

Application

For use with Toro TMC-424, Sentinel[®], Sitepro[®], Irritrol MC-E, Rain Master[®] and other compatible controllers where you need to monitor the system for flow. The Toro TFS series flow sensor is a cost effective water saving tool. The potted electronics are designed for valve box or buried installation, making them suitable for most residential, commercial and municipal irrigation application.

Features

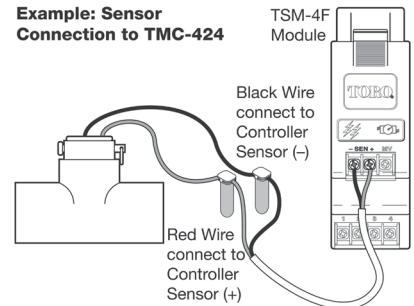
- Simple impeller-based design
- Potted electronics designed for valve box or underground applications
- Sensor pre-installed in tee
- Removable sensor design for easy replacement without removal of tee
- Socket end tee
- Compatible with TMC-424, Sentinel[®] and SitePro[®], Irritrol MC-E, Rain Master[®]
- Compatible with Competitors controllers that require frequency output flow sensors (pulses per second proportional to flow velocity).
- Colour coded leads to reduce chance of incorrect connection at the controller. Red wire (+) and Black wire (-).
- Two year warranty

Specifications

- Output: 2-wire, unscaled pulse – pulse width 5msec +/- 25%
- Frequency: 3.2 to 200 Hz
- Pressure Rating:
 - 15,20,25mm - up to 1034 kPa
 - 40,50,80,100mm – up to 690 kPa
- Temperature Rating: Up to 60°C
- Flow Range (Velocity):
 - 15,20,25mm – 0.6-6 metres per second
 - 40,50,80,100mm – 0.15–9 metres per second
- Accuracy:
 - 15,20,25mm – +/- 3 to 5%
 - 40,50,80,100mm – +/- 1%
- Linearity/repeatability:
 - 15,20,25mm – ± 1.5%
 - 40,50,80,100mm – ± 0.3%
- Slip x Slip Tee: Suits AS1477 PVC Pipe
 - 15,20,25mm – Schedule 40 PVC
 - 40,50,80,100m – Schedule 80 PVC



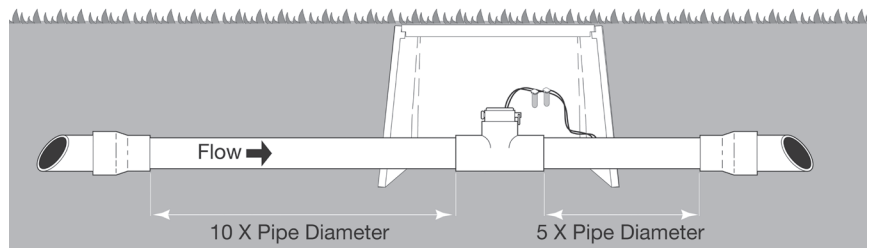
- Sensor Housing: Potted, PPS
- Impeller:
 - 15,20,25mm – 300SST
 - 40,50,80,100mm – Glass-filled nylon
- Shaft: Tungsten Carbide
- Bearing: UHMWPE
- Wires: 0.82mm² (18AWG) direct burial irrigation wire (solid copper)



Installation

- Choose a location along the pipe where 10 pipe diameters upstream and 5 pipe diameters downstream of the sensor provide no flow disturbance, ie. pipework with no fittings or bends.

Model	Description	Suggested Flow Range (Lpm)
TFS-050	15mm Flow Sensor	6 – 38
TFS-075	20mm Flow Sensor	11 – 75
TFS-100	25mm Flow Sensor	19 – 114
TFS-150	40mm Flow Sensor	18 – 380
TFS-200	50mm Flow Sensor	38 – 750
TFS-300	80mm Flow Sensor	75 – 1135
TFS-400	100mm Flow Sensor	150 - 1895



Controller Compatibility

- Toro TMC-424
- Toro Site-Pro®
- Toro Sentinel™
- Irritrol MC-E
- Rain Master®
- Hunter® ACC
- WeatherTRAK® ET Pro™
- Calsense®
- Rain Bird Maxicom, MDC and Site Control

In-field Wiring

- Use shielded twisted pair cable suitable for direct burial. Use Toro Communication cable (code 591-008/HC). Maximum distance from sensor to controller is 600 metres.
- When connecting to a Toro controller, connect the red wire to "IN", "SIGNAL" or "(+)" terminal and the black wire to "GND", "SIGNAL", "(-)" or "COM" terminal.
- Ensure connections are made and kept waterproof. Use 3M DBY wire connectors.
- To avoid signal corruption, do not install wiring alongside high voltage cables.

Recommended Operating Ranges for the TMC424 with TFS

Learned Flow PPS	Equivalent Flow (Litres per minute)						
	15mm	20mm	25mm	40mm	50mm	80mm	100mm
	Lpm	Lpm	Lpm	Lpm	Lpm	Lpm	Lpm
5	2	4	6	30	56	165	273
10	3	7	11	63	110	322	56
15	5	9	16	95	163	480	794
20	6	13	21	127	217	637	1054
25	8	16	26	159	271	795	1315
30	9	19	31	191	325	952	1575
35	11	22	36	224	379	1110	1835
40	12	24	41	256	433	1267	2096
45	14	27	46	288	487	1424	2356
50	15	30	51	320	540	1582	2617
55	17	33	56	352	594	1739	2877
60	18	36	61	385	648	1897	3138
65	20	39	66	417	702	2054	3398
70	21	42	70	449	756	2212	3658
75	23	45	75	481	810	2369	3919
80	24	48	81	513	864	2527	4179
85	26	51	86	545	918	2684	4440
90	27	54	91	578	971	2841	4700
95	28	57	96	610	1025	2999	4961
100	30	60	100	642	1079	3156	5221
105	31	63	105	674	1133	3314	5481
110	33	66	110	706	1187	3471	5742
115	34	69	115	739	1241	3629	6002
120	36	72	120	771	1295	3786	6263
125	38	75	125	803	1348	3944	6523

Do not operate in this region
 Marginal

Calibration Table

Model Ordering Code	Size mm -inch	K Value	Offset
TFS-050	15 - 1/2"	0.078	0.9
TSS-075	20 - 3/4"	0.1563	0.9
TFS-100	25 - 1"	0.26112	1.2
TFS-150	40 - 1 1/2"	1.699	-0.316
TFS-200	50 - 2"	2.8429	0.1435
TFS-300	80 - 3"	8.309	0.227
TFS-400	100 - 4"	13.7428	0.23707

Ordering Information

Code	Description
TFS-050	15mm Flow Sensor
TFS-075	20mm Flow Sensor
TFS-100	25mm Flow Sensor
TFS-150	40mm Flow Sensor
TFS-200	50mm Flow Sensor
TFS-300	80mm Flow Sensor
TFS-400	100mm Flow Sensor