



PT3002 Flow Sensor Transmitter

Installation and Programming Instructions

Instrucciones de instalación y programación

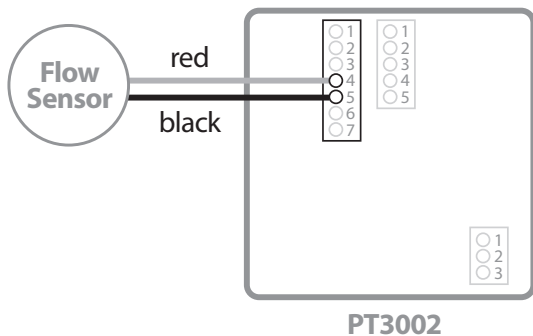


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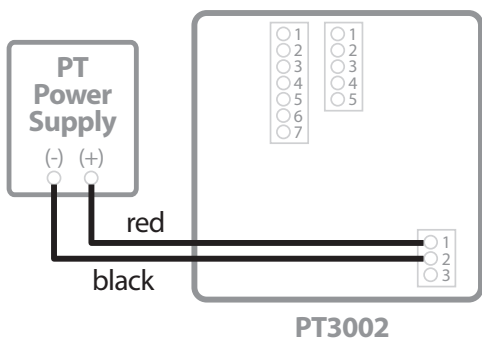
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Wiring Instructions

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.

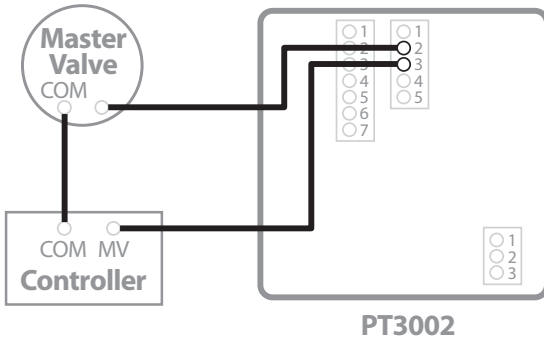


Wire the red lead (+) from the PT Power Supply to the terminal one on the three port terminal block. Wire the black / white (-) wire to terminal two of the three port terminal block.

Wiring Instructions (cont.)

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

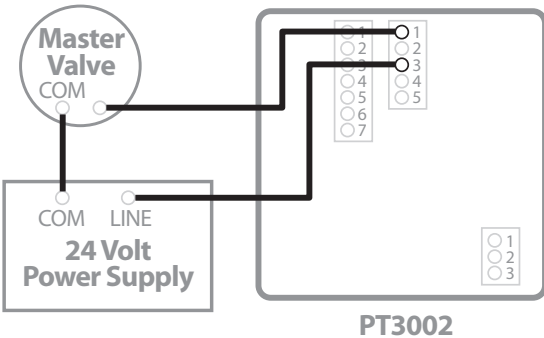
Using a Normally Closed Master Valve



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.

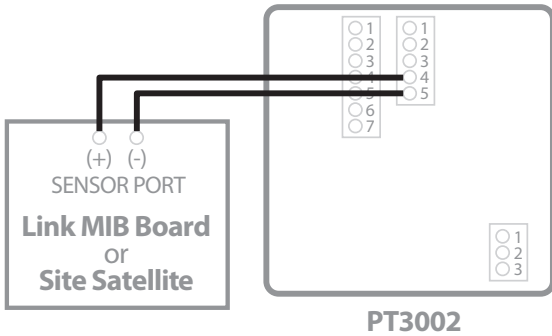
Using a Normally Open Master Valve



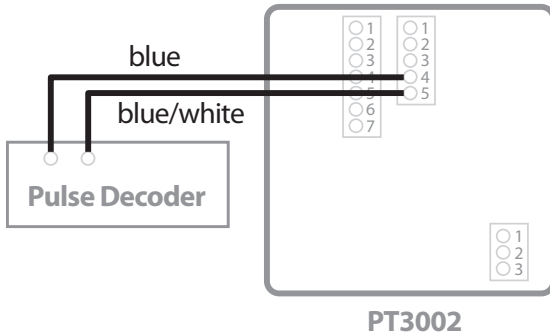
Wire one leg of the master valve solenoid wire to the Relay 1 NO 1 terminal. Wire the second leg of the solenoid to an auxiliary 24 volt power supply. Wire the Relay 1 COM 3 to the other leg of the auxiliary power supply. When a high flow condition occurs the internal relay closes, powering the normally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

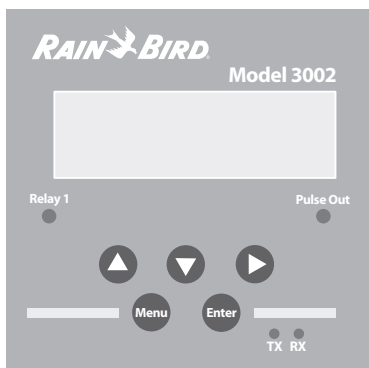
Initial Powerup



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

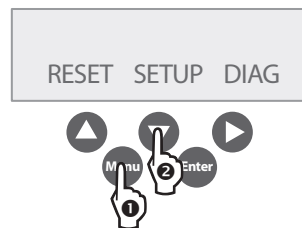


- Menu** 1-Switch to main menu
2-Backward/Previous menu
- Enter** 1-Save value
2-Forward/Next menu
- ▲** 1-Select Menu option
2-Increase numerical value
- ▼** 1-Select Menu option
2-Decrease numerical value
- ▶** 1-Select Menu option
2-Move cursor to the right

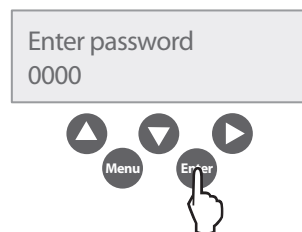
General Programming

Step 1

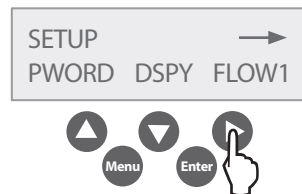
1. Press MENU to enter Programming Mode. Press ▼ to go to the Password Screen.



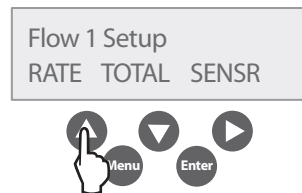
2. Use the arrow keys to enter a 4 digit password then press ENTER OR press ENTER to bypass using a password.



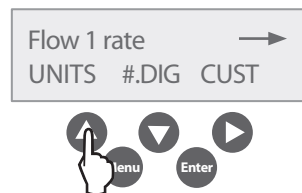
3. At the Setup menu, press ▶ to go to the Flow 1 Setup Screen.



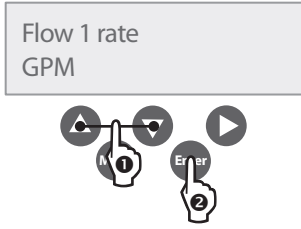
4. Press ▲ to go to the Flow 1 Rate Screen.



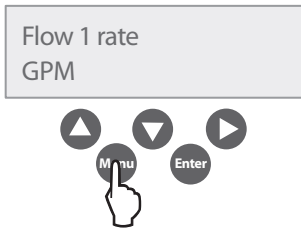
5. Press ▲ to Set Units.



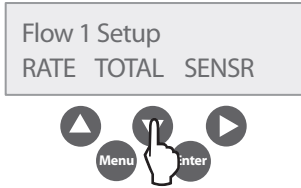
6. Set UNITS for GPM* by using ▲ or ▼ then press ENTER (the PT3002 saves the setting).
(Note: GPM used as an example throughout this manual.)



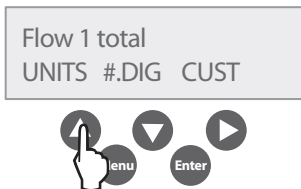
7. Press MENU once to go to the Flow 1 Setup Screen.



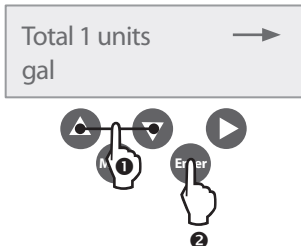
8. Press ▼ to Set TOTAL.



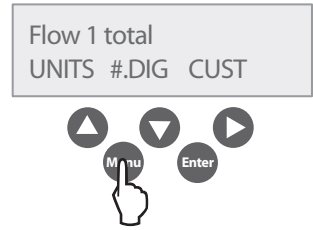
9. Press ▲ to Set UNITS.



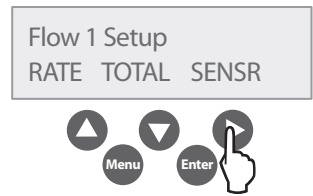
10. Set UNITS for gal by using ▲ or ▼ then press ENTER (the PT3002 saves the setting)



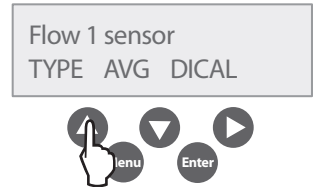
11. Press MENU twice to go to the Flow 1 Setup Screen.



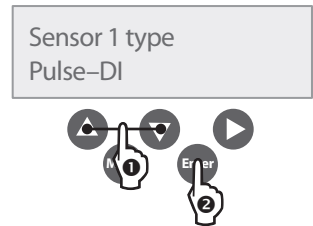
12. Press ► to Set SENSOR.



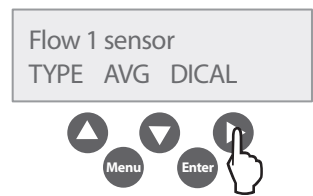
13. Press ▲ to Set TYPE.



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

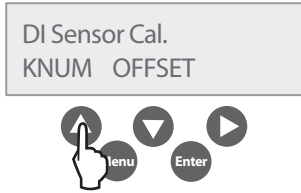


15. Press ► to Set DICAL.

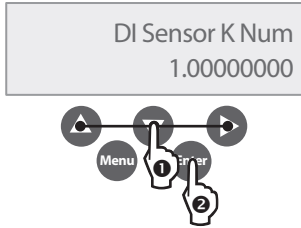


Step 1 cont.

16. Press ▲ to Set SENSOR K FACTOR.

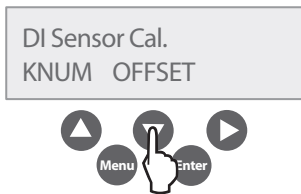


17. Use the ▲▼▶ keys to enter the K FACTOR then press ENTER (the PT3002 saves the setting and returns to the Sensor Calibration Screen)

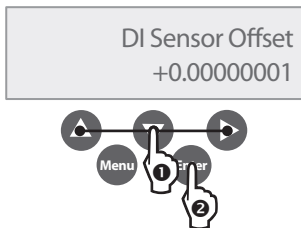


Note: See instructions pages 26 - 29 for Rain Bird Flow Sensor K & Offset information or instruction sheet included with Rain Bird Flow Sensors.

18. Press ▼ to Set SENSOR OFFSET.

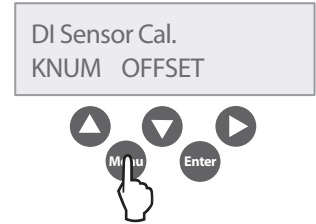


19. Use the ▲▼▶ keys to enter the OFFSET then press ENTER (the PT3002 saves the setting and returns to the Sensor Calibration Screen)

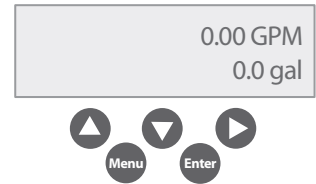


Note: See instructions pages 26 - 29 for Rain Bird Flow Sensor K & Offset information or instruction sheet included with Rain Bird Flow Sensors.

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



21. The screen will look as to the right.



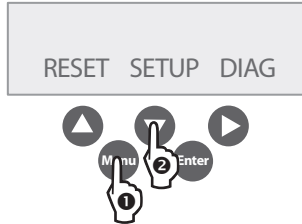
Follow Step 2a or Step 2b to complete setup.

Step 2a

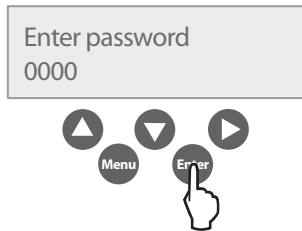
Set Up as a High Flow Shut Off Device With a Stand Alone Controller

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

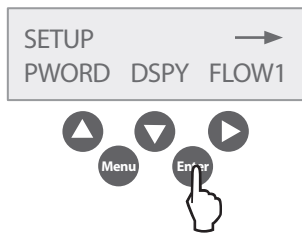
1. Press MENU to enter Programming Mode. Press ▼ to go to the Password Screen.



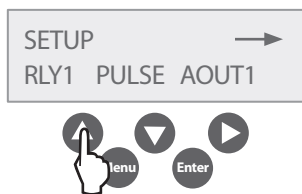
2. Use the arrow keys to enter a 4 digit password then press ENTER OR press ENTER to bypass using a password.



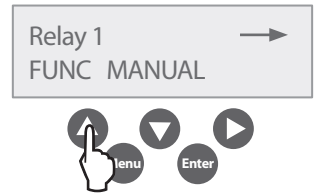
3. At the Setup screen, press ENTER.



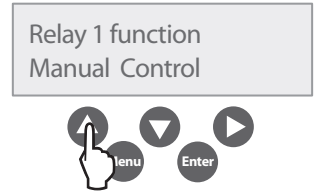
4. Press ▲ for RLY1.



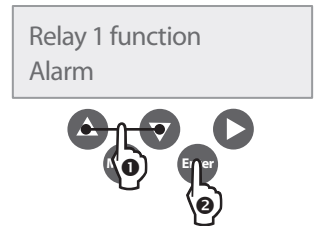
5. Press ▲ for FUNC.



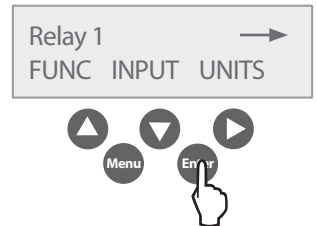
6. Press ▲ for MANUAL.



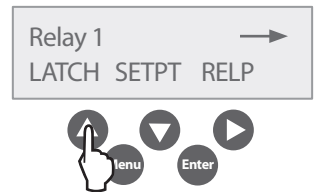
7. Press ▲ or ▼ until ALARM appears. Press ENTER to SAVE.



8. Press ENTER.

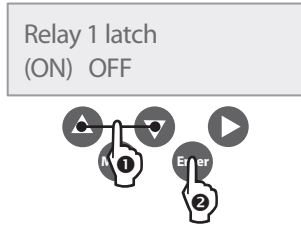


9. Press ▲.

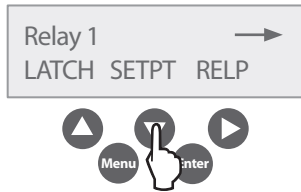


Step 2a cont.

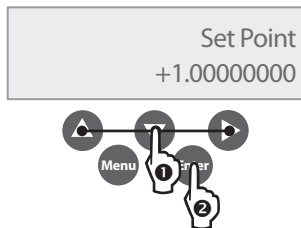
10. Press ▲ or ▼ until brackets are around "ON" then press ENTER.



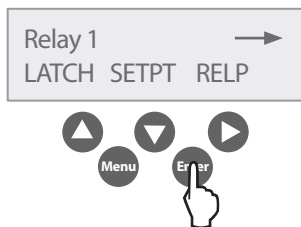
11. Press ▼ for SET POINT.



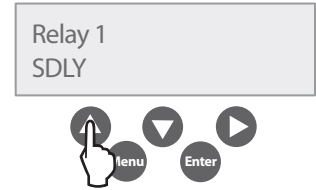
12. Use the ▲▼▶ keys to set the Flow Threshold Amount. (This amount, once exceeded, will cause the PT3002 to break the common and close the master valve, stopping flow.) Press ENTER when done.



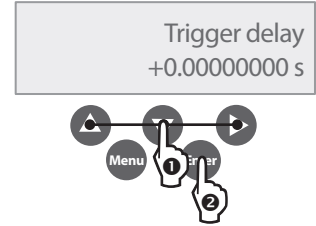
13. Press ENTER.



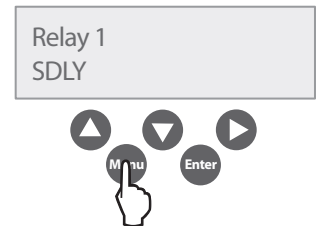
14. Press ▲.



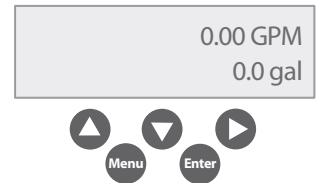
15. Use the ▲▼▶ keys to set the number of desired seconds for the PT3002 to wait before breaking the valve common and closing the Master Valve once a High Flow occurs. Press ENTER to SAVE.



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



17. The screen will look as to the right.

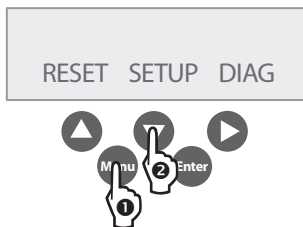


Step 2b

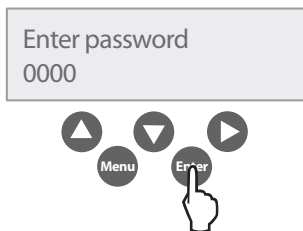
Set Up For Use With Central Control

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

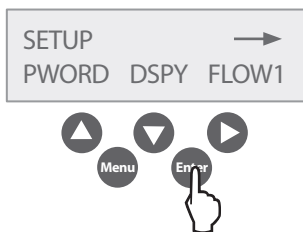
1. Press MENU to enter Programming Mode. Press ▼ to go to the Password Screen.



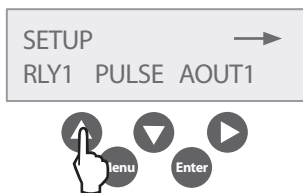
2. Use the arrow keys to enter a 4 digit password then press ENTER OR press ENTER to bypass using a password.



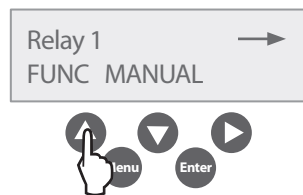
3. At the Setup screen, press ENTER.



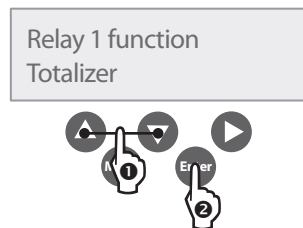
4. Press ▲ for RLY1.



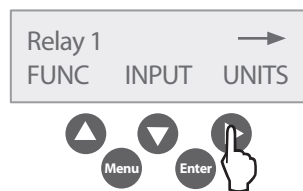
5. Press ▲ for FUNC.



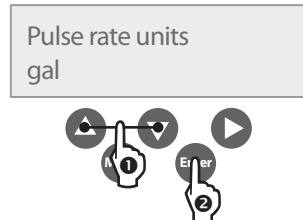
6. Press ▲ or ▼ until "TOTALIZER" is displayed and then press ENTER.



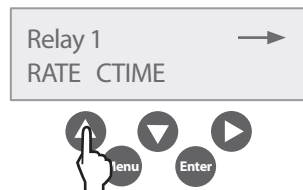
7. Press ► to set PULSE RATE UNITS.



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

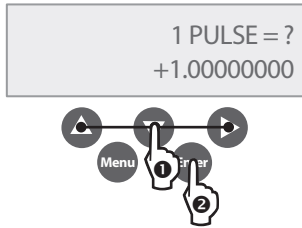


9. Press ▲ to SET RATE.

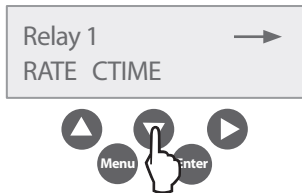


Step 2b cont.

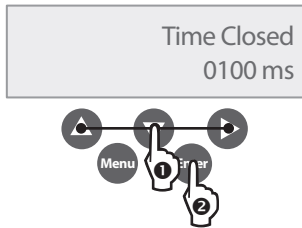
10. Use the ▲ ▼ ► keys to SET PULSE. (Note: this will normally be set to +1.00000000). Press ENTER to SAVE.



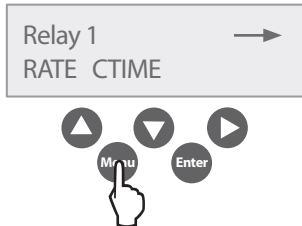
11. Press ▼ to SET CLOSETIME.



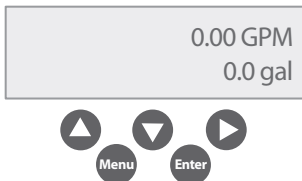
12. Use the ▲ ▼ ► keys to SET CLOSETIME. (Note: this will normally be set 100 ms). Press ENTER to SAVE.



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

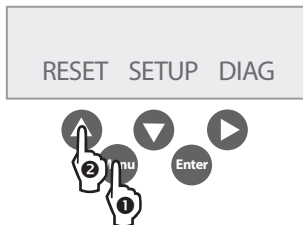


14. The screen will look as to the right.

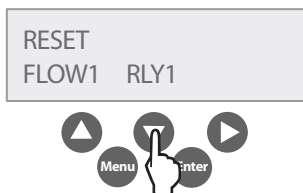


Resetting the 3002 After a High Flow Occurrence

1. Press MENU to enter Programming Mode. Press ▲ to go to the Reset Screen.



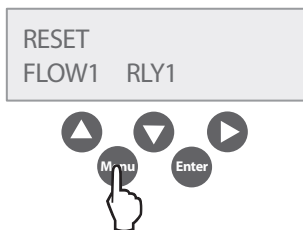
2. Press ▼ to Reset Relay.



3. Press ▲ (OK) to Reset.

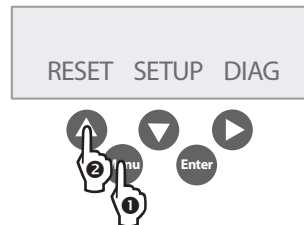


4. Press MENU twice to return to the GPM / Total Screen.

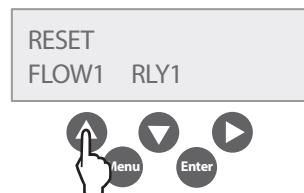


Resetting the 3002 To Zero Total Flow Readings

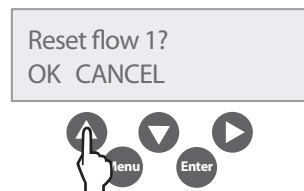
1. Press MENU to enter Programming Mode. Press ▲ to go to the Reset Screen.



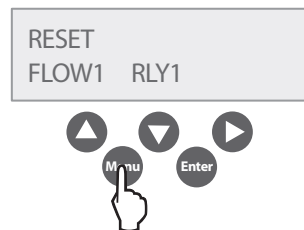
2. Press ▲ to Reset Flow.



3. Press ▲ (OK) to Reset.



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



ENG

page 2

ESP

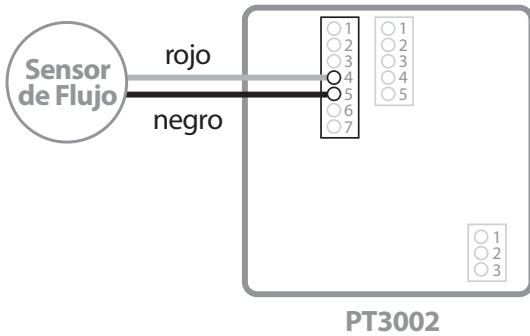
ESP

Contenidos

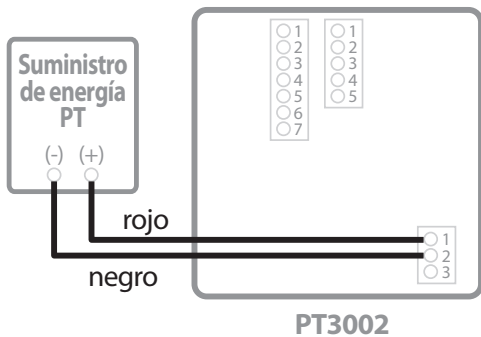
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Instrucciones de cableado

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

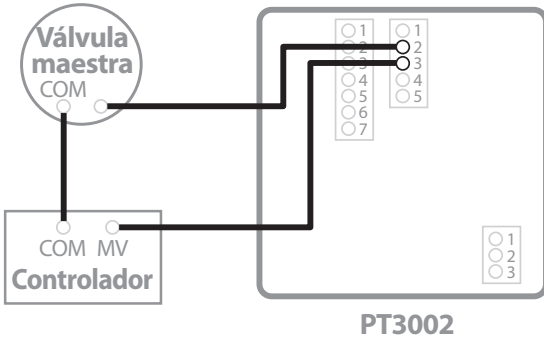


Conecte el cable rojo(+) del suministro eléctrico PT a la terminal uno del bloque de terminales de tres puertos. Conecte el cable negro / blanco (-) a la terminal dos del bloque de terminales de tres puertos.

Instrucciones de cableado (cont.)

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

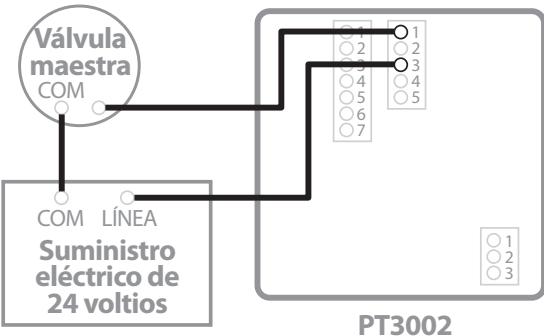
Usando una válvula maestra normalmente cerrada



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.

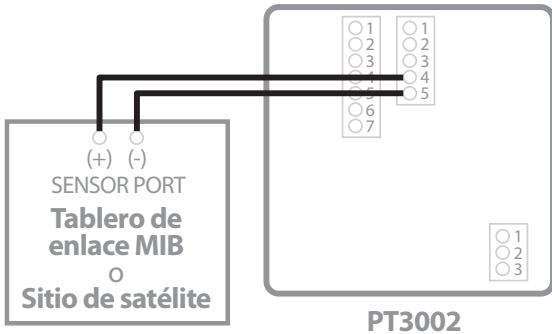
Usando una válvula maestra normalmente abierta



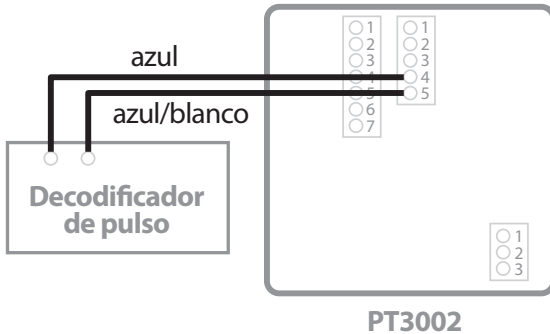
Conecte uno de los cables del solenoide de la válvula maestra a la terminal del relé 1 NO 1. Conecte el segundo cable del solenoide de la válvula a una fuente auxiliar de energía de 24 voltios. Conecte el cable del Relé 1 COM 3 al otro cable de la fuente auxiliar de energía. Cuando ocurre una condición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

Para salida hacia Maxicom® o Site Control

(complete el paso **1** de las páginas 6 a la 8 y el paso **2b** en las páginas 11 a la 12)



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 pulso 1 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.

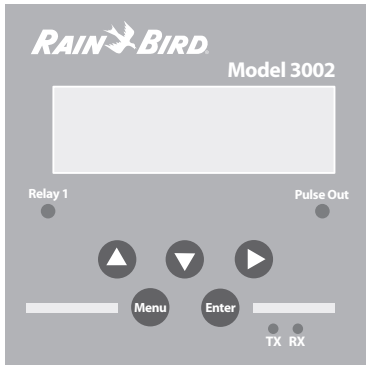
Encendido inicial



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

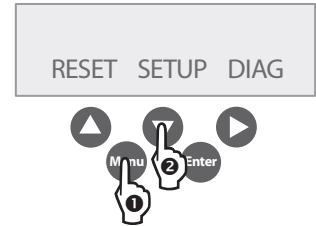
▶

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

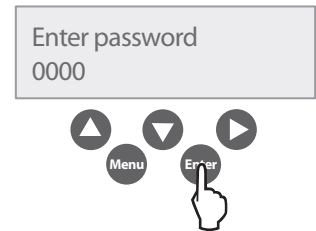
Programación general

Paso 1

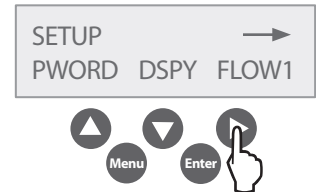
1. Presione MENU para ingresar a la modalidad de programación. Presione ▼ para ir a la pantalla de contraseña.



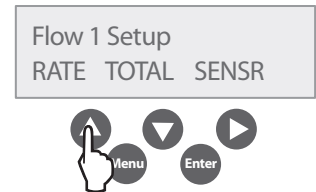
2. Utilice las teclas de flecha para ingresar una contraseña de 4 dígitos y después presione ENTER ó presione ENTER para no usar la contraseña.



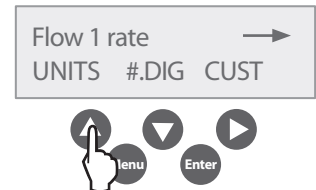
3. En el menú de configuración presione ▶ para ir a la pantalla de configuración del flujo1 (Flow 1)



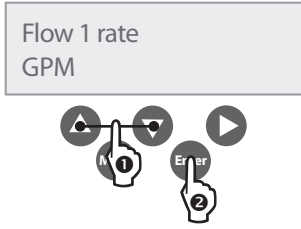
4. Presione ▲ para ir a la pantalla de rango de flujo 1 (Flow 1).



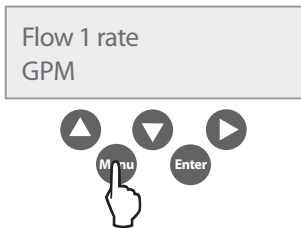
5. Presione ▲ para fijar unidades (UNITS).



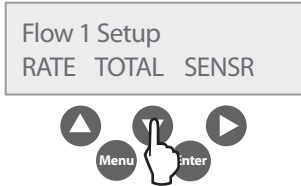
6. Fije las unidades (UNITS) para GPM* usando ▲ ó ▼ y después presione ENTER (el PT3002 salva la configuración).
(Nota: GPM se usa como un ejemplo en todo el manual.)



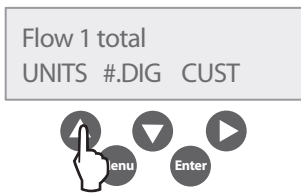
7. Presione MENU una vez para ir a la pantalla de configuración de flujo 1.



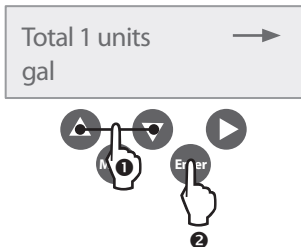
8. Presione ▼ para fijar el TOTAL.



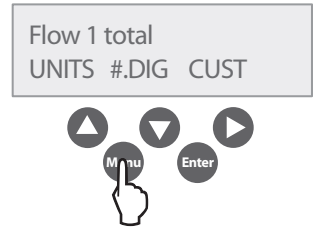
9. Presione ▲ para fijar UNITS.



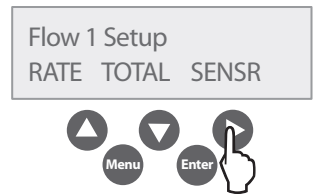
10. Fijar UNITS para gal usando ▲ ó ▼ y después presione ENTER (el PT3002 guarda la configuración)



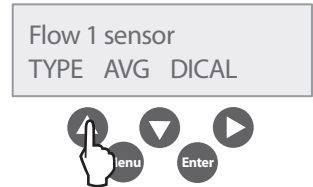
11. Presione MENU dos veces para ir a la pantalla de configuración de flujo 1.



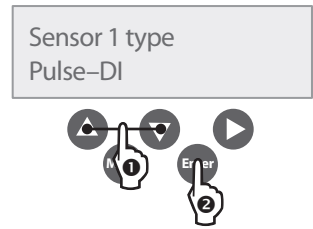
12. Presione ► para fijar SENSOR.



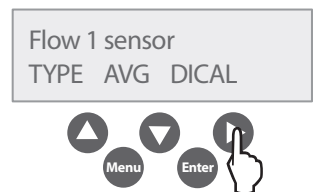
13. Presione ▲ para fijar TYPE.



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



15. Presione ► para fijar DICAL.



Paso 1 cont.

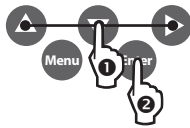
16. Presione ▲ para fijar el FACTOR K del SENSOR.

DI Sensor Cal.
KNUM OFFSET



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

DI Sensor K Num
1.00000000



Nota: Vea las instrucciones en las paginas 26 - 29 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.

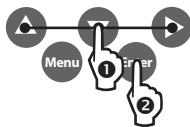
18. Presione ▼ para fijar SENSOR OFFSET.

DI Sensor Cal.
KNUM 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)

DI Sensor Offset
+0.00000001



Nota: Vea las instrucciones en las paginas 26 - 29 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.

DI Sensor Cal.
KNUM OFFSET



21. La pantalla se verá como a la derecha.

0.00 GPM
0.0 gal



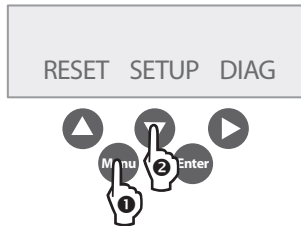
Siga los pasos 2a ó 2b para completar la configuración.

Step 2a

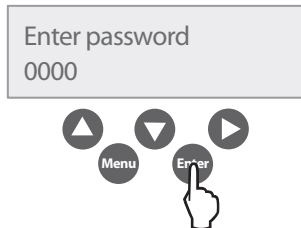
Configurar como un dispositivo de apagado de alto flujo con un controlador independiente.

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

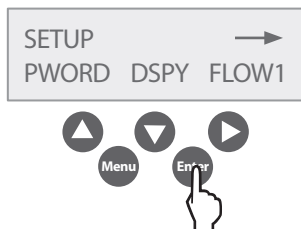
1. Presione MENU para ingresar a la modalidad de programación. Presione ▼ para ir a la pantalla de contraseña.



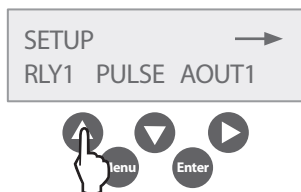
2. Utilice las teclas de flecha para ingresar una contraseña de 4 dígitos y después presione ENTER ó presione ENTER para no usar la contraseña.



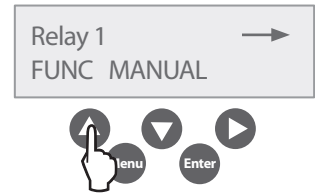
3. En la pantalla de configuración, presione ENTER.



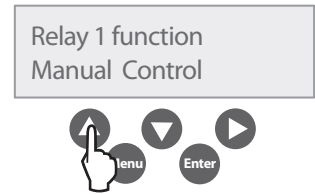
4. Presione ▲ para RLY1.



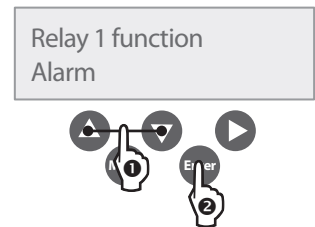
5. Presione ▲ para FUNC.



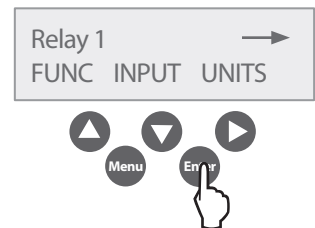
6. Presione ▲ para MANUAL.



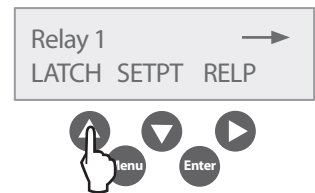
7. Presione ▲ ó ▼ hasta que aparezca ALARM. Presione ENTER para salvar.



8. Presione ENTER.



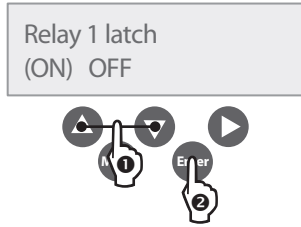
9. Presione ▲.



Paso 2a cont.

10. Presione ▲ ó

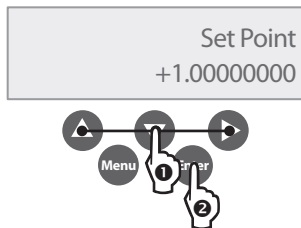
▼ hasta que los paréntesis aparezcan alrededor del "ON" y después presione ENTER.



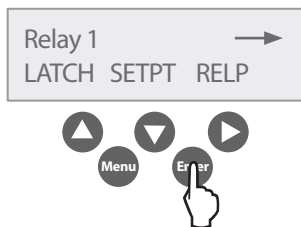
11. Presione ▼ para SET POINT.



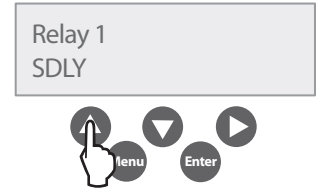
12. Utilice las teclas ▲▼▶ para fijar la cantidad de flujo límite. (Una vez excedida esta cantidad, el PT3002 causará una interrupción en el común cerrando la válvula maestra, deteniendo el flujo.) Presione ENTER al concluir.



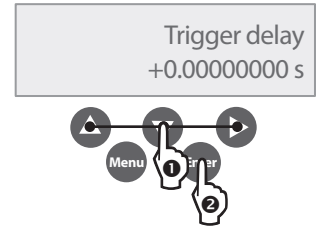
13. Presione ENTER.



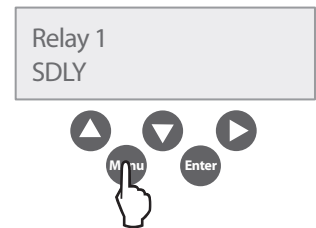
14. Presione ▲.



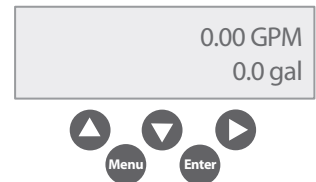
15. Utilice las teclas ▲▼▶ para fijar el número de segundos deseados que el PT3002 deberá esperar antes de interrumpir el común de la válvula y cerrar la válvula maestra una vez que ocurre un alto flujo. Presione ENTER para salvar.



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



17. La pantalla se verá como a la derecha.

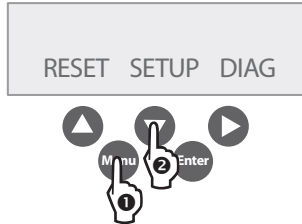


Paso 2b

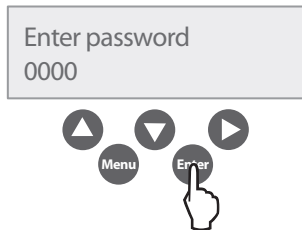
Configuración para usar con control centralizado

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

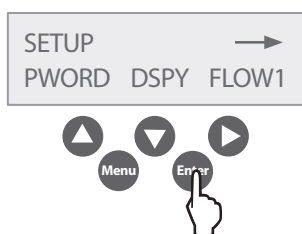
1. Presione MENU para ingresar el modo de programación. Presione ▼ para ir a la pantalla de contraseña.



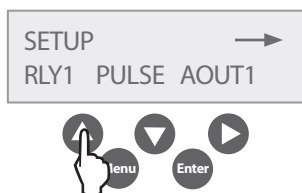
2. Utilice las teclas de flecha para ingresar una contraseña de 4 dígitos y después presione ENTER ó presione ENTER para no usar la contraseña.



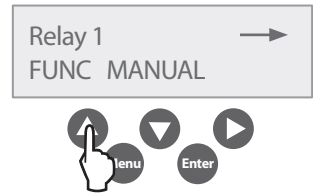
3. Presione ENTER en la pantalla de configuración.



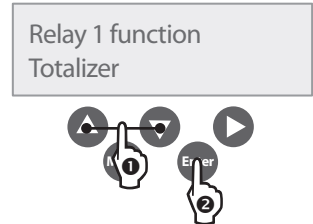
4. Presione ▲ para RLY1.



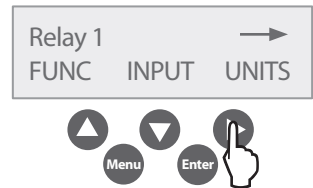
5. Presione ▲ para FUNC.



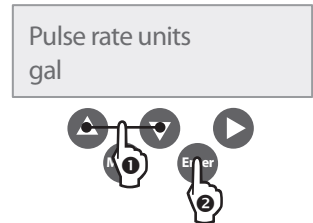
6. Presiones ▲ ó ▼ hasta que aparezca "TOTALIZER" en la pantalla y después presione ENTER.



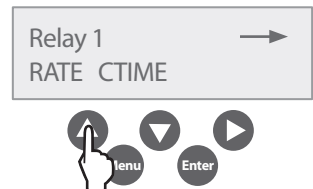
7. Presione ► para configurar PULSE RATE UNITS (unidades de rango de pulso).



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

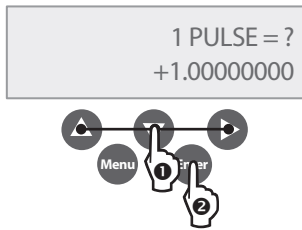


9. Presione ▲ para fijar el rango (SET RATE).

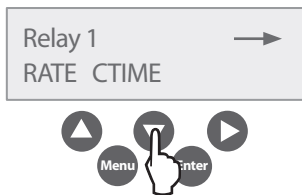


Paso 2b cont.

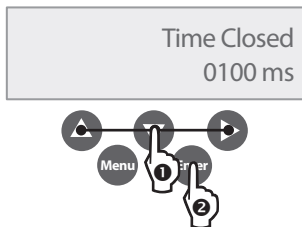
10. Utilice los teclados ▲▼▶ para fijar SET PULSE.
(Nota: Esto será normalmente fijado a +1.00000000). Presione ENTER para salvar.



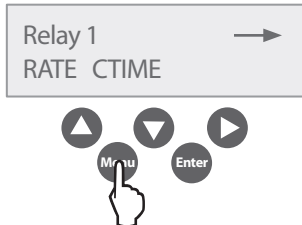
11. Presione ▼ para fijar CLOSETIME.



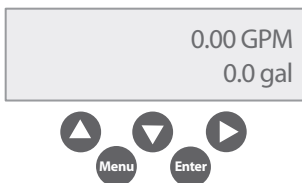
12. Utilice los teclados de ▲▼▶ para fijar CLOSETIME.
(Nota: estará normalmente fijado a 100ms). Presione ENTER para salvar.



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

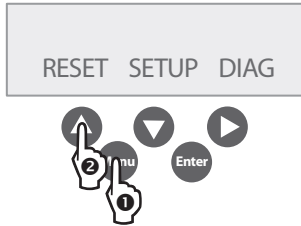


14. La pantalla se verá como a la derecha.

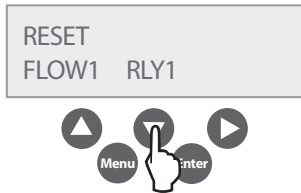


Reconfigurar el 3002 después de presentarse un alto flujo

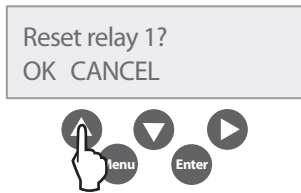
1. Presione MENU para ingresar el modo de programación. Presione ▲ para ir a la pantalla de reconfiguración.



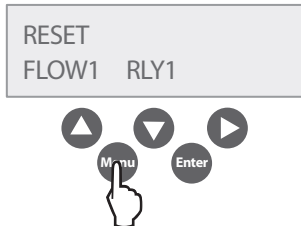
2. Presione ▼ para reconfigurar el Relé.



3. Presione ▲ (OK) para reconfigurar.

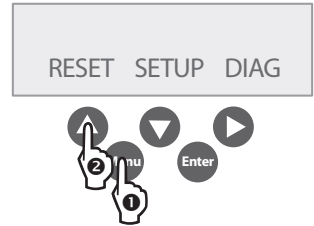


4. Presione MENU dos veces para regresar a la pantalla GPM / Total.

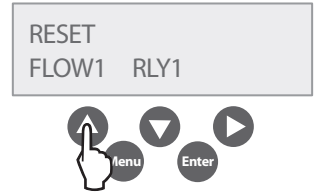


Reconfigurar el 3002 a una lectura total de cero flujo

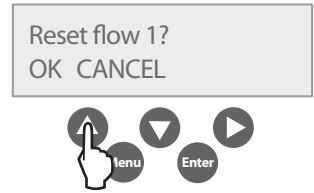
1. Presione MENU para ingresar el modo de programación. Presione ▲ para ir a la pantalla de reconfiguración.



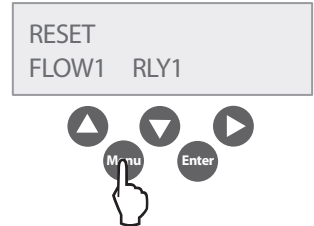
2. Presione ▲ para reconfigurar el flujo (Flow).



3. Presionar ▲ (OK) para reconfigurar.



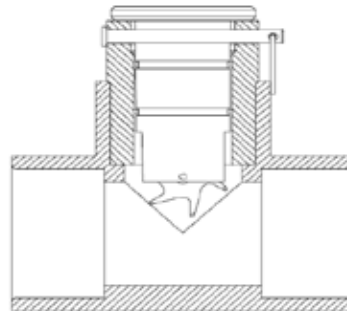
4. Presione MENU dos veces para regresar a la pantalla GPM / Total.



Appendix A *Apéndice A*

For Tee Type Flow Sensors Rain Bird Models FS100B, FS150P, FS200P, FS300P or FS400P use the K & Offset chart below.

Para sensores tipo Te de modelos Rain Bird FS100B, FS150P, FS200P, FS300P o FS400P utilice la tabla K & valores de la parte inferior.



Calibration Table for Tee Mounted Sensors
Tabla de calibración para sensores de montaje en Te

| Model | Size | K Value | Offset | Suggested Operating Range (GPM) |
|--------------|-------------|----------------|---------------|--|
| FS100B | 1" | 0.41447 | 0.41447 | 2-40 |
| FS100B | 1½" | 1.848 | 0.227 | 3-100 |
| FS100B | 2" | 2.725 | .392 | 5-200 |
| FS100B | 3" | 8.309 | 0.227 | 12-300 |
| FS100B | 4" | 15.35 | 0.248 | 25-500 |

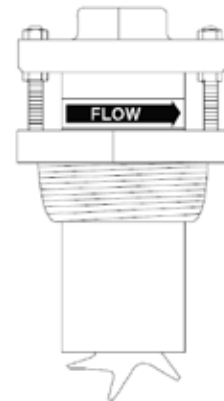
Appendix B Apéndice B

For Insert Type Flow Sensors Rain Bird Models FS350B or FS350SS

Para sensores Rain Bird tipo inserto de modelos FS350B ó FS350SS

Calibration Table for Pipe Sizes 3" through 36"

Tabla de calibración para tuberías de 3" a 36"



| Pipe Size | Pipe O.D. | Pipe I.D. | K Value | Offset | Suggested Operating Range (GPM) |
|------------------------------------|-----------|-----------|---------|--------|---------------------------------|
| Pipe Size 3" Sch 10S | 3.500" | 3.260" | 5.009 | 0.090 | 12-400 |
| Std. Wt., Sch 40 | 3.5" | 3.068" | 4.362 | 0.063 | 12-400 |
| Extra Strong, Sch 80 | 3.5" | 2.900" | 3.858 | 0.043 | 12-400 |
| PVC Class 125 | 3.5" | 3.284" | 5.094 | 0.093 | 12-400 |
| PVC Class 160 | 3.5" | 3.230" | 4.902 | 0.085 | 12-400 |
| PVC Class 200 | 3.5" | 3.166" | 4.682 | 0.076 | 12-400 |
| 4" Sch 10S | 4.5" | 4.260" | 9.597 | 0.241 | 20-600 |
| Std. Wt., Sch 40 | 4.5" | 4.026" | 8.34 | 0.229 | 20-600 |
| Extra Strong, Sch 80 | 4.5" | 3.826" | 7.354 | 0.188 | 20-600 |
| PVC Class 125 | 4.5" | 4.224" | 9.396 | 0.240 | 20-600 |
| PVC Class 160 | 4.5" | 4.154" | 9.013 | 0.240 | 20-600 |
| PVC Class 200 | 4.5" | 4.072" | 8.578 | 0.239 | 20-600 |
| 5" Sch 10S | 5.563" | 5.295" | 16.305 | 0.250 | 30-900 |
| Std. Wt., Sch 40 | 5.50" | 5.047" | 14.674 | 0.248 | 30-900 |
| Extra Strong, Sch 80 | 5.50" | 4.813" | 13.165 | 0.246 | 30-900 |
| 6" Sch 10S | 6.625" | 6.357" | 24.089 | 0.260 | 50-1,500 |
| Std. Wt., Sch 40 | 6.5" | 6.065" | 21.574 | 0.257 | 50-1,500 |
| Extra Strong, Sch 80 PVC Class 125 | 6.5" | 5.761" | 19.457 | 0.254 | 50-1,500 |
| Extra Strong, Sch 80 PVC Class 125 | 6.625" | 6.217" | 22.853 | 0.258 | 50-1,500 |
| PVC Class 160 | 6.625" | 6.115" | 21.968 | 0.257 | 50-1,500 |
| PVC Class 200 | 6.625" | 5.993" | 21.068 | 0.256 | 50-1,500 |
| 8" Sch 10S | 8.625" | 8.329" | 43.914 | 0.286 | 80-2,500 |
| Sch 20 | 8.625" | 8.125" | 41.653 | 0.283 | 80-2,500 |
| Sch 30 | 8.625" | 8.071" | 41.063 | 0.283 | 80-2,500 |
| Std. Wt., Sch 40 | 8.625" | 7.981" | 40.086 | 0.281 | 80-2,500 |
| Sch 60 | 8.625" | 7.813" | 38.288 | 0.279 | 80-2,500 |
| Extra Strong, Sch 80 | 8.625" | 7.625" | 36.315 | 0.276 | 80-2,500 |
| PVC Class 125 | 8.625" | 8.095" | 41.324 | 0.283 | 80-2,500 |
| PVC Class 160 | 8.625" | 7.961" | 39.869 | 0.281 | 80-2,500 |
| PVC Class 200 | 8.625" | 7.805" | 38.203 | 0.279 | 80-2,500 |
| 10" Sch 10S | 10.75" | 10.420" | 70.195 | 0.321 | 125-4,000 |
| Sch 20 | 10.75" | 10.250" | 67.668 | 0.318 | 125-4,000 |
| Sch 30 | 10.75" | 10.136" | 66.069 | 0.316 | 125-4,000 |
| Sch 40, Std.Wt. | 10.75" | 10.020" | 64.532 | 0.314 | 125-4,000 |
| Extra Strong, Sch 60 | 10.75" | 9.750" | 61.016 | 0.309 | 125-4,000 |
| Sch 80 | 10.75" | 9.564" | 58.644 | 0.306 | 125-4,000 |
| PVC Class 125 | 10.75" | 10.088" | 65.431 | 0.315 | 125-4,000 |
| PVC Class 160 | 10.75" | 9.924" | 63.272 | 0.312 | 125-4,000 |
| PVC Class 200 | 10.75" | 9.728" | 60.733 | 0.309 | 125-4,000 |

Appendix B (cont.) Apéndice B (cont.)

Calibration Table for Pipe Sizes 3" through 36" (cont.) *Tabla de calibración para tuberías de 3" a 36" (cont.)*

| Pipe Size | Pipe O.D. | Pipe I.D. | K Value | Offset | Suggested Operating Range (GPM) |
|----------------------|-----------|-----------|---------|--------|---------------------------------|
| 12" Sch 10S | 12.75" | 12.390" | 104.636 | 0.367 | 175-5,000 |
| Sch 20 | 12.75" | 12.250" | 102.553 | 0.364 | 175-5,000 |
| Sch 30 | 12.75" | 12.090" | 99.347 | 0.360 | 175-5,000 |
| Std. Wt., Sch 40S | 12.75" | 12.000" | 97.576 | 0.358 | 175-5,000 |
| Sch 40 | 12.75" | 11.938" | 96.369 | 0.356 | 175-5,000 |
| Sch 60 | 12.75" | 11.625" | 90.441 | 0.348 | 175-5,000 |
| Extra Strong | 12.75" | 11.750" | 92.775 | 0.351 | 175-5,000 |
| Sch 80 | 12.74" | 11.376" | 85.922 | 0.342 | 175-5,000 |
| PVC Class 125 | 12.75" | 11.966" | 96.912 | 0.357 | 175-5,000 |
| PVC Class 160 | 12.75" | 11.770" | 93.152 | 0.352 | 175-5,000 |
| PVC Class 200 | 12.75" | 11.538" | 88.842 | 0.346 | 175-5,000 |
| 14" Sch 10S | 14.00" | 13.500" | 122.307 | 0.391 | 200-6,000 |
| Sch20 | 14.00" | 13.375" | 120.216 | 0.388 | 200-6,000 |
| Std. Wt., Sch 30 | 14.00" | 13.250" | 118.151 | 0.385 | 200-6,000 |
| Sch 40 | 14.00" | 13.124" | 116.096 | 0.382 | 200-6,000 |
| Sch 60 | 14.00" | 12.814" | 111.148 | 0.376 | 200-6,000 |
| Extra Strong | 14.00" | 13.00" | 114.098 | 0.330 | 200-6,000 |
| Sch 80 | 14.00" | 12.50" | 106.299 | 0.369 | 200-6,000 |
| 16" Sch 10S | 16.00" | 15.500" | 159.243 | 0.440 | 300-9,000 |
| Sch 20 | 16.00" | 15.375" | 156.742 | 0.436 | 300-9,000 |
| Std. Wt., Sch 30 | 16.00" | 15.250" | 154.267 | 0.433 | 300-9,000 |
| Sch 60 | 16.00" | 14.688" | 143.456 | 0.419 | 300-9,000 |
| Extra Strong, Sch 40 | 16.00" | 15.000" | 149.394 | 0.427 | 300-9,000 |
| Sch 80 | 16.00" | 14.314" | 136.548 | 0.410 | 300-9,000 |
| 18" Sch 10S | 18.00" | 17.500" | 202.739 | 0.498 | 350-10,000 |
| Sch 20 | 18.00" | 17.375" | 199.828 | 0.494 | 350-10,000 |
| Sch 30 | 18.00" | 17.124" | 194.061 | 0.486 | 350-10,000 |
| Std. Wt. | 18.00" | 17.250" | 196.943 | 0.490 | 350-10,000 |
| Sch 40 | 18.00" | 16.876" | 188.464 | 0.479 | 350-10,000 |
| Sch 60 | 18.00" | 16.500" | 180.171 | 0.469 | 350-10,000 |
| Extra Strong | 18.00" | 17.000" | 191.250 | 0.482 | 350-10,000 |
| Sch 80 | 18.00" | 16.126" | 172.152 | 0.457 | 350-10,000 |
| 20" Std. Wt., Sch 20 | 20.00" | 19.25" | 246.179 | 0.555 | 400-12,000 |
| Sch 40 | 20.00" | 18.812" | 234.836 | 0.540 | 400-12,000 |
| Extra Strong, Sch 30 | 20.00" | 19.000" | 239.666 | 0.547 | 400-12,000 |
| Sch 80 | 20.00" | 17.938" | 213.140 | 0.511 | 400-12,000 |
| 22" Std. Wt., Sch 20 | 22.00" | 21.25" | 301.975 | 0.621 | 500-15,000 |
| Extra Strong, Sch 30 | 22.00" | 21.00" | 294.642 | 0.616 | 500-15,000 |
| Sch 80 | 22.00" | 19.75" | 259.513 | 0.573 | 500-15,000 |

Calibration Table for Pipe Sizes 3" through 36" (cont.)

Tabla de calibración para tuberías de 3" a 36" (cont.)

| Pipe Size | Pipe O.D. | Pipe I.D. | K Value | Offset | Suggested Operating Range (GPM) |
|----------------------|-----------|-----------|---------|--------|---------------------------------|
| 24" Std. Wt., Sch 20 | 24.00" | 23.25" | 364.331 | 0.666 | 600-18,000 |
| Extra Strong | 24.00" | 23.00" | 356.178 | 0.660 | 600-18,000 |
| Sch 40 | 24.00" | 22.624" | 344.109 | 0.652 | 600-18,000 |
| Sch 80 | 24.00" | 21.562" | 311.271 | 0.628 | 600-18,000 |
| 26" Sch 10 | 26.00" | 25.376" | 437.809 | 0.719 | 700-21,000 |
| Std. Wt. | 26.00" | 25.25" | 433.247 | 0.716 | 700-21,000 |
| Sch 20, Extra Strong | 26.00" | 25.00" | 424.274 | 0.709 | 700-21,000 |
| 28" Sch 10 | 28.00" | 27.376" | 513.698 | 0.774 | 900-23,000 |
| Std. Wt. | 28.00" | 27.25" | 508.723 | 0.770 | 900-23,000 |
| Extra Strong, Sch 20 | 28.00" | 27.00" | 498.930 | 0.763 | 900-23,000 |
| 30" Sch 10 | 30.00" | 29.376" | 596.147 | 0.833 | 1,000-30,000 |
| Std. Wt. | 30.00" | 29.25" | 590.759 | 0.829 | 1,000-30,000 |
| Sch 20, Extra Strong | 30.00" | 29.00" | 580.146 | 0.822 | 1,000-30,000 |
| 32" Sch 10 | 32.00" | 31.376" | 685.156 | 0.897 | 1,200-35,000 |
| Std. Wt. | 32.00" | 31.25" | 679.355 | 0.893 | 1,200-35,000 |
| Sch 20, Extra Strong | 32.00" | 31.00" | 667.922 | 0.885 | 1,200-35,000 |
| Sch 40 | 32.00" | 30.624" | 650.919 | 0.873 | 1,200-35,000 |
| 34" Sch 10 | 34.00" | 33.312" | 777.566 | 0.964 | 1,300-40,000 |
| Std. Wt. | 34.00" | 33.25" | 774.511 | 0.962 | 1,300-40,000 |
| Extra Strong, Sch 20 | 34.00" | 33.00" | 762.258 | 0.953 | 1,300-40,000 |
| Sch 40 | 34.00" | 32.624" | 744.022 | 0.940 | 1,300-40,000 |
| 36" Sch 10 | 36.00" | 35.376" | 882.855 | 1.040 | 1,500-45,000 |
| Std. Wt. | 36.00" | 35.25" | 876.227 | 1.035 | 1,500-45,000 |
| Sch 20, Extra Strong | 36.00" | 35.00" | 863.154 | 1.025 | 1,500-45,000 |
| Sch 40 | 36.00" | 34.50" | 837.315 | 1.007 | 1,500-45,000 |

Notes

Notes



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