sensor	0.41447	0.44117	2 - 40	6 - 150	0.5 - 9
Plastic Tee's						
FS400P	4" PVC T Flow Sensor	13.7424	0.23707	40 - 500	150 - 1890	9.1 - 113.6
FS300P	3" PVC T Flow Sensor	8.309	0.227	20 - 300	78 - 1134	4.5 - 68.1
FS200P	2" PVC T Flow Sensor	2.8429	0.1435	10 - 200	36 - 756	2.3 - 45.4
FS150P	1 1/2" PVC T Flow Sensor	1.697	-0.316	5 - 100	18 - 378	1.1 - 22.7
FS100P	1" PVC T Flow Sensor	0.26112	1.2	5.4 - 53.9	20.4 - 204	1.2 - 12.2
FS075P	3/4" PVC T Flow Sensor	0.1563	0.9	3.3 - 33.2	12.6 - 125.8	0.75 - 7.5
FS050P	1/2" PVC T Flow Sensor	0.078	0.9	1.9 - 18.9	7.2 - 71.7	0.43 - 4.3
Wind Speed Sensor						
ANEMOMETER	Brass Insert Flow Sensor	1.6965	0.059	NA		

Appendix B

For Insert Type Flow Sensors Rain Bird Models FS350B or FS350SS

The following table indicates the suggested flow range for Rain Bird Flow Sensors. Rain Bird Sensors will operate both above and below the indicated flow rate. However, good design practice dictates the use of this range for best performance. Sensors should be sized for flow rather than pipe size.



FS350B and FS350SS: K Value, Offset and Suggested Operating Range

Pipe Size	Pipe O.D.	Pipe I.D.	K Value	Offset	Suggested Operating Range (Gallons/Minute)	Suggested Operating Range (Liters/Minute)	Suggested Operating Range (Cubic Meters/Hour)
3 inch Sch 10S	3.500"	3.260"	5.009	0.09	12-400	50-1500	0-90
Std. Wt., Sch 40	3.5"	3.068"	4.362	0.063	12-400	50-1500	0-90
Extra Strong, Sch 80	3.5"	2.900"	3.858	0.043	12-400	50-1500	0-90
PVC Class 125	3.5"	3.284"	5.094	0.093	12-400	50-1500	0-90
PVC Class 160	3.5"	3.230"	4.902	0.085	12-400	50-1500	0-90
PVC Class 200	3.5"	3.166"	4.682	0.076	12-400	50-1500	0-90
4 inch Sch 10S	4.5"	4.260"	9.597	0.241	20-600	80-2300	0-140
Std. Wt., Sch 40	4.5"	4.026"	8.34	0.229	20-600	80-2300	0-140
Extra Strong, Sch 80	4.5"	3.826"	7.354	0.188	20-600	80-2300	0-140
PVC Class 125	4.5"	4.224"	9.396	0.24	20-600	80-2300	0-140
PVC Class 160	4.5"	4.154"	9.013	0.24	20-600	80-2300	0-140
PVC Class 200	4.5"	4.072"	8.578	0.239	20-600	80-2300	0-140
5 inch Sch 10S	5.563"	5.295"	16.305	0.25	30-900	110-3400	10-200
Std. Wt., Sch 40	5.50"	5.047"	14.674	0.248	30-900	110-3400	10-200
Extra Strong, Sch 80	5.50"	4.813"	13.165	0.246	30-900	110-3400	10-200
6 inch Sch 10S	6.625"	6.357"	24.089	0.26	50-1,500	190-5700	10-340
Std. Wt., Sch 40	6.5"	6.065"	21.574	0.257	50-1,500	190-5700	10-340
Extra Strong, Sch 80	6.5"	5.761"	19.457	0.254	50-1,500	190-5700	10-340
PVC Class 125	6.625"	6.217"	22.853	0.258	50-1,500	190-5700	10-340
PVC Class 160	6.625"	6.115"	21.968	0.257	50-1,500	190-5700	10-340
PVC Class 200	6.625"	5.993"	21.068	0.256	50-1,500	190-5700	10-340
8 inch Sch 10S	8.625"	8.329"	43.914	0.286	80-2,500	300-9500	20-570
Sch 20	8.625"	8.125"	41.653	0.283	80-2,500	300-9500	20-570
Sch 30	8.625"	8.071"	41.063	0.283	80-2,500	300-9500	20-570
Std. Wt., Sch 40	8.625"	7.981"	40.086	0.281	80-2,500	300-9500	20-570
Sch 60	8.625"	7.813"	38.288	0.279	80-2,500	300-9500	20-570
Extra Strong, Sch 80	8.625"	7.625"	36.315	0.276	80-2,500	300-9500	20-570
PVC Class 125	8.625"	8.095"	41.324	0.283	80-2,500	300-9500	20-570
PVC Class 160	8.625"	7.961"	39.869	0.281	80-2,500	300-9500	20-570
PVC Class 200	8.625"	7.805"	38.203	0.279	80-2,500	300-9500	20-570
10 inch Sch 10S	10.75"	10.420"	70.195	0.321	125-4,000	470-15100	30-910
Sch 20	10.75"	10.250"	67.668	0.318	125-4,000	470-15100	30-910
Sch 30	10.75"	10.136"	66.069	0.316	125-4,000	470-15100	30-910

FS350B and FS350SS: K Value, Offset and Suggested Operating Range

Pipe Size	Pipe O.D.	Pipe I.D.	K Value	Offset	Suggested Operating Range (Gallons/Minute)	Suggested Operating Range (Liters/Minute)	Suggested Operating Range (Cubic Meters/Hour)
Sch 40, Std.Wt.	10.75"	10.020"	64.532	0.314	125-4,000	470-15100	30-910
Extra Strong, Sch 60	10.75"	9.750"	61.016	0.309	125-4,000	470-15100	30-910
Sch 80	10.75"	9.564"	58.644	0.306	125-4,000	470-15100	30-910
PVC Class 125	10.75"	10.088"	65.431	0.315	125-4,000	470-15100	30-910
PVC Class 160	10.75"	9.924"	63.272	0.312	125-4,000	470-15100	30-910
PVC Class 200	10.75"	9.728"	60.733	0.309	125-4,000	470-15100	30-910
12 inch Sch 10S	12.75"	12.390"	104.636	0.367	175-5,000	660-18900	40-1140
Sch 20	12.75"	12.250"	102.553	0.364	175-5,000	660-18900	40-1140
Sch 30	12.75"	12.090"	99.347	0.36	175-5,000	660-18900	40-1140
Std. Wt., Sch 40S	12.75"	12.000"	97.576	0.358	175-5,000	660-18900	40-1140
Sch 40	12.75"	11.938"	96.369	0.356	175-5,000	660-18900	40-1140
Sch 60	12.75"	11.625"	90.441	0.348	175-5,000	660-18900	40-1140
Extra Strong	12.75"	11.750"	92.775	0.351	175-5,000	660-18900	40-1140
Sch 80	12.74"	11.376"	85.922	0.342	175-5,000	660-18900	40-1140
PVC Class 125	12.75"	11.966"	96.912	0.357	175-5,000	660-18900	40-1140
PVC Class 160	12.75"	11.770"	93.152	0.352	175-5,000	660-18900	40-1140
PVC Class 200	12.75"	11.538"	88.842	0.346	175-5,000	660-18900	40-1140
14 inch Sch 10S	14.00"	13.500"	122.307	0.391	200-6,000	760-22700	50-1360
Sch 20	14.00"	13.375"	120.216	0.388	200-6,000	760-22700	50-1360
Std. Wt., Sch 30	14.00"	13.250"	118.151	0.385	200-6,000	760-22700	50-1360
Sch 40	14.00"	13.124"	116.096	0.382	200-6,000	760-22700	50-1360
Sch 60	14.00"	12.814"	111.148	0.376	200-6,000	760-22700	50-1360
Extra Strong	14.00"	13.00"	114.098	0.33	200-6,000	760-22700	50-1360
Sch 80	14.00"	12.50"	106.299	0.369	200-6,000	760-22700	50-1360
16 inch Sch 10S	16.00"	15.500"	159.243	0.44	300-9,000	1140-34100	70-2040
Sch 20	16.00"	15.375"	156.742	0.436	300-9,000	1140-34100	70-2040
Std. Wt., Sch 30	16.00"	15.250"	154.267	0.433	300-9,000	1140-34100	70-2040
Sch 60	16.00"	14.688"	143.456	0.419	300-9,000	1140-34100	70-2040
Extra Strong, Sch 40	16.00"	15.000"	149.394	0.427	300-9,000	1140-34100	70-2040
Sch 80	16.00"	14.314"	136.548	0.41	300-9,000	1140-34100	70-2040
18 inch Sch 10S	18.00"	17.500"	202.739	0.498	350-10,000	1320-37900	80-2270
Sch 20	18.00"	17.375"	199.828	0.494	350-10,000	1320-37900	80-2270
Sch 30	18.00"	17.124"	194.061	0.486	350-10,000	1320-37900	80-2270
Std. Wt.	18.00"	17.250"	196.943	0.49	350-10,000	1320-37900	80-2270
Sch 40	18.00"	16.876"	188.464	0.479	350-10,000	1320-37900	80-2270
Sch 60	18.00"	16.500"	180.171	0.469	350-10,000	1320-37900	80-2270
Extra Strong	18.00"	17.000"	191.25	0.482	350-10,000	1320-37900	80-2270
Sch 80	18.00"	16.126"	172.152	0.457	350-10,000	1320-37900	80-2270
20 inch Std. Wt., Sch 20	20.00"	19.25"	246.179	0.555	400-12,000	1510-45400	90-2730
Sch 40	20.00"	18.812"	234.836	0.54	400-12,000	1510-45400	90-2730
Extra Strong, Sch 30	20.00"	19.000"	239.666	0.547	400-12,000	1510-45400	90-2730
Sch 80	20.00"	17.938"	213.14	0.511	400-12,000	1510-45400	90-2730
22 inch Std. Wt., Sch 20	22.00"	21.25"	301.975	0.621	500-15,000	1890-56800	110-3410
Extra Strong, Sch 30	22.00"	21.00"	294.642	0.616	500-15,000	1890-56800	110-3410
Sch 80	22.00"	19.75"	259.513	0.573	500-15,000	1890-56800	110-3410

Appendix B (cont.)

FS350B and FS350SS: K Value, Offset and Suggested Operating Range

Pipe Size	Pipe O.D.	Pipe I.D.	K Value	Offset	Suggested Operating Range (Gallons/Minute)	Suggested Operating Range (Liters/Minute)	Suggested Operating Range (Cubic Meters/Hour)
24 inch Std. Wt., Sch 20	24.00"	23.25"	364.331	0.666	600-18,000	2270-68100	140-4090
Extra Strong	24.00"	23.00"	356.178	0.66	600-18,000	2270-68100	140-4090
Sch 40	24.00"	22.624"	344.109	0.652	600-18,000	2270-68100	140-4090
Sch 80	24.00"	21.562"	311.271	0.628	600-18,000	2270-68100	140-4090
26 inch Sch 10	26.00"	25.376"	437.809	0.719	700-21,000	2650-79500	160-4770
Std. Wt.	26.00"	25.25"	433.247	0.716	700-21,000	2650-79500	160-4770
Sch 20, Extra Strong	26.00"	25.00"	424.274	0.709	700-21,000	2650-79500	160-4770
28 inch Sch 10	28.00"	27.376"	513.698	0.774	900-23,000	3410-87100	200-5220
Std. Wt.	28.00"	27.25"	508.723	0.77	900-23,000	3410-87100	200-5220
Extra Strong, Sch 20	28.00"	27.00"	498.93	0.763	900-23,000	3410-87100	200-5220
30 inch Sch 10	30.00"	29.376"	596.147	0.833	1,000-30,000	3790-113600	230-6810
Std. Wt.	30.00"	29.25"	590.759	0.829	1,000-30,000	3790-113600	230-6810
Sch 20, Extra Strong	30.00"	29.00"	580.146	0.822	1,000-30,000	3790-113600	230-6810
32 inch Sch 10	32.00"	31.376"	685.156	0.897	1,200-35,000	4540-132500	270-7950
Std. Wt.	32.00"	31.25"	679.355	0.893	1,200-35,000	4540-132500	270-7950
Sch 20, Extra Strong	32.00"	31.00"	667.922	0.885	1,200-35,000	4540-132500	270-7950
Sch 40	32.00"	30.624"	650.919	0.873	1,200-35,000	4540-132500	270-7950
34 inch Sch 10	34.00"	33.312"	777.566	0.964	1,300-40,000	4920-151400	300-9080
Std. Wt.	34.00"	33.25"	774.511	0.962	1,300-40,000	4920-151400	300-9080
Extra Strong, Sch 20	34.00"	33.00"	762.258	0.953	1,300-40,000	4920-151400	300-9080
Sch 40	34.00"	32.624"	744.022	0.94	1,300-40,000	4920-151400	300-9080
36 inch Sch 10	36.00"	35.376"	882.855	1.04	1,500-45,000	5680-170300	340-10220
Std. Wt.	36.00"	35.25"	876.227	1.035	1,500-45,000	5680-170300	340-10220
Sch 20, Extra Strong	36.00"	35.00"	863.154	1.025	1,500-45,000	5680-170300	340-10220
Sch 40	36.00"	34.50"	837.315	1.007	1,500-45,000	5680-170300	340-10220

Contenidos

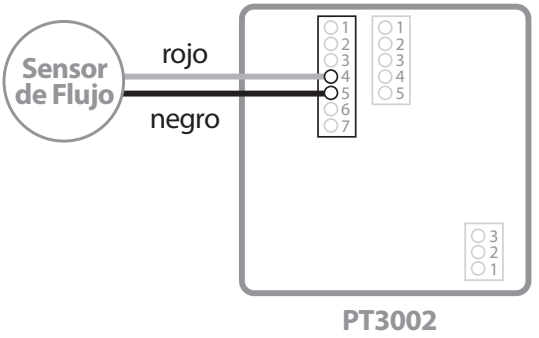
ENG
page 2

ESP

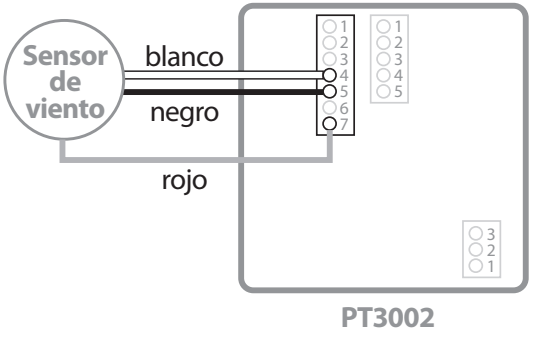
ESP

Instrucciones de cableado

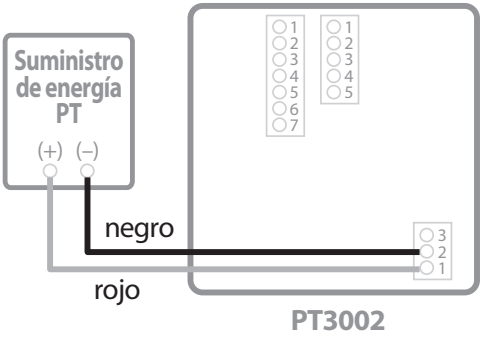
NOTA: Consulte el instructivo del monitor de flujo PT3002 y NEMACAB para instrucciones más detalladas.



Conecte el cable rojo del sensor de flujo a la terminal cuatro del bloque de siete terminales. Conecte el cable negro del sensor de flujo a la terminal cinco del bloque de siete terminales. Vea la etiqueta del diagrama de cableado en el costado del PT3002



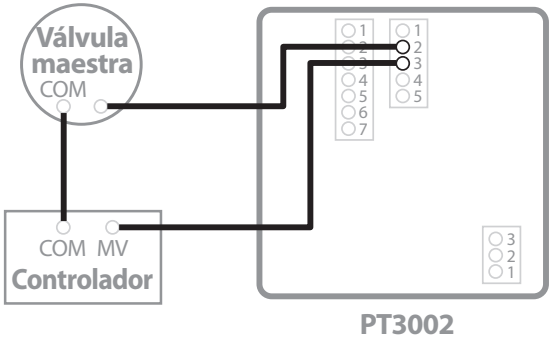
Conecte el cable blanco del sensor de viento a la terminal cuatro en el bloque de siete terminales. Conecte el cable negro del sensor de viento a la terminal cinco en el bloque de siete terminales. Conecte el cable rojo del sensor de viento a la terminal siete en el bloque de siete terminales. Vea la etiqueta del diagrama de cableado en el costado del PT3002.



Conecte el cable rojo(+) del suministro eléctrico PT a la terminal uno del bloque de terminales de tres puertos. Conecte el cable negro / blanco (-) a la terminal dos del bloque de terminales de tres puertos.

Para usar como un dispositivo de apagado de alto flujo con un controlador independiente

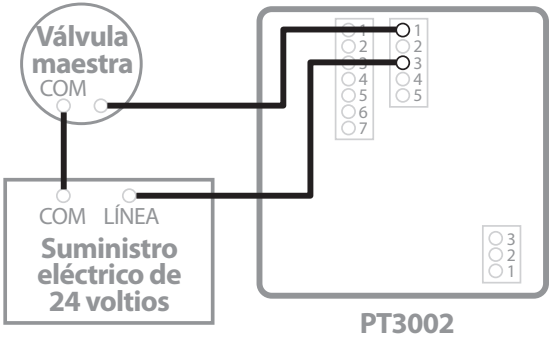
Usando una válvula maestra normalmente cerrada



Conecte uno de los cables del solenoide de la válvula a la terminal del Relé 1 2NC. Conecte el cable de la terminal del Relé 1 COM 3 a la terminal de la válvula maestra en el controlador.

Nota: Conecte el cable común de la válvula maestra al controlador como en cualquier instalación normal.

Usando una válvula maestra normalmente abierta

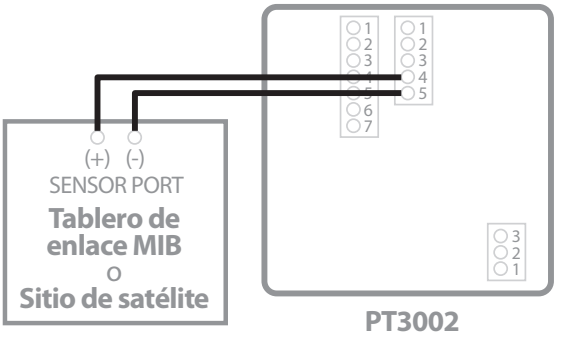


Conecte uno de los cables del solenoide de la válvula maestra a la terminal del relé 1 NO 1. Conecte el segundo cable del solenoide de la válvula a una fuente auxiliar de energía de 24 voltios. Conecte el cable del Relé 1 COM 3 al otro cable de la fuente auxiliar de energía. Cuando ocurre una condición de alto flujo el relé interno se cierra, activando la válvula maestra que está normalmente abierta y cerrándola.

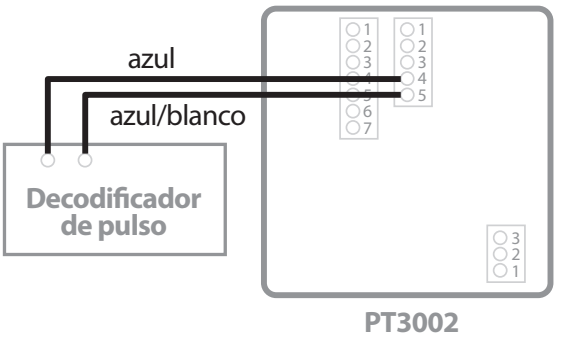
Instrucciones de cableado (cont.)

Para salida hacia Maxicom® o Site Control

(complete el paso **1** de las páginas 18 a la 20 y el paso **2b** en las páginas 23 a la 24)

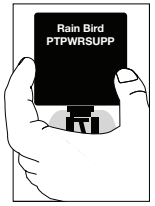


Conecte el cable desde la salida de la terminal 4 del pulso 1 a la terminal (+) del sensor de puerto en un tablero de enlace MIB ó a un sitio de satélite. Conecte el cable desde la salida de la terminal 5 del pulso 2 a la terminal negativa (-) del sensor de puerto en un tablero de enlace MIB ó a un sitio de satélite.



Conecte el cable desde la salida de la terminal 4 del pulso1 al cable azul de un decodificador de pulso si se están usando dos cables de comunicación entre un CCU y un controlador de satélite. Conecte el cable desde la salida de la terminal 5 del pulso 2 al cable azul/blanco de un decodificador de pulso.

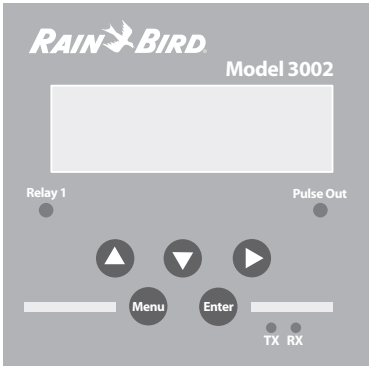
Encendido inicial



Conecte el suministro eléctrico del monitor de flujo PT3002 a una salida de corriente de 120 VAC.

Cuando el PT3002 es inicialmente encendido, se realiza una auto verificación interna, mientras en la pantalla aparece "PT3002 DIC Initializing." Al final de este ciclo la pantalla vuelve a su estado normal.

Pantalla y teclado



Menu 1- Cambie al menú principal
2- Atrás/ Menú previo

Enter 1-Salvar valor
2-Adelante/Siguiente menú

▲ 1-Seleccione opción de menú
2-Incremente el valor numérico

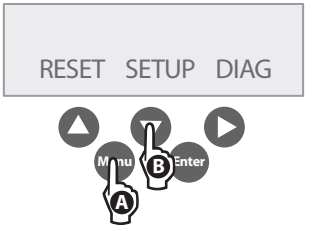
▼ 1-Seleccione opción de menú
2-Disminuya el valor numérico

▶ 1-Seleccione opción de menú
2-Mueva el cursor a la derecha

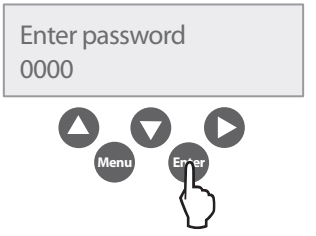
Programación general

Paso 1

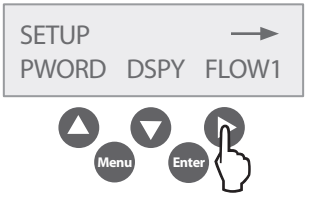
1. Presione MENU (A) para ingresar a la modalidad de programación. Presione ▼(B) para ir a la pantalla de contraseña.



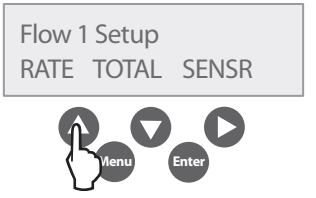
2. Utilice las teclas de flecha para ingresar una contraseña de 4 dígitos y después presione ENTER ó presione ENTER para no usar la contraseña.



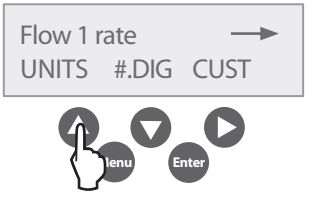
3. En el menú de configuración presione ▶ para ir a la pantalla de configuración del flujo1 (Flow 1)



4. Presione ▲ para ir a la pantalla de rango de flujo 1 (Flow 1).

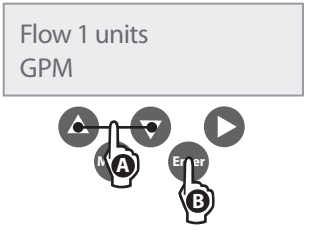


5. Presione ▲ para fijar unidades (UNITS).

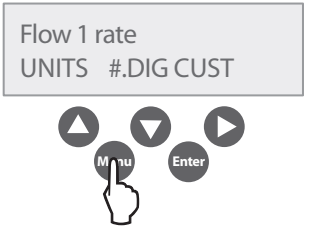


Paso 1 cont.

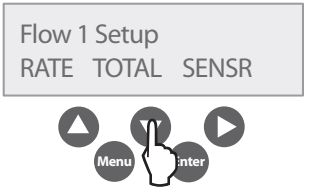
6. Fije las unidades (UNITS) para GPM* usando ▲ ó ▼ (A) y después presione ENTER (B) (el PT3002 salva la configuración). (**Nota**: GPM se usa como un ejemplo en todo el manual.)



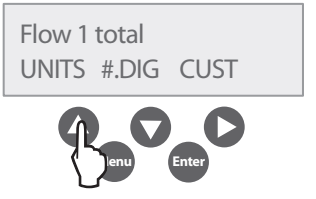
7. Presione MENU una vez para ir a la pantalla de configuración de flujo 1.



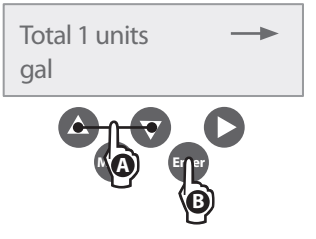
8. Presione ▼ para fijar el TOTAL.



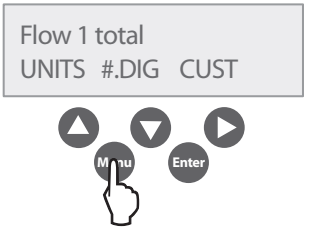
9. Presione ▲ para fijar UNITS.



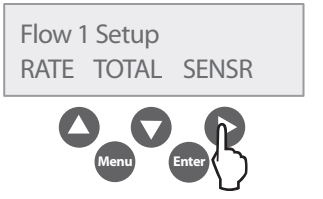
10. Fijar UNITS para gal usando ▲ ó ▼ (A) y después presione ENTER (B) (el PT3002 guarda la configuración)



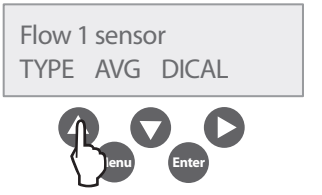
11. Presione MENU dos veces para ir a la pantalla de configuración de flujo 1.



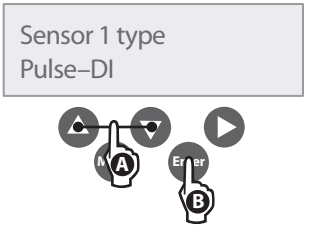
12. Presione ▶ para fijar SENSOR.



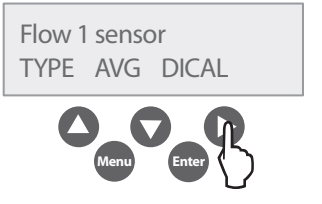
13. Presione ▲ para fijar TYPE.



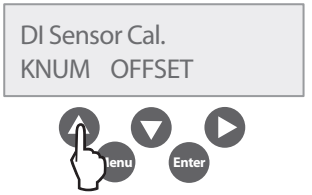
14. Presione ▲ ó ▼ (A) hasta que "Pulse –DI" aparece, después, presione ENTER (B). El PT3002 guarda la configuración y regresa a la pantalla de abajo.



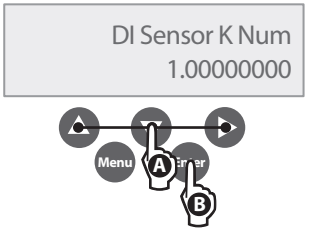
15. Presione ▶ para fijar DICAL.



16. Presione ▲ para fijar el FACTOR K del SENSOR.

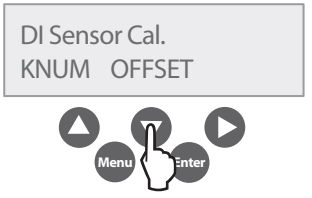


17. Utilice las teclas ▲ ▼ ▶ (A) para ingresar el FACTOR K y después presione ENTER (B) (el PT32002 guarda la configuración y regresa a la pantalla de calibración del sensor)

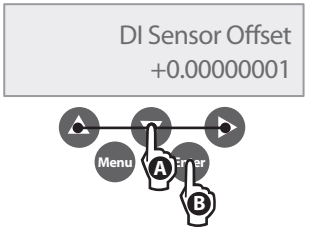


Nota: *Vea las instrucciones en las paginas 44 - 47 para información sobre el sensor K de flujo marca Rain Bird y la hoja de instrucciones ó información impresa incluida con los sensores de flujo Rain Bird.*

18. Presione ▼ para fijar SENSOR OFFSET.

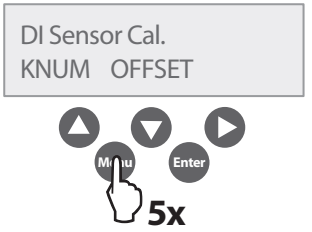


19. Utilice las teclas ▲ ▼ ▶ para ingresar el OFFSET y después presione ENTER (el PT32002 guarda la configuración y regresa a la pantalla de calibración del sensor)

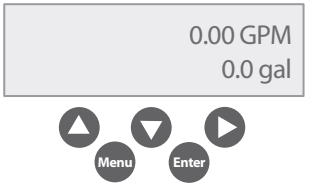


Nota: *Vea las instrucciones en las paginas 44 - 47 para información sobre el sensor K de flujo marca Rain Bird y la hoja de instrucciones ó información impresa incluida con los sensores de flujo Rain Bird.*

20. Presione MENU hasta llegar a la pantalla GPM / Total.



21. La pantalla se verá como a la derecha.



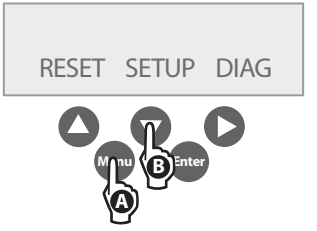
Siga los pasos 2a ó 2b para completar la configuración.

Paso 2a

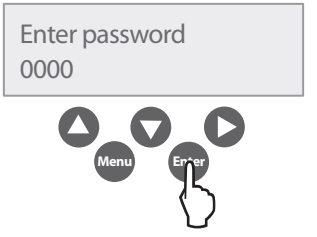
Configurar como un dispositivo de apagado de alto flujo con un controlador independiente.

Asegúrese que la unidad ha sido configurada hasta el paso (1) de arriba antes de continuar.

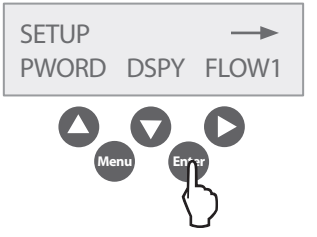
1. Presione MENU (A) para ingresar a la modalidad de programación. Presione ▼ (B) para ir a la pantalla de contraseña.



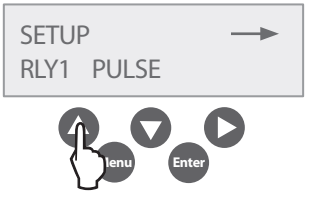
2. Utilice las teclas de flecha para ingresar una contraseña de 4 dígitos y después presione ENTER ó presione ENTER para no usar la contraseña.



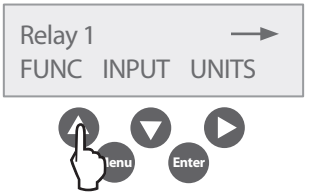
3. En la pantalla de configuración, presione ENTER.



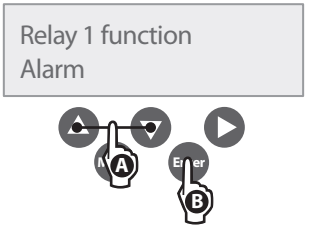
4. Presione ▲ para RLY1.



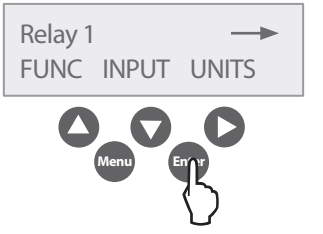
5. Presione ▲ para FUNC.



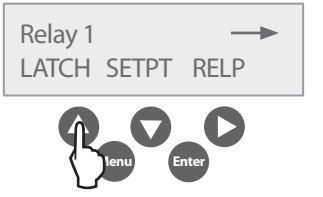
6. Presione ▲ ó ▼ (A) hasta que aparezca ALARM. Presione ENTER (B) para salvar.



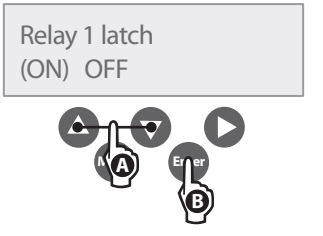
7. Presione ENTER.



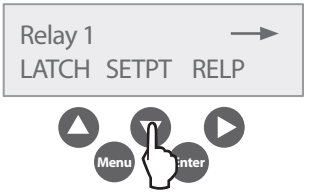
8. Presione ▲ .



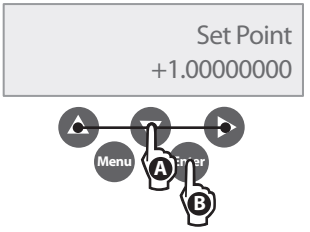
9. Presione ▲ ó ▼ (A) hasta que los paréntesis aparezcan alrededor del "ON" y después presione ENTER (B).



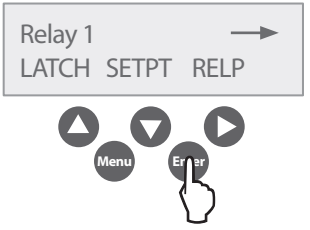
10. Presione ▼ para SET POINT.



11. Utilice las teclas ▲ ▼ ▶ (A) para fijar la cantidad de flujo límite. (Una vez excedida esta cantidad, el PT3002 causará una interrupción en el común cerrando la válvula maestra, deteniendo el flujo.) Presione ENTER (B) al concluir.

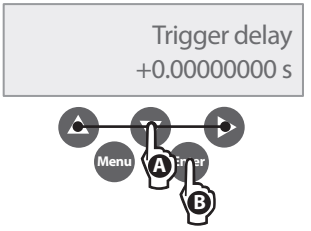


12. Presione ENTER.

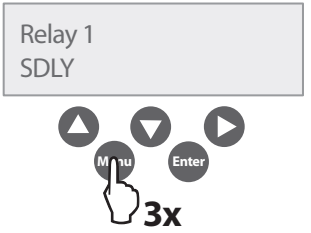


13. Presione ▲.

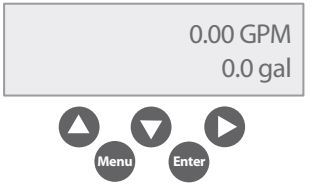
14. Utilice las teclas ▲ ▼ ▶ (A) para fijar el número de segundos deseados que el PT3002 deberá esperar antes de interrumpir el común de la válvula y cerrar la válvula maestra una vez que ocurre un alto flujo. Presione ENTER (B) para salvar.



15. Presione MENU hasta llegar a la pantalla GPM / Total.



16. La pantalla se verá como a la derecha.

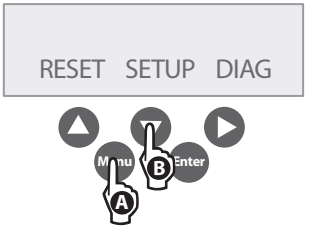


Paso 2b

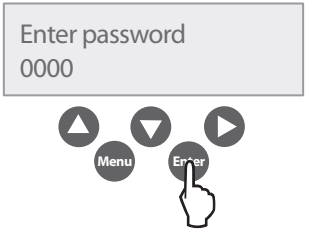
Configuración para usar con control centralizado

Asegúrese que Unit ha sido configurado por medio del paso 1 de arriba antes de continuar

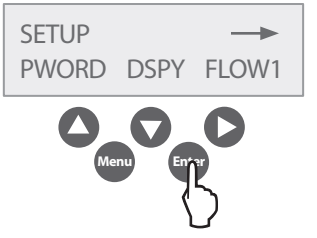
1. Presione MENU (A) para ingresar el modo de programación. Presione ▼ (B) para ir a la pantalla de contraseña.



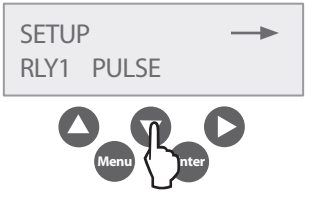
2. Utilice las teclas de flecha para ingresar una contraseña de 4 dígitos y después presione ENTER ó presione ENTER para no usar la contraseña.



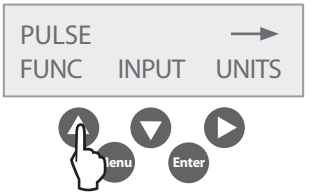
3. Presione ENTER en la pantalla de configuración.



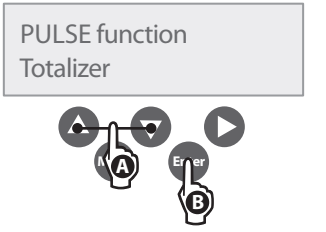
4. Presione ▼ para PULSE.



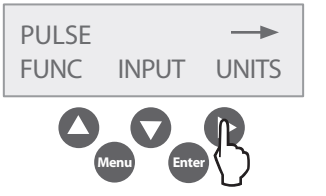
5. Presione ▲ para FUNC.



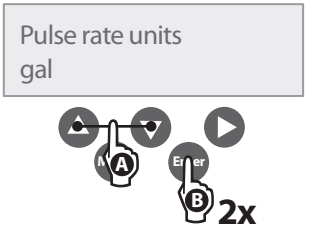
6. Presiones ▲ ó ▼ (A) hasta que aparezca "TOTALIZER" en la pantalla y después presione ENTER (B).



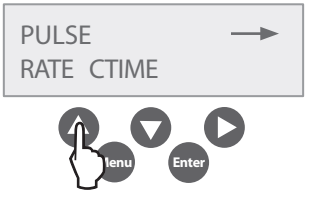
7. Presione ▶ para configurar PULSE RATE UNITS (unidades de rango de pulso).



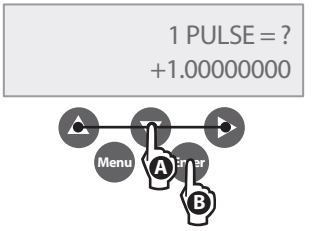
8. Presione ▲ ó ▼ (A) hasta que "gal" aparezca en la pantalla. Presione ENTER (B) para salvar), y después presione ENTER de nuevo.



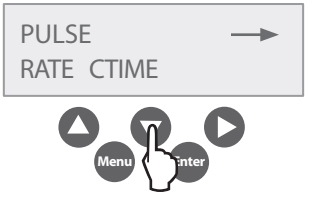
9. Presione ▲ para fijar el rango (SET RATE).



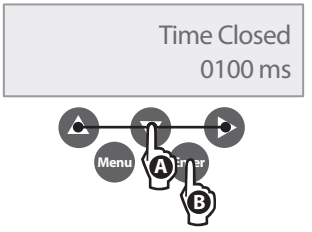
10. Utilice los teclados ▲ ▼ ▶ (A) para fijar SET PULSE. (**Nota**: Esto será normalmente fijado a +1.00000000). Presione ENTER (B) para salvar.



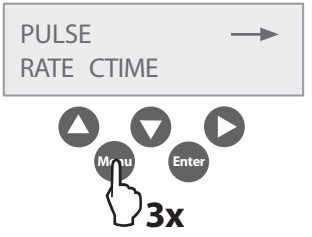
11. Presione ▼ para fijar CLOSETIME.



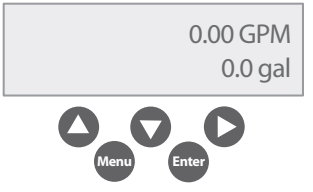
12. Utilice los teclados de ▲ ▼ ▶ para fijar CLOSETIME. (**Nota**: estará normalmente fijado a 100ms). Presione ENTER para salvar.



13. Presione MENU tres (3) veces para regresar a la pantalla Flow Total.



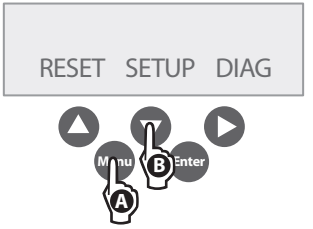
14. La pantalla se verá como a la derecha.



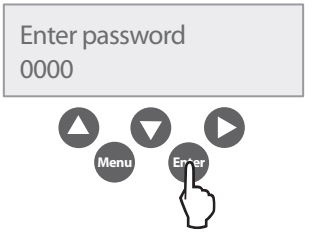
Paso 3a

Configuración del anemómetro

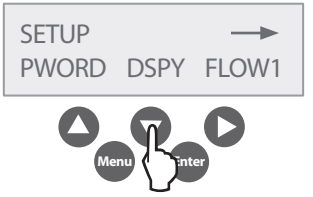
1. Presione MENU (A) para ingresar al modo de programación. Es posible que deba presionar MENU varias veces hasta llegar a la pantalla (derecha). Presione ▼ (B) para ir a la pantalla de contraseña (Password).



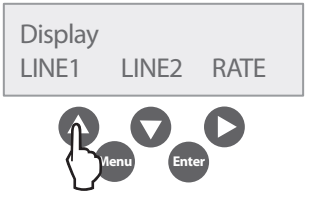
2. Utilice las flechas para introducir una contraseña de 4 dígitos y después presione ENTER O BIEN presione ENTER para no usar contraseña.



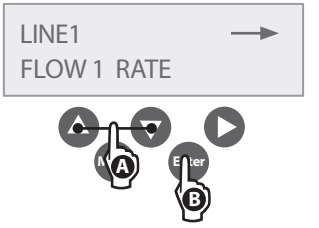
3. En el menú de configuración, presione ▼ para ir a la pantalla de visualización (Display).



4. Presione ▲ para ir a la pantalla de la línea 1 (LINE 1).

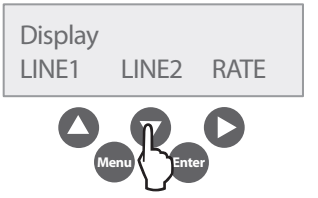


5. Para ajustar el caudal 1 (Flow 1) a "Rate", presione ▲ o ▼ (A) para alternar entre las opciones. Seleccione "RATE" y presione ENTER (B). La pantalla parpadeará la leyenda de guardado "Saved" y volverá a la pantalla de visualización (Display).

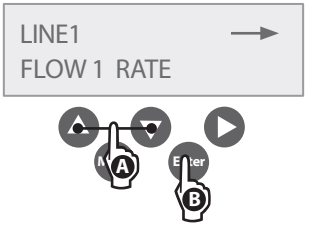


(Las opciones del caudal 1 (Flow 1) son "Rate" o "Total".)

6. Presione ▼ para ir a la pantalla de la línea 2 (LINE 2).

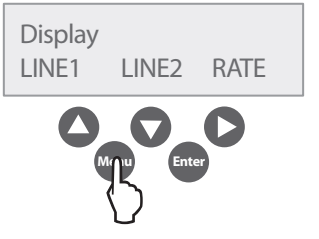


7. Para ajustar el caudal 1 (Flow 1) a "Rate", presione ▲ o ▼ (A) para alternar entre las opciones. Seleccione "RATE" y presione ENTER (B). La pantalla parpadeará la leyenda de guardado "Saved" y volverá a la pantalla de visualización (Display).

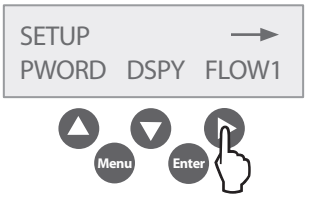


(Las opciones del caudal 1 (Flow 1) son "Rate" o "Total".)

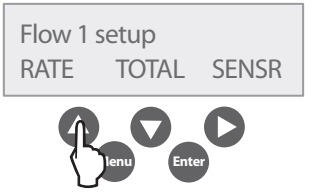
8. Presione MENU una vez para volver a la pantalla de configuración (SETUP).



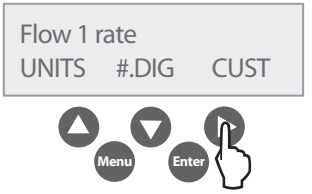
9. En el menú de configuración, presione ▶ para ir a la pantalla de configuración del caudal 1 (Flow 1 Setup).



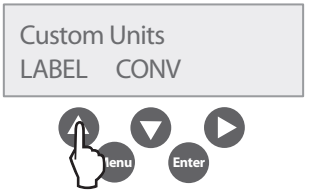
10. Presione ▲ para ir a la pantalla de índice del caudal 1 (Flow 1 Rate).



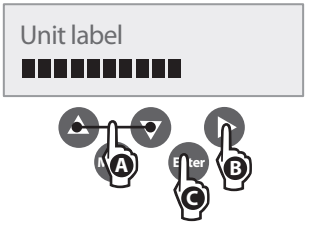
11. Presione ▶ para ir a la pantalla de unidades personalizadas (Custom Units).



12. Presione ▲ para ir a la pantalla de etiqueta de unidad (Unit LABEL).

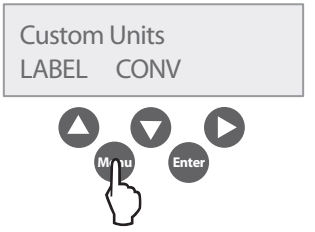


13. Las etiquetas de unidades pueden contener hasta 10 caracteres alfabéticos y/o numéricos. Utilice o (A) para seleccionar caracteres alfabéticos o numéricos. Utilice (B) para pasar a la posición del siguiente carácter. Al finalizar, presione ENTER (C). La pantalla parpadeará la leyenda "Saved" y regresará a la pantalla de unidades personalizadas (Custom units).

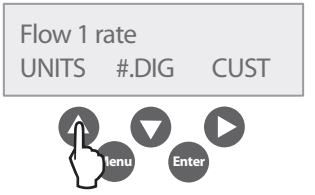


Por ejemplo, para configurar el valor "MPH", presione hasta que aparezca la letra "M". Presione para pasar al siguiente carácter. Presione hasta que aparezca la letra "P". Presione para pasar al siguiente carácter. Presione hasta que aparezca la letra "H". Presione ENTER.

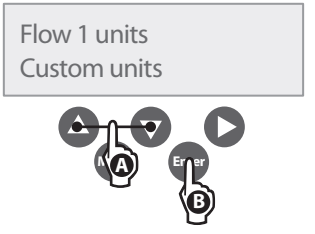
14. Presione MENU para volver a la pantalla de índice del caudal 1.



15. Presione ▲ para ir a la pantalla de las unidades del caudal 1 (Flow 1 units).



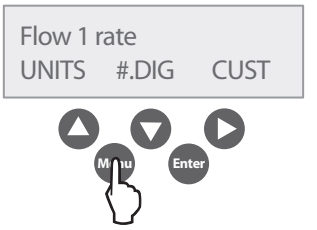
16. Para ajustar el caudal 1 (Flow 1) a "Custom units", presione ▲ o ▼ (A) para alternar entre las opciones. Seleccione "Custom units" y presione ENTER (B). La pantalla parpadeará la leyenda "SAVED" y regresará a la pantalla de índice del caudal 1.



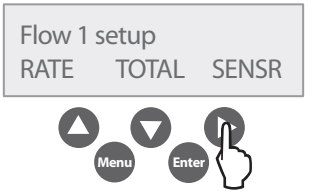
(Las opciones de unidades de caudal 1 (Flow 1) son bbl/hr, bbl/min, bbl/s, acre-ft/hr, acre-ft/min, acre-ft/s, m^3/hr, m^3/min, m^3/s, ft^3/hr, ft^3/min, ft^3/s, L/hr, LPM, L/s, Mgal/day, gal/hr, gal/s, GPM y Custom units.)

Paso 3a cont.

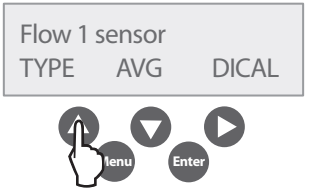
17. Presione MENU para volver a la pantalla de configuración del caudal 1.



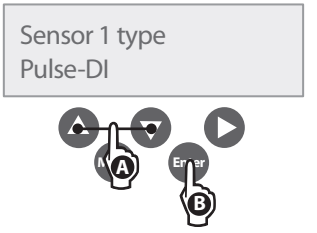
18. Presione para ir a la pantalla de sensor del caudal 1 (Flow 1 Sensor).



19. Presione ▲ para ir a la pantalla de tipo del sensor 1 (Sensor 1 Type).

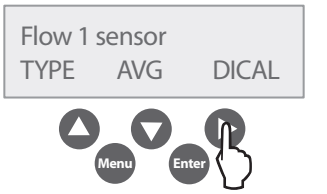


20. Presione ▲ o ▼ (A) para ver las opciones de tipos. Utilice la opción "Pulse-DI". Presione ENTER (B). La pantalla parpadeará la leyenda "SAVED" y regresará a la pantalla de sensor del caudal 1 (Flow 1 Sensor).

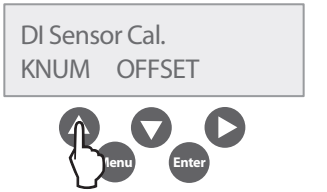


(Las opciones son: Analog, Sine-K Factor, Pullup-K Factor, Pulse-K Factor y Pulse-DI).

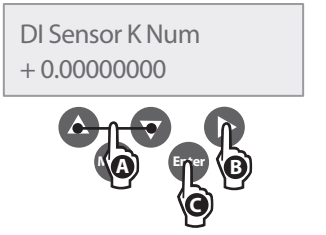
21. Presione ▶ para ir a la pantalla de calibración del sensor DI (DI Sensor Cal.).



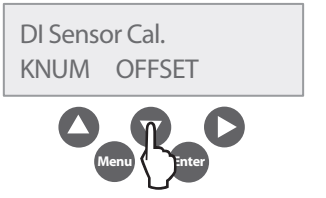
22. Presione ▲ para ir a la pantalla de valor K del sensor DI (DI Sensor K NUM).



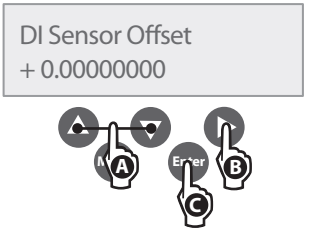
23. El valor K es numérico. Utilice el K suministrado por el fabricante. Presione ▲ o ▼ (A) para seleccionar los números. Utilice ▶ (B) para pasar a la posición del siguiente número. Al finalizar, presione ENTER (C). La pantalla parpadeará la leyenda "SAVED" y regresará a la calibración del sensor DI (anemómetro de Rain Bird = 1.6965).



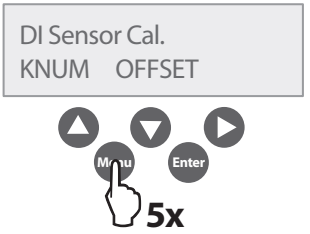
24. Presione ▼ para ir a la pantalla de compensación del sensor DI (DI Sensor Offset).



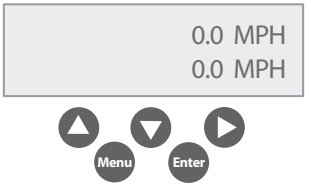
25. El desfase es numérico. Utilice el suministrado por el fabricante. Utilice ▲ o ▼ (A) para seleccionar los números. Utilice ▶ (B) para pasar a la posición del siguiente número. Al finalizar, presione ENTER (C). La pantalla parpadeará la leyenda "SAVED" y regresará a la calibración del sensor DI (anemómetro de Rain Bird = 0.059).



26. Presione MENU cinco veces para volver a la pantalla de visualización de la velocidad del viento.



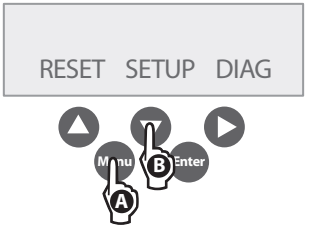
27. Listo.



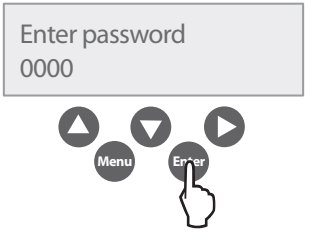
Paso 3b

Programación del anemómetro

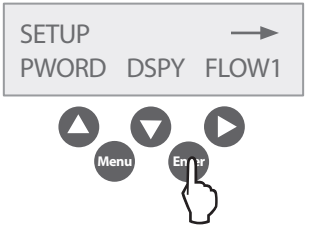
1. Presione MENU (A) para ingresar al modo de programación. Es posible que deba presionar MENU varias veces hasta llegar a la pantalla (derecha). Presione ▼ (B) para ir a la pantalla de contraseña (Password).



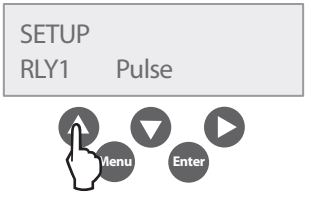
2. Utilice las flechas para introducir una contraseña de 4 dígitos y después presione ENTER O BIEN presione ENTER para no usar contraseña.



3. En el menú de configuración, presione ENTER para ir a la pantalla de configuración.

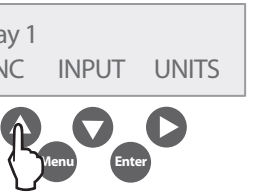


4. Presione ▲ para ir a la pantalla del relé 1.

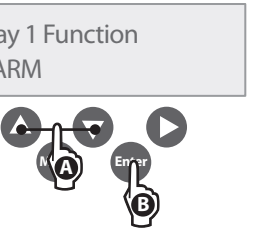


Paso 3b cont.

5. Presione ▲ para ir a la pantalla de funciones del relé 1.

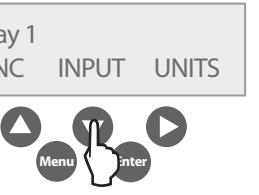


6. Para ajustar la función del relé 1 (Relay 1) a "Alarm", presione ▲ o ▼ (A) para alternar entre las opciones. Seleccione "Alarm" y presione ENTER (B). La pantalla parpadeará la leyenda "SAVED" y regresará a la pantalla del relé 1 (Relay 1).

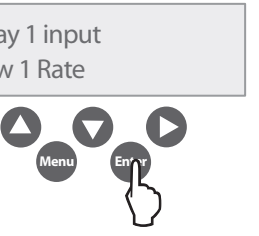


(Las opciones de la función del relé 1 (Relay 1) son "Totalizer", "Manual Control" y "Alarm".)

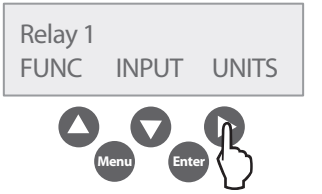
7. Presione ▼ para ir a la pantalla de entrada del relé 1 (Relay 1).



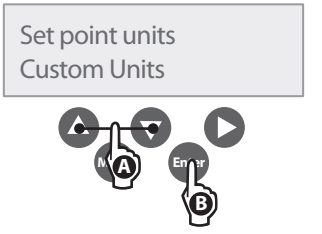
8. Presione ENTER. La pantalla parpadeará la leyenda "SAVED" y regresará a la pantalla del relé 1.



9. Presione ▶ para ir a la pantalla de unidades de ajuste (Set point units).

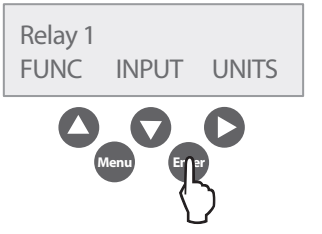


10. Para ajustar las unidades de ajuste a "Custom units", presione ▲ o ▼ (A) para alternar entre las opciones. Seleccione "Custom units" y presione ENTER (B). La pantalla parpadeará la leyenda "SAVED" y regresará a la pantalla de índice del caudal 1.

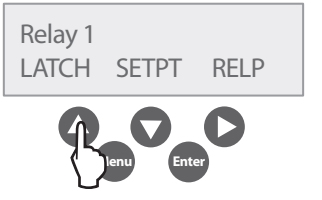


(Las opciones de unidades de caudal 1 (Flow 1) son bbl/hr, bbl/min, bbl/s, acre-ft/hr, acre-ft/min, acre-ft/s, m^3/hr, m^3/min, m^3/s, ft^3/hr, ft^3/min, ft^3/s, L/hr, LPM, L/s, Mgal/day, gal/hr, gal/s, GPM y Custom units.)

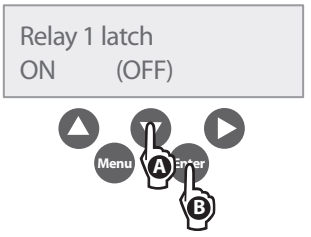
11. Presione ENTER para ir a la siguiente pantalla del relé 1.



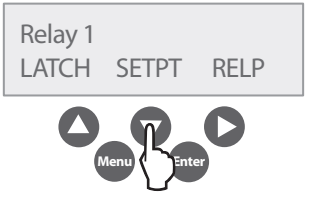
12. Presione ▲ para ir a la pantalla de seguro del relé 1.



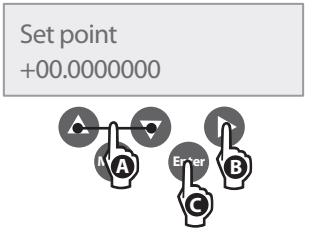
13. Presione ▼ (A) para seleccionar OFF y después presione ENTER (B). La pantalla parpadeará la leyenda "SAVED" y regresará a la pantalla del relé 1.



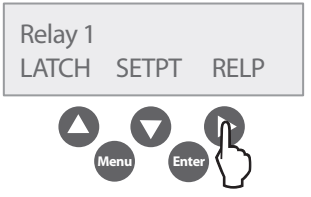
14. Presione ▼ para ir a la pantalla de punto de ajuste (Set point).



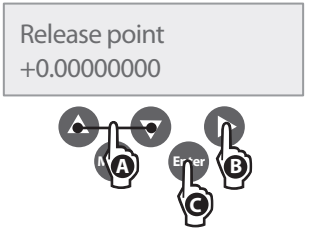
15. El punto de ajuste es numérico. Ajuste el número de millas por hora en el que desea activar el relé. Utilice ▲ o ▼ (A) para seleccionar los números. Utilice ▶ (B) para pasar a la posición del siguiente número. Al finalizar, presione ENTER (C). La pantalla parpadeará la leyenda "SAVED" y regresará a la pantalla del relé 1.



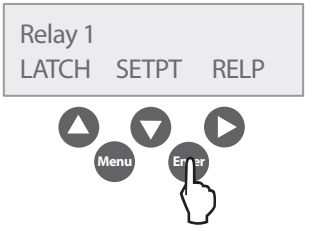
17. Presione ▶ para ir a la pantalla de punto de liberación (Release point).



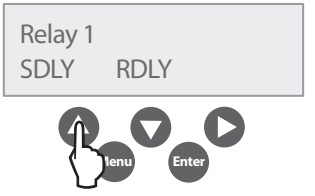
18. El punto de liberación es numérico. Ajuste el número de millas por hora en el que desea liberar el relé. Utilice ▲ o ▼ (A) para seleccionar los números. Utilice ▶ (B) para pasar a la posición del siguiente número. Al finalizar, presione ENTER (C). La pantalla parpadeará la leyenda "SAVED" y regresará a la pantalla del relé 1.



19. Presione ENTER para ir a la pantalla del relé 1.

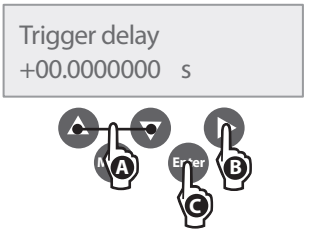


20. Presione ▲ para ir a la pantalla de retardo de activación (Trigger delay).

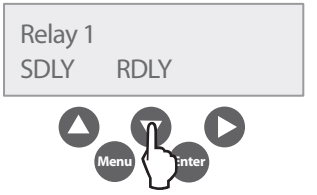


Paso 3b cont.

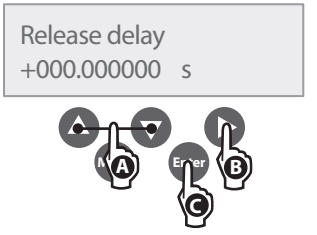
21. El retardo de activación es numérico. Ajuste la cantidad de segundos que el MPH debe ser continuamente igual o superior al punto de ajuste (activación del relé). Utilice ▲ o ▼ (A) para seleccionar los números. Utilice ▶ (B) para pasar a la posición del siguiente número. Al finalizar, presione ENTER (C). La pantalla parpadeará la leyenda "SAVED" y regresará a la pantalla del relé 1.



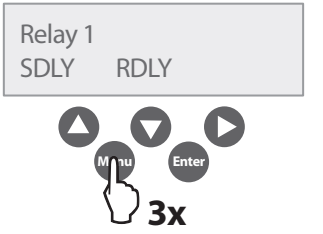
22. Presione ▼ para ir a la pantalla de retardo de liberación (Release delay).



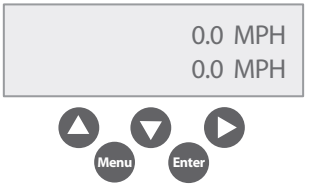
23. El retardo de liberación es numérico. Ajuste la cantidad de segundos que el MPH debe ser continuamente igual o superior al punto de liberación (relé de liberación). Utilice ▲ o ▼ (A) para seleccionar los números. Utilice ▶ (B) para pasar a la posición del siguiente número. Al finalizar, presione ENTER (C). La pantalla parpadeará la leyenda "SAVED" y regresará a la pantalla del relé 1.



24. Presione MENU tres veces para volver a la pantalla de visualización de MPH.

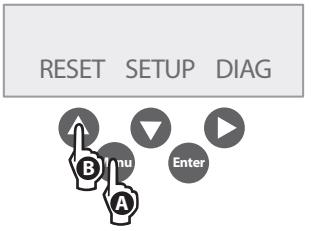


25. Listo.

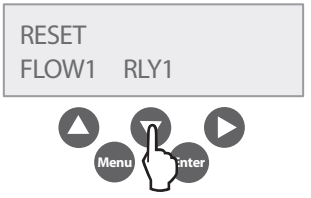


Reconfigurar el 3002 después de presentarse un alto flujo

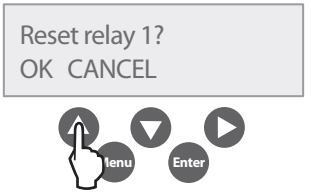
1. Presione MENU (A) para ingresar el modo de programación. Presione ▲ (B) para ir a la pantalla de reconfiguración.



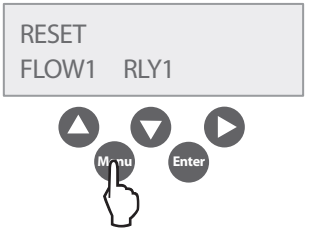
2. Presione ▼ para reconfigurar el Relé.



3. Presione ▲ (OK) para reconfigurar.

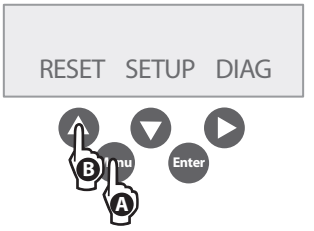


4. Presione MENU dos veces para regresar a la pantalla GPM / Total.

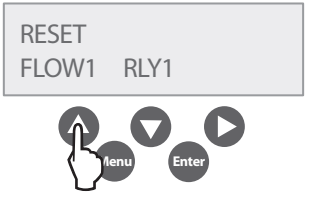


Reconfigurar el 3002 a una lectura total de cero flujo

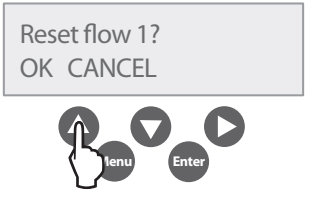
1. Presione MENU para ingresar el modo de programación. Presione ▲ para ir a la pantalla de reconfiguración.



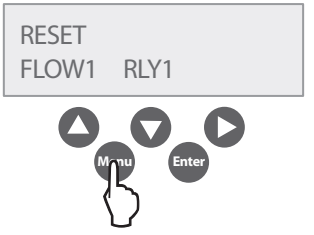
2. Presione ▲ para reconfigurar el flujo (Flow).



3. Presionar ▲ (OK) para reconfigurar.



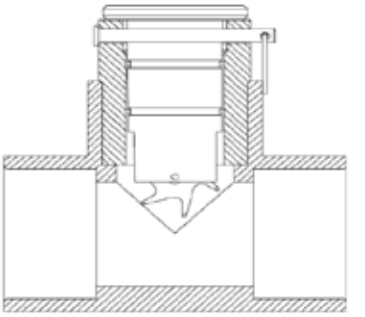
4. Presione MENU dos veces para regresar a la pantalla GPM / Total.



Apéndice A

Para el anemómetro y los sensores de caudal en T de Rain Bird modelos Fs200B, FS150B, FS100B, FS400P, FS300P, FS200P, FS150P, FS100P, FS075P, FS050P y ANEMOMETER

La tabla que aparece a continuación indica el rango de caudal sugerido para los sensores de caudal Rain Bird. Los sensores Rain Bird funcionan tanto por debajo como por encima del índice de caudal indicado. Sin embargo, las prácticas correctas del diseño determinan el uso de este rango para obtener un mejor rendimiento. Los sensores se deben dimensionar para el caudal y no para el tamaño de la tubería.

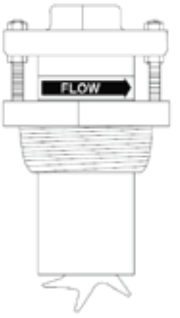


Sensor de caudal y anemómetro de Rain Bird: factor K, desfase y rango operativo sugerido

Modelo	Descripción	Factor K	Desfase	Rango operativo sugerido (galones por minuto)	Rango operativo sugerido (litros por minuto)	Rango operativo sugerido (metros cúbicos por hora)
T de cobre						
FS200B	Sensor de caudal de T de cobre de 2"	2.747	0	4.9 - 294	18.5 - 1112	1.1 - 66.7
FS150B	Sensor de caudal de T de cobre de 1 1/2"	1.06526	0.0892	2 - 82.6	6.3 - 313	0.4 - 18.7
FS100B	Sensor de caudal de T de cobre de 1"	0.41447	0.44117	2 - 40	6 - 150	0.5 - 9
T de plástico						
FS400P	Sensor de caudal de T de PVC de 4"	13.7424	0.23707	40 - 500	150 - 1890	9.1 - 113.6
FS300P	Sensor de caudal de T de PVC de 3"	8.309	0.227	20 - 300	78 - 1134	4.5 - 68.1
FS200P	Sensor de caudal de T de PVC de 2"	2.8429	0.1435	10 - 200	36 - 756	2.3 - 45.4
FS150P	Sensor de caudal de T de PVC de 1 1/2"	1.697	-0.316	5 - 100	18 - 378	1.1 - 22.7
FS100P	Sensor de caudal de T de PVC de 1"	0.26112	1.2	5.4 - 53.9	20.4 - 204	1.2 - 12.2
FS075P	Sensor de caudal de T de PVC de 3/4"	0.1563	0.9	3.3 - 33.2	12.6 - 125.8	0.75 - 7.5
FS050P	Sensor de caudal de T de PVC de 1/2"	0.078	0.9	1.9 - 18.9	7.2 - 71.7	0.43 - 4.3
Sensor de velocidad del viento						
ANEMÓMETRO	Sensor de caudal del inserto de cobre	1.6965	0.059	NA		

Apéndice B

Para sensores de caudal de inserto de Rain Bird modelos FS350B o FS350SS



La tabla que aparece a continuación indica el rango de caudal sugerido para los sensores de caudal Rain Bird. Los sensores Rain Bird funcionan tanto por debajo como por encima del índice de caudal indicado. Sin embargo, las prácticas correctas del diseño determinan el uso de este rango para obtener un mejor rendimiento. Los sensores se deben dimensionar para el caudal y no para el tamaño de la tubería.

FS350B y FS350SS: factor K, desfase y rango operativo sugerido

Tamaño de la tubería	Diám. ext. de la tubería	Diám. int. de la tubería	Factor K	Desfase	Rango operativo sugerido (galones por minuto)	Rango operativo sugerido (litros por minuto)	Rango operativo sugerido (metros cúbicos por hora)
Cédula 10S de 3"	3.500"	3.260"	5.009	0.09	12-400	50-1500	0-90
Peso estándar, Cédula 40	3.5"	3.068"	4.362	0.063	12-400	50-1500	0-90
Cédula 80, extrafuerte	3.5"	2.900"	3.858	0.043	12-400	50-1500	0-90
PVC Clase 125	3.5"	3.284"	5.094	0.093	12-400	50-1500	0-90
PVC Clase 160	3.5"	3.230"	4.902	0.085	12-400	50-1500	0-90
PVC Clase 200	3.5"	3.166"	4.682	0.076	12-400	50-1500	0-90
Cédula 10S de 4"	4.5"	4.260"	9.597	0.241	20-600	80-2300	0-140
Peso estándar, Cédula 40	4.5"	4.026"	8.34	0.229	20-600	80-2300	0-140
Cédula 80, extrafuerte	4.5"	3.826"	7.354	0.188	20-600	80-2300	0-140
PVC Clase 125	4.5"	4.224"	9.396	0.24	20-600	80-2300	0-140
PVC Clase 160	4.5"	4.154"	9.013	0.24	20-600	80-2300	0-140
PVC Clase 200	4.5"	4.072"	8.578	0.239	20-600	80-2300	0-140
Cédula 10S de 5"	5.563"	5.295"	16.305	0.25	30-900	110-3400	10-200
Peso estándar, Cédula 40	5.50"	5.047"	14.674	0.248	30-900	110-3400	10-200
Cédula 80, extrafuerte	5.50"	4.813"	13.165	0.246	30-900	110-3400	10-200
Cédula 10S de 6"	6.625"	6.357"	24.089	0.26	50-1,500	190-5700	10-340
Peso estándar, Cédula 40	6.5"	6.065"	21.574	0.257	50-1,500	190-5700	10-340
Cédula 80, extrafuerte	6.5"	5.761"	19.457	0.254	50-1,500	190-5700	10-340
PVC Clase 125	6.625"	6.217"	22.853	0.258	50-1,500	190-5700	10-340
PVC Clase 160	6.625"	6.115"	21.968	0.257	50-1,500	190-5700	10-340
PVC Clase 200	6.625"	5.993"	21.068	0.256	50-1,500	190-5700	10-340
Cédula 10S de 8"	8.625"	8.329"	43.914	0.286	80-2,500	300-9500	20-570
Cédula 20	8.625"	8.125"	41.653	0.283	80-2,500	300-9500	20-570
Cédula 30	8.625"	8.071"	41.063	0.283	80-2,500	300-9500	20-570
Peso estándar, Cédula 40	8.625"	7.981"	40.086	0.281	80-2,500	300-9500	20-570
Cédula 60	8.625"	7.813"	38.288	0.279	80-2,500	300-9500	20-570
Cédula 80, extrafuerte	8.625"	7.625"	36.315	0.276	80-2,500	300-9500	20-570
PVC Clase 125	8.625"	8.095"	41.324	0.283	80-2,500	300-9500	20-570
PVC Clase 160	8.625"	7.961"	39.869	0.281	80-2,500	300-9500	20-570
PVC Clase 200	8.625"	7.805"	38.203	0.279	80-2,500	300-9500	20-570
Cédula 10S de 10"	10.75"	10.420"	70.195	0.321	125-4,000	470-15100	30-910

Apéndice B (cont.)

FS350B y FS350SS: factor K, desfase y rango operativo sugerido

Tamaño de la tubería	Diám. ext. de la tubería	Diám. int. de la tubería	Factor K	Desfase	Rango operativo sugerido (galones por minuto)	Rango operativo sugerido (litros por minuto)	Rango operativo sugerido (metros cúbicos por hora)
Cédula 20	10.75"	10.250"	67.668	0.318	125-4,000	470-15100	30-910
Cédula 30	10.75"	10.136"	66.069	0.316	125-4,000	470-15100	30-910
Cédula 40, peso estándar	10.75"	10.020"	64.532	0.314	125-4,000	470-15100	30-910
Cédula 60, extrafuerte	10.75"	9.750"	61.016	0.309	125-4,000	470-15100	30-910
Cédula 80	10.75"	9.564"	58.644	0.306	125-4,000	470-15100	30-910
PVC Clase 125	10.75"	10.088"	65.431	0.315	125-4,000	470-15100	30-910
PVC Clase 160	10.75"	9.924"	63.272	0.312	125-4,000	470-15100	30-910
PVC Clase 200	10.75"	9.728"	60.733	0.309	125-4,000	470-15100	30-910
Cédula 10S de 12"	12.75"	12.390"	104.636	0.367	175-5,000	660-18900	40-1140
Cédula 20	12.75"	12.250"	102.553	0.364	175-5,000	660-18900	40-1140
Cédula 30	12.75"	12.090"	99.347	0.36	175-5,000	660-18900	40-1140
Peso estándar, Cédula 40S	12.75"	12.000"	97.576	0.358	175-5,000	660-18900	40-1140
Cédula 40	12.75"	11.938"	96.369	0.356	175-5,000	660-18900	40-1140
Cédula 60	12.75"	11.625"	90.441	0.348	175-5,000	660-18900	40-1140
Extrafuerte	12.75"	11.750"	92.775	0.351	175-5,000	660-18900	40-1140
Cédula 80	12.74"	11.376"	85.922	0.342	175-5,000	660-18900	40-1140
PVC Clase 125	12.75"	11.966"	96.912	0.357	175-5,000	660-18900	40-1140
PVC Clase 160	12.75"	11.770"	93.152	0.352	175-5,000	660-18900	40-1140
PVC Clase 200	12.75"	11.538"	88.842	0.346	175-5,000	660-18900	40-1140
Cédula 10S de 14"	14.00"	13.500"	122.307	0.391	200-6,000	760-22700	50-1360
Cédula 20	14.00"	13.375"	120.216	0.388	200-6,000	760-22700	50-1360
Peso estándar, Cédula 30	14.00"	13.250"	118.151	0.385	200-6,000	760-22700	50-1360
Cédula 40	14.00"	13.124"	116.096	0.382	200-6,000	760-22700	50-1360
Cédula 60	14.00"	12.814"	111.148	0.376	200-6,000	760-22700	50-1360
Extrafuerte	14.00"	13.00"	114.098	0.33	200-6,000	760-22700	50-1360
Cédula 80	14.00"	12.50"	106.299	0.369	200-6,000	760-22700	50-1360
Cédula 10S de 16"	16.00"	15.500"	159.243	0.44	300-9,000	1140-34100	70-2040
Cédula 20	16.00"	15.375"	156.742	0.436	300-9,000	1140-34100	70-2040
Peso estándar, Cédula 30	16.00"	15.250"	154.267	0.433	300-9,000	1140-34100	70-2040
Cédula 60	16.00"	14.688"	143.456	0.419	300-9,000	1140-34100	70-2040
Cédula 40, extrafuerte	16.00"	15.000"	149.394	0.427	300-9,000	1140-34100	70-2040
Cédula 80	16.00"	14.314"	136.548	0.41	300-9,000	1140-34100	70-2040
Cédula 10S de 18"	18.00"	17.500"	202.739	0.498	350-10,000	1320-37900	80-2270
Cédula 20	18.00"	17.375"	199.828	0.494	350-10,000	1320-37900	80-2270
Cédula 30	18.00"	17.124"	194.061	0.486	350-10,000	1320-37900	80-2270
Peso estándar	18.00"	17.250"	196.943	0.49	350-10,000	1320-37900	80-2270
Cédula 40	18.00"	16.876"	188.464	0.479	350-10,000	1320-37900	80-2270
Cédula 60	18.00"	16.500"	180.171	0.469	350-10,000	1320-37900	80-2270
Extrafuerte	18.00"	17.000"	191.25	0.482	350-10,000	1320-37900	80-2270
Cédula 80	18.00"	16.126"	172.152	0.457	350-10,000	1320-37900	80-2270
20", peso estándar, Cédula 20	20.00"	19.25"	246.179	0.555	400-12,000	1510-45400	90-2730

FS350B y FS350SS: factor K, desfase y rango operativo sugerido

Tamaño de la tubería	Diám. ext. de la tubería	Diám. int. de la tubería	Factor K	Desfase	Rango operativo sugerido (galones por minuto)	Rango operativo sugerido (litros por minuto)	Rango operativo sugerido (metros cúbicos por hora)
Cédula 40	20.00"	18.812"	234.836	0.54	400-12,000	1510-45400	90-2730
Cédula 30, extrafuerte	20.00"	19.000"	239.666	0.547	400-12,000	1510-45400	90-2730
Cédula 80	20.00"	17.938"	213.14	0.511	400-12,000	1510-45400	90-2730
22", peso estándar, Cédula 20	22.00"	21.25"	301.975	0.621	500-15,000	1890-56800	110-3410
Cédula 30, extrafuerte	22.00"	21.00"	294.642	0.616	500-15,000	1890-56800	110-3410
Cédula 80	22.00"	19.75"	259.513	0.573	500-15,000	1890-56800	110-3410
24", peso estándar, Cédula 20	24.00"	23.25"	364.331	0.666	600-18,000	2270-68100	140-4090
Extrafuerte	24.00"	23.00"	356.178	0.66	600-18,000	2270-68100	140-4090
Cédula 40	24.00"	22.624"	344.109	0.652	600-18,000	2270-68100	140-4090
Cédula 80	24.00"	21.562"	311.271	0.628	600-18,000	2270-68100	140-4090
26" cédula 10	26.00"	25.376"	437.809	0.719	700-21,000	2650-79500	160-4770
Peso estándar	26.00"	25.25"	433.247	0.716	700-21,000	2650-79500	160-4770
Cédula 20, extrafuerte	26.00"	25.00"	424.274	0.709	700-21,000	2650-79500	160-4770
28" cédula 10	28.00"	27.376"	513.698	0.774	900-23,000	3410-87100	200-5220
Peso estándar	28.00"	27.25"	508.723	0.77	900-23,000	3410-87100	200-5220
Cédula 20, extrafuerte	28.00"	27.00"	498.93	0.763	900-23,000	3410-87100	200-5220
30" cédula 10	30.00"	29.376"	596.147	0.833	1,000-30,000	3790-113600	230-6810
Peso estándar	30.00"	29.25"	590.759	0.829	1,000-30,000	3790-113600	230-6810
Cédula 20, extrafuerte	30.00"	29.00"	580.146	0.822	1,000-30,000	3790-113600	230-6810
32" cédula 10	32.00"	31.376"	685.156	0.897	1,200-35,000	4540-132500	270-7950
Peso estándar	32.00"	31.25"	679.355	0.893	1,200-35,000	4540-132500	270-7950
Cédula 20, extrafuerte	32.00"	31.00"	667.922	0.885	1,200-35,000	4540-132500	270-7950
Cédula 40	32.00"	30.624"	650.919	0.873	1,200-35,000	4540-132500	270-7950
34" cédula 10	34.00"	33.312"	777.566	0.964	1,300-40,000	4920-151400	300-9080
Peso estándar	34.00"	33.25"	774.511	0.962	1,300-40,000	4920-151400	300-9080
Cédula 20, extrafuerte	34.00"	33.00"	762.258	0.953	1,300-40,000	4920-151400	300-9080
Cédula 40	34.00"	32.624"	744.022	0.94	1,300-40,000	4920-151400	300-9080
36" cédula 10	36.00"	35.376"	882.855	1.04	1,500-45,000	5680-170300	340-10220
Peso estándar	36.00"	35.25"	876.227	1.035	1,500-45,000	5680-170300	340-10220
Cédula 20, extrafuerte	36.00"	35.00"	863.154	1.025	1,500-45,000	5680-170300	340-10220
Cédula 40	36.00"	34.50"	837.315	1.007	1,500-45,000	5680-170300	340-10220

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