

PEM W115

WATER SWITCH 1 1/2" x 1 1/2" x 1 1/2"

Pictures courtesy of Freeport Fountain Inc.



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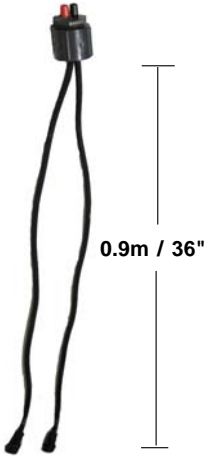
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PEM W115 WATER SWITCH

1 1/2" x 1 1/2" x 1 1/2"

PEM 00-03
Low Voltage
Test Device



PEM W115-1
&
846 Stream Jet



Submersible Plug In Disconnect
of electrical cable.
Disconnected

PEM W115-1
&
815 Stream Jet

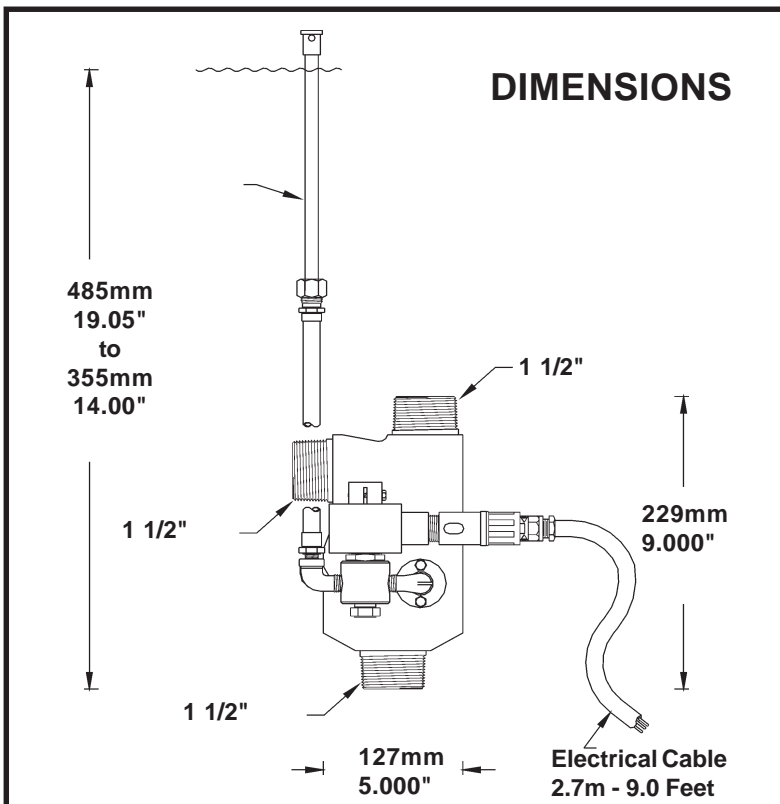


Submersible Plug In Disconnect
of electrical cable.
Connected

PEM W115-1
&
953 Aerated Jet



Submersible Plug In Disconnect
of electrical cable.
Connected



PEM W115 has a molded plastic (ABS, Acrylonitrile Butadien Styrene, UV protected) body with male (outside threaded) 1 1/2" NPT Inlet and 2 x 1 1/2" NPT Outlet Pipe connections for NPT or BSP pipe fittings.

A stainless steel body low voltage, 3 way solenoid water service, breather control valve is fitted to the Water Switch body. This solenoid valve has a submersible coil with plug in connection to the supply cable of standard cable length of 2.7m / 9.0 Feet. The solenoid valve is fully accessible for servicing. Custom made larger & longer size electrical cable with direct connection to solenoid valve coil without disconnect are available at extra cost.

As the solenoid valves are voltage sensitive, the PEM # 00-03 Low Voltage Test Device with color coded binder posts can be inserted between supply cable and solenoid valve to test actual operating voltage with suitable multi meter voltage tester .

ADD ON TO PEM W115 WATER SWITCHES:

Different PEM Spray Jets w. Flow Straighteners
Secondary Spray Jets and fittings for by pass .

PEM W115 WATER SWITCH

JETS ON WATER SWITCH PERFORMANCES

PEM Water Switch PERFORMANCES

The performance requirements of jets and nozzles when mounted onto the PEM Water Switch differ greatly from standard performances due to pressure losses within the diverter and because of differences in installations.

This also applies to jet performances when compared jets on other PEM Water Switches

Use the actual performances (established by actual testing) below and **do not** use performance tables as given elsewhere.

PEM Water Switches permits the use of a secondary spray jet on the exhaust port to work while the primary jet is off, both jets can oscillate with each other.

PEM Water Switches require for spray jet adjustment between jet and Water Switch or for small orifice jets and nozzles with low flows the use of pipe size by-pass valve between Water Switch and Jet to prevent back pressure into the unit, that could cause malfunction or shut off.

Always pre-test the actual performances of diverter & jet combinations under required conditions.

For combinations (paired) Spray Effects, always test PEM W 115 Additional Performances Requirements.

The solenoid valves of the different size PEM Water Switches are identical allowing for mix and match combinations on same system

The jet and riser pipe above the Water Switch must be directly supported to avoid any stress on the Water Switch and its pipe connections. Often the cause of water switch breakage is by maintenance staff holding on to jet to support themselves and then slip, breaking off a water switch pipe connection.

For PEM WATER SWITCHES IN ACTION, visit PEM Website:

www.pemfountain.ca / PEM Collection of Fountain Pictures

The creators of these water spectaculars have videos with sound available, otherwise contact:

Pres@pemfountain.ca

PEM W115 Performances with PEM 815-1, 846B, Stream Jet

Spray Height	Flow L/min	Inlet Pressure
1.0m	75	7.6m
1.5m	87	9.4m
2.0m	100	11.0m
3.0m	120	14.4m
4.0m	127	18.0m

PEM W115 Performances with PEM 15-6C, Aerated Jet on 300mm x 1 1/2" Pipe

Spray Height	Flow L/min	Inlet Pressure
1.0m	160	46.0m
1.5m	180	57.0m
2.0m	210	67.0m
2.5m	230	77.0m

PEM W115 Performances with PEM 02-6 on 300mm, 1 1/2" Pipe

Spray Height	Flow L/min	Inlet Pressure
1.0m	120	30.0m
1.5m	150	45.0m
2.0m	175	60.0m
2.5m	220	76.0m

PEM W115 Performances with PEM 626

Spray Height	Flow L/min	Inlet Pressure
1.0m	65	12.0m
2.0m	82	17.0m
3.0m	100	23.0m
4.0m	120	30.0m

PEM W115 Performances with PEM 954

Spray Height	Flow L/min	Inlet Pressure
1.0m	100	23.0m
1.5m	120	32.0m
2.0m	143	40.0m
3.0m	165	54.0m

PEM W115 Performances with PEM 953

Spray Height	Flow L/min	Inlet Pressure
1.0m	69	9.0m
1.5m	80	15.0m
2.0m	100	22.0m
3.0m	120	28.0m

1 USGPM = 3.785 L/min
1 m Head = 3.24 m Head

INLET PRESSURE = Water Pressure at Inlet to Water Switch,

DO NOT USE Regular performance tables of jets

Always test actual Water Switch and Jet Combination performances before committing yourself.

PEM W115 WATER SWITCHES

1 1/2 " x 1 1/2" x 1 1/2"

APPLICATION

For use in multiple spray effect water displays controlled by computer programmable low voltage sequencers without interference with other spray effects or back pressure. This device permits the installation of reasonably priced sequenced water displays or musical fountains. The water supply could be from a common single or multiple pump manifold.

DESCRIPTION

PEM W115 Water Switch is intended to switch the flow of a water supply within 1/10th or less of a second from one outlet to another. Within this device, water pressure from the supply pipe is converted into flow velocity, then reconverted into a lower outlet pressure. The function can be described as following: The water inflow from the supply pipe is directed at the junction of 2 branches of a Y-Tee. As the inflowing water entrains ambient air, replenishing air from the snorkel is drawn evenly through 2 transverse ports at the base of the Y. By opening or closing of these ports, a so called 'COANDA EFFECT' takes place, which bends the stream of the incoming water toward the Y leg that has its port closed. By controlling the air taken in by these ports from the snorkel with a low voltage solenoid valve, the COANDA EFFECT can be directed from one branch of the Y outlet to the other, in effect switching the flow of water from the one outlet to the other.

The very nature of the device does not permit valving or excessive back pressure of the outlets, the flow usually is controlled before entering the device or by the use of a by-pass valve on the outflow side of the diverter. Direct connection of a spray jet to the vertical outlet is recommended, nozzles not requiring laminar inflow are preferred. If the snorkel terminates below water level, the unit does not work. Normally a larger spray jet or several smaller spray jets can be operated, with the horizontal port serving as exhaust, however this port can also be equipped with a spray jet to provide an alternating spray effect with a slightly lower outlet pressure.

In the selection of spray jets, water level independent and low backpressure jets or nozzle can be used with suitable pipe fittings. Water level dependent aerated jets and cascade jets should not be used.

It must be realized, that Water Switch requires full inflow at all times, even if the spray effect is not working.

CONSTRUCTION

PEM W115-1 has a molded plastic (**ABS Acrylonitrile Butadiene Styrene**) body with male (outside threaded) 1 1/2" NPT Inlet and 2 x 1 1/2" Outlets, NPT tapered pipe connections for connecting suitable for NPT & BSP threaded pipe fittings. A stainless steel body, low voltage water service 3 way, solenoid breather control valve is attached to the Water Switch body, the solenoid valve has a submersible coil.

Effective 2007, PEM Water Switches are supplied as standard with plug in submersible disconnects at the solenoid valve to assist in installation and maintenance by not having to open sealed junction boxes. Connecting cable: 2 x 1.5mm² or 16/3 AWG (to be specified) is supplied in 2.7m / 9.0 Feet length for termination into submersible PEM Junction Box with suitable PEM Cordseal. As solenoid valve coils are voltage sensitive, utilizing the **PEM # 00-03 Low Voltage Test Device**, the actual operating voltage can be read with a suitable Multi Voltage Test Meter while the solenoid valve is energized. This initial testing to be done while pond is dry before filling, a test protocol be made and saved for future reference.

TO TEST VOLTAGE IN FILLED PONDS: DO NOT DISCONNECT UNDER WATER! Always shut off electrical power first, drain pond or lift solenoid valve coil out of the water, affix 00-03 to supply cable and to solenoid valve coil, replace same on solenoid valve, then turn on electric power and check operating voltage. To maintain IP68 Rating when not inter-connected; always affix safely sealing cap to cable connector when removing from filled pond to prevent entry of water into connection.

The jet and riser pipe above the Water Switch must be directly supported to avoid any stress on the Water Switch and its pipe connections. Often the cause of water switch breakage is by maintenance staff holding on to jet to support themselves and then slip, breaking off a water switch pipe connection. Most installation positions of the water switch except for upside down are possible but the snorkel air intake must always be above water level. For remote installations the snorkel must be replaced with a suitable plastic or metal tubing that terminates near or at the pond but always above the water level.

To keep flying insects out of snorkel; retrofit with **PEM # 420-0015, 1-15 Insect Screen.**

For winterizing in cold climates: drain pool & all piping, assure that it cannot fill up with snow melt. Loosen 4 Valve Mounting Bolts (**# 8-5**, just loosen them, do not remove) & open valve plug, then close again to permit the valve to drain. Enclose unit with plastic garbage bag and tie up on intake pipe.

ELECTRICAL REQUIREMENTS

Operating Voltages:

Valve Manufacturer states:

Maximum operating voltage
variance of rated voltage:

+ 10% / - 15%

Verify at each Water Switch with
PEM 003 Voltage Test Device

Coil Voltages (Specify)

12 VAC, 50/60 Hz

24 VAC, 50/60 Hz

24 DC

Valve Manufacturer states
these inductive current
demands:

12 VAC

5.8 AMP. Inrush

3.4 AMP. Holding

24 VAC

2.9 AMP. Inrush

1.7 AMP. Holding

24 DC

0.48 AMP

For pipe thread sealant use only Teflon Tape. The use of other pipe thread sealants voids warranty!

PEM W115

WATER SWITCH ASSEMBLY & PARTS

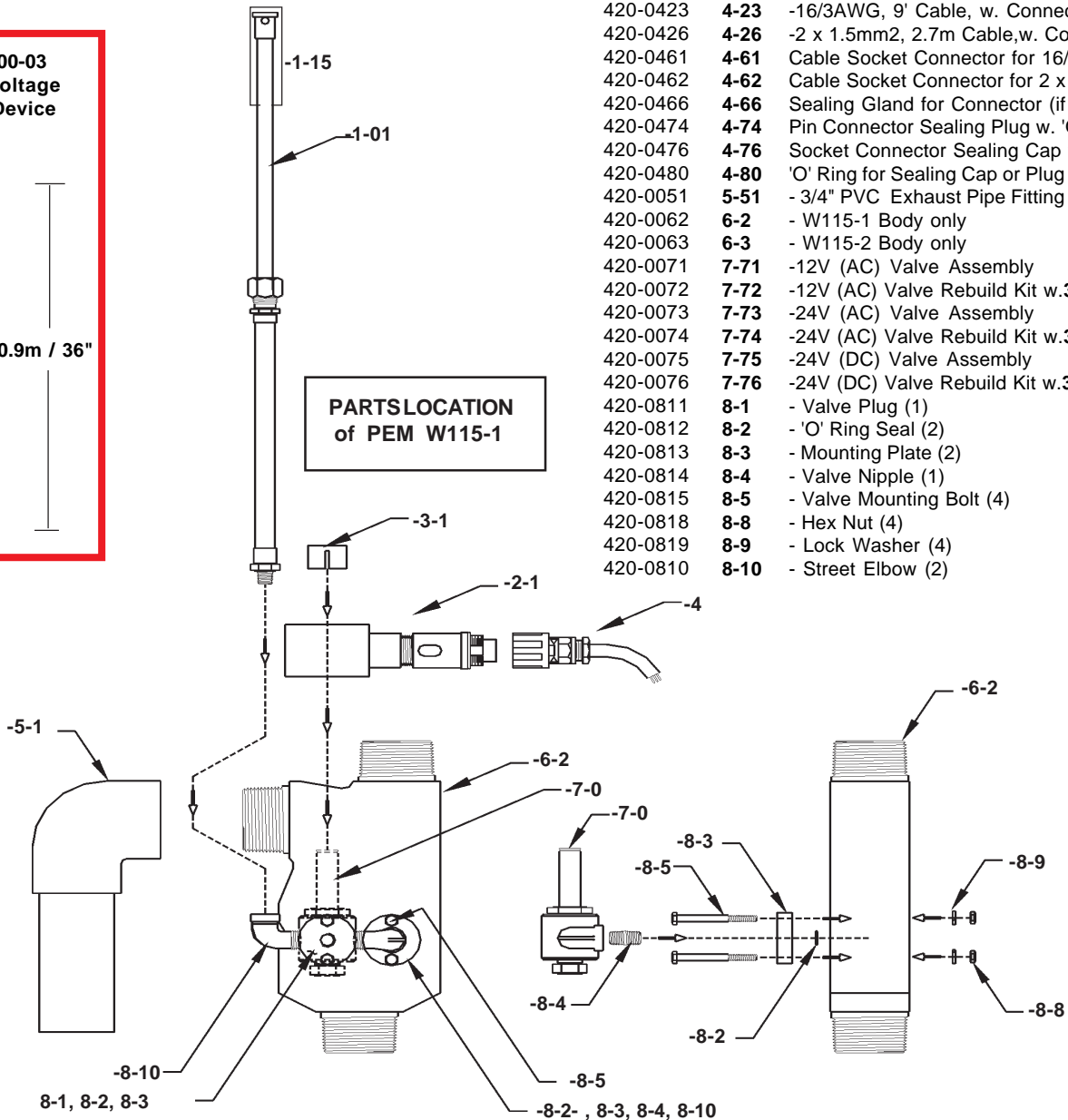
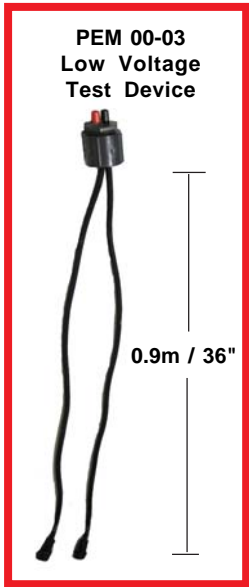
PEM Water Switches are supplied with stainless steel, fully submersible, water duty, solenoid valves.

Approval of Solenoid Valves:
UL, CSA, CE & RoHs compliant.

PEM Water Switches are supplied with submersible disconnects rated for IP 68, tested at 1.054Kg/sq cm (15 lbs/sq in) , 10m depth for 2 weeks.

Approvals: UL, CSA, CE and RoHs compliant.

PEM #	CAT.#	DESCRIPTION
420-0003	00-03	-Low Voltage Test Device with Connectors
W115-		
420-0011	1-01	-Snorkel Assembly
420-0015	1-15	-Stainless Steel Insect Screen for Snorkel
420-0022	2-02	-12VAC Coil w. Pin Connector
420-0024	2-04	-24VAC Coil w. Pin Connector
420-0026	2-06	-24VDC Coil w. Pin Connector
420-0031	3-1	- Coil Holding Clamp w. bolt & washers
420-0423	4-23	-16/3AWG, 9' Cable, w. Connector
420-0426	4-26	-2 x 1.5mm2, 2.7m Cable,w. Connector
420-0461	4-61	Cable Socket Connector for 16/3 AWG
420-0462	4-62	Cable Socket Connector for 2 x 2.5mm2
420-0466	4-66	Sealing Gland for Connector (if lost)
420-0474	4-74	Pin Connector Sealing Plug w. 'O' ring
420-0476	4-76	Socket Connector Sealing Cap w.'O' ring
420-0480	4-80	'O' Ring for Sealing Cap or Plug
420-0051	5-51	- 3/4" PVC Exhaust Pipe Fitting
420-0062	6-2	- W115-1 Body only
420-0063	6-3	- W115-2 Body only
420-0071	7-71	-12V (AC) Valve Assembly
420-0072	7-72	-12V (AC) Valve Rebuild Kit w.3-1 Clamp
420-0073	7-73	-24V (AC) Valve Assembly
420-0074	7-74	-24V (AC) Valve Rebuild Kit w.3-1 Clamp
420-0075	7-75	-24V (DC) Valve Assembly
420-0076	7-76	-24V (DC) Valve Rebuild Kit w.3-1 Clamp
420-0811	8-1	- Valve Plug (1)
420-0812	8-2	- 'O' Ring Seal (2)
420-0813	8-3	- Mounting Plate (2)
420-0814	8-4	- Valve Nipple (1)
420-0815	8-5	- Valve Mounting Bolt (4)
420-0818	8-8	- Hex Nut (4)
420-0819	8-9	- Lock Washer (4)
420-0810	8-10	- Street Elbow (2)



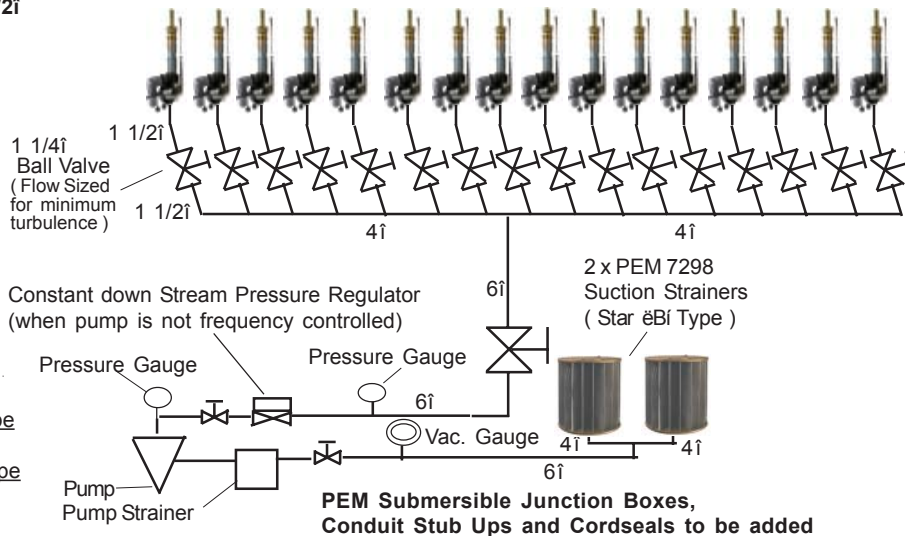
Effective 2007, PEM Water Switches are supplied as standard with plug in submersible disconnects at the solenoid valve to assist in installation and maintenance by not having to open sealed junction boxes. Connecting cable: 2 x 1.5mm2 or 16/3 AWG (to be specified) is supplied in 2.7m / 9.0 Feet length for termination into submersible PEM Junction Box with suitable PEM Cordseal. As solenoid valve coils are voltage sensitive, utilizing the **PEM # 00-03 Low Voltage Test Device**, the actual operating voltage can be read with a suitable Multi Voltage Test Meter while the solenoid valve is energized. This initial testing to be done while pond is dry before filling, a test protocol be made and saved for future reference. **TO TEST VOLTAGE IN FILLED PONDS: DO NOT DISCONNECT UNDER WATER!** Always shut off electrical power first, drain pond or lift solenoid valve coil out of the water, affix 00-03 to supply cable and to solenoid valve coil, replace same on solenoid valve, then turn on electric power and check operating voltage. To maintain IP68 Rating when not inter-connected; always affix safely sealing cap to cable connector when removing from filled pond to prevent entry of water into connection.

Replacing Solenoid Valve Coils on PEM Water Switches dating prior to 2007 : Replace: complete Coil, Cable w.Pin connector and Coil Clamp To replace coils with custom sized fixed cable, larger & longer than above standard size cable, please enquire before removing.

MUSICAL FOUNTAIN DESIGN SUGGESTIONS

Typical Plumbing of a Musical Fountain of 4.5m / 15 Feet Height
with 16 x PEM W115-1 Water Switch Assemblies with PEM 815-1 Stream Jets

PEM 815-1, 16mm / 0.630i, 1 1/2i
PEM W 115 Water Switch
Sprayheight: 4.5m / 15i
Each: 123 L/min / 32.5 USGPM
Total Flow:
1968 L/min / 520 USGPM + 10%
Pressure at Water Switch:
19.5 m / 63 ð + 10%
(10% = Safety)



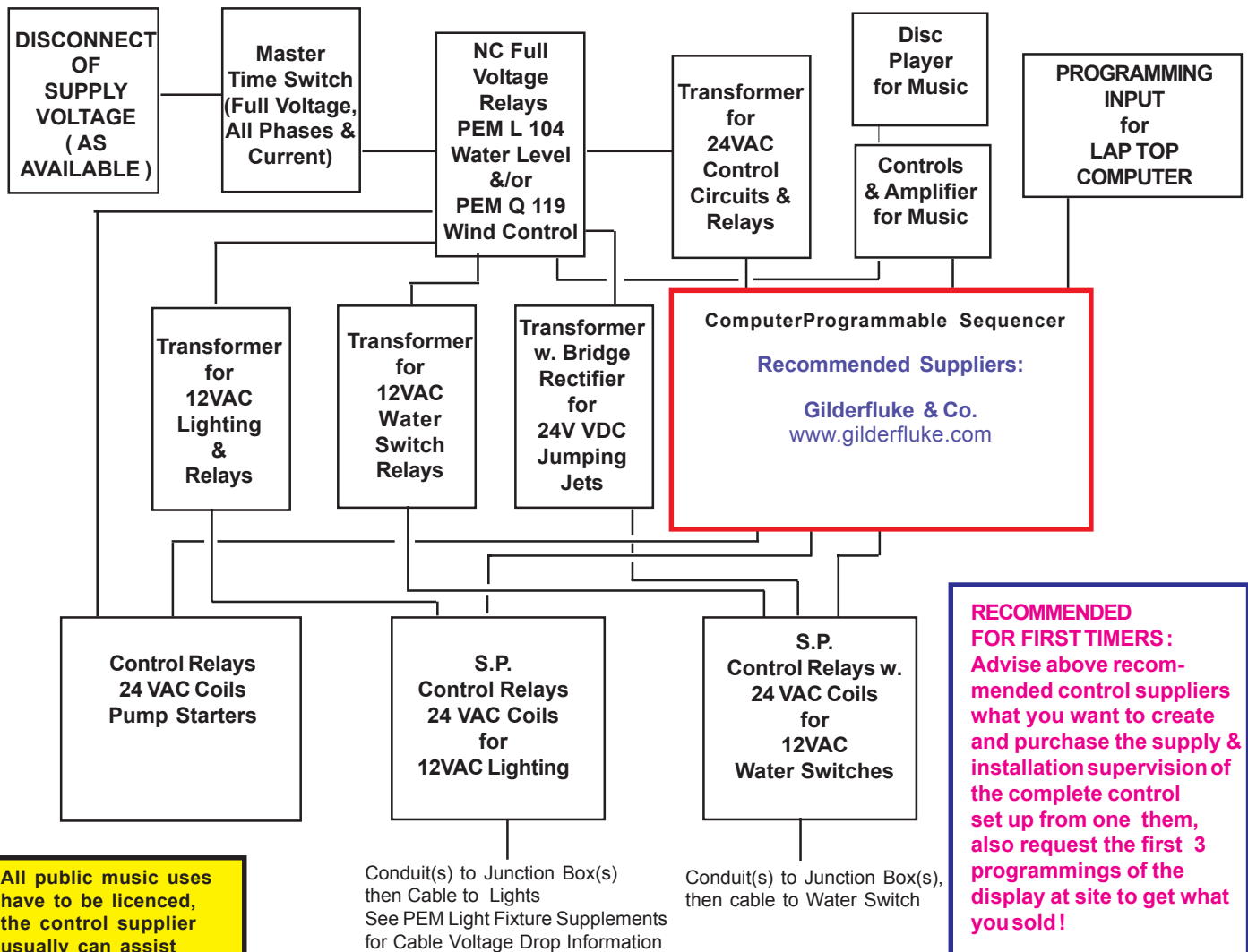
Suggested ILLUMINATION
48 pcs PEM E 150-Can.
w. Dichro Color Lens
(3 Color Changing)
with PAR 38,
120V-250W NSP Lamps
12V - R40, 120W NSP i
230V - R40, NSP Lamps

1 USGPM = 3.785 L/min
1 m Head = 3.24 m Head

Centrifugal Pump
with frequency
controlled motor
Flooded Suction
2000 L/min x 20.0m
+10% + Friction Losses in Pipe
530 USGPM x 65 ð Head
+ 10% + Friction Losses in Pipe

For other PEM Water Switch configurations adjust above information for requirements.

SUGGESTED CONTROL SCHEMATIC FOR COMPUTER PROGRAMMABLE MUSICAL WATER DISPLAYS CONSIDERING DIFFERENT OPTIONS

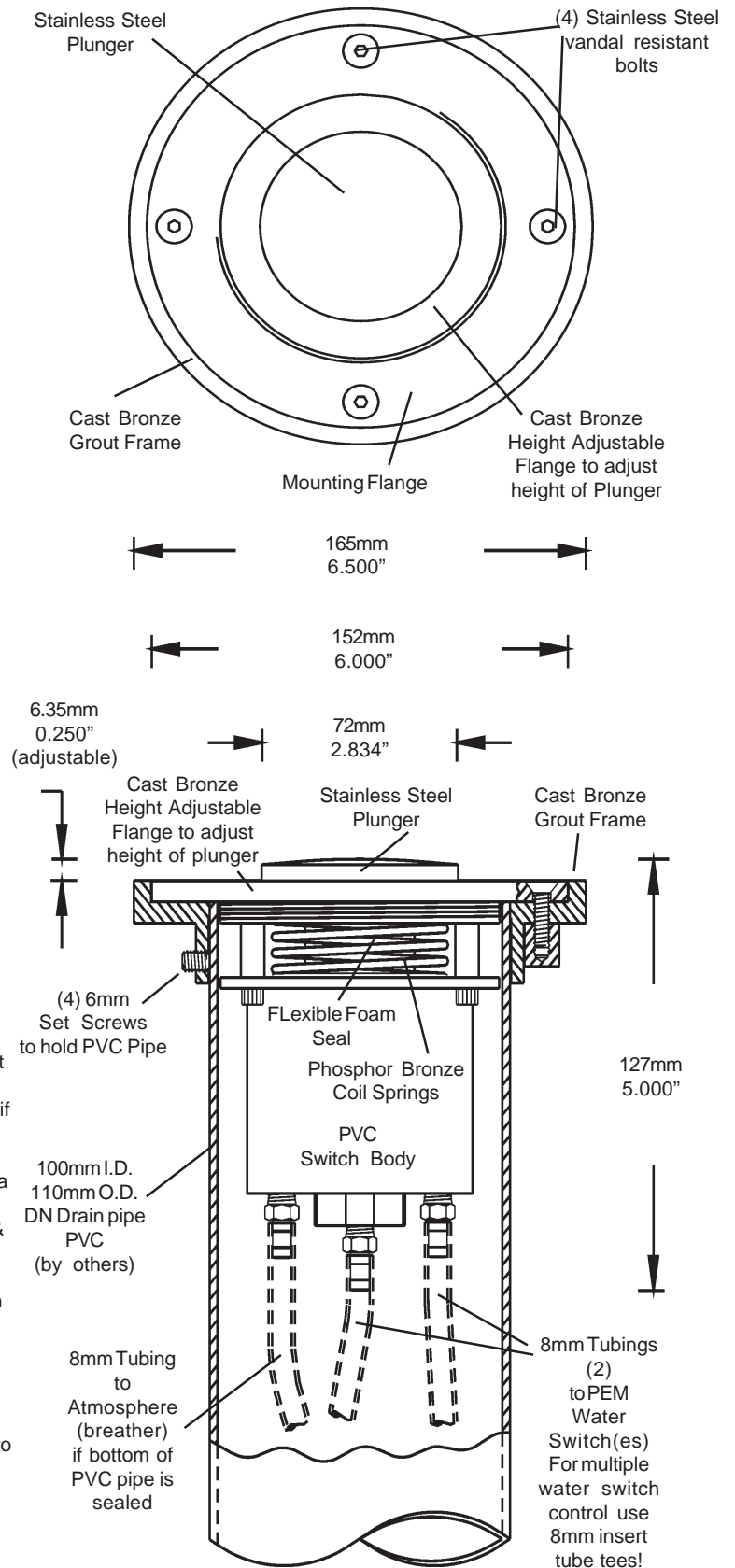


All public music uses have to be licenced, the control supplier usually can assist

RECOMMENDED FOR FIRST TIMERS:
Advise above recommended control suppliers what you want to create and purchase the supply & installation supervision of the complete control set up from one them, also request the first 3 programmings of the display at site to get what you sold!

PEM 110-5

MANUAL STEP ON CONTROL FOR PEM WATER SWITCHES



PEM 110-5 Step On Switch to activate PEM manual Water Switch PEM W115-2

This switch assembly is installed flush into concrete or other surfaces and is connected with 2 x 8mm plastic tubes to one or more PEM manual Water Switches (up to 5). A third 8mm plastic (breather) tube is provided to connect to atmosphere (open air) if the switch assembly is enclosed airtight. All tubes must be installed in such a manner that they not kink or get damaged. Kinked or damaged tube(s) can inactivate this control. Flexible tubing (3 x 3.0m / 10 feet) is supplied with each assembly, if longer tubing is required, this will be extra & additional and length must be specified.

The switch assembly is protected from entry of dirt and sand with a flexible foam seal, housed within the spring coils.

The switch assembly is designed to be mounted into a 100mm I.D. & 110mm OD (4") DIN (DN) drain Pipe. Not supplied with assembly to permit length of pipe housing to suit but requires enough open space beneath switch to store coiled plastic tubing to permit switch to be installed and/or lifted out for servicing.

When used with PEM M900 Spray Apron Assemblies, these units must also be equipped with enough coiled tubing beneath to lift out the assemblies.

PEM 110-5 Switch Assembly is made of PVC with cast bronze stainless safety steel plunger, cast bronze surface flange fitted into a cast bronze grout frame with stainless steel vandal resistant fasteners.

The Stainless Steel Plunger, with rounded safety edges is height adjustable after installation, above the mounting flange to suit all safety requirements. **This is a non electrical device.**

PEM WATER SWITCHES ORDER INFORMATION

	ORDER #	PEM CAT.	DESCRIPTION	WT.Kg	
 <p>Cable Connected</p> <p>Cable Disconnected</p> <p>PEM W 114-1/09-1 + PEM 812</p>	420-0003	00-03	PEM Voltage Test Device for : 12AC, 24 VAC & 24 DC	1.20	
			PEM W114 -1, 1" WATER SWITCH w. Cable Disconnect		
		490-45400	W114-1	PEM W114-1 -1 with standard solenoid valve & exhaust fitting	1.80
		490-45402	W114-2	PEM W114-2 fitted for manual control	1.10
				PEM W114 Optional Fittings	
		490-44005	110-5	Manual Step On Control (with 3.0m/10.0' tubing)	3.4
		490-40200	08-2	PEM W114-1-08-2, 3/4" Vertical Adjustment Flange	0.60
		490-45480	09-1	PEM W 114-Stainless Steel Stand Assembly	1.10
		490-45490	10-1	PEM W 114-Flex.Hose Assembly (25mm x 1.0m, 1" NPT)	1.20
		490-45494	12-4	PEM W114-1" NPT/ BSP Quick Disconnect	0.20
		420-02400	24-0	PEM W114-Mounting Coupling, PVC, 1" x 1 1/2" (NPT or BSP)	0.20
		420-02410	24-1	PEM W114-Mounting Coupling, PVC, 1" x 2" (NPT or BSP)	0.20
 <p>Cable Connected</p> <p>Cable Disconnected</p> <p>PEM W 115-1 + PEM 853</p>			PEM W114 - MAIN JETS		
		490-20531	812-1	PEM 812-1, 12mm, 3/4" NPT/BSP, 150mm Nipple included	0.5
		490-20533	812-2	PEM 812-2, 14mm, 3/4" NPT/BSP, 150mm Nipple included	0.8
		490-45420	952	PEM 952 with PVC Reducer	0.80
		490-45430	953	PEM 953 with PVC Reducer	1.20
				PEM W114 - SECONDARY JETS	
		490-45450	02-1	PEM 02-2 Secondary Jet with lockable exhaust fittings	1.10
		490-45460	31-25	PEM 31-25 Secondary Jet with lockable exhaust fittings	1.80
		490-45470	812-1	PEM 812-1, 12mm, 3/4" NPT/BSP, 150mm Nipple included	1.40
				PEM W115-1,1 1/2" WATER SWITCH with Cable Disconnect	
		490-45500	W115-1	PEM W115-1 with standard solenoid valve & exhaust fitting	2.10
		490-45510	W115-2	PEM W115-2 fitted for manual control	1.40
 <p>Cable Connected</p> <p>Cable Disconnected</p> <p>PEM W 116-1/200+ PEM 846</p>			PEM W115-1--MANUAL CONTROLS		
		490-44005	110-5	Manual Step On Control (with 3.0m/10.0' tubing)	2.90
				PEM W 115-1--- OPTIONAL FITTINGS	
		490-40500	08-5	PEM 08-5, 1 1/2" Vertical adjustment Flange	1.40
		490-45696	12-6	W115 1/2" NPT/ BSP Quick Disconnect	0.80
		490-46190	190	Custom Stand & Support for Horizontal installed Water Switch	4.50
				PEM W116-1, 2" WATER SWITCH with Cable Disconnect	
		490-45600	W116-1	PEM W116-1 with standard solenoid valve & exhaust fitting	2.80
		490-45602	W116-2	PEM W116-2 fitted for manual control	1.60
				PEM W116-2--MANUAL CONTROLS	
		490-44005	110-5	Manual Step On Control (with 3.0m/10.0' tubing)	2.90
				PEM W116-1--OPTIONAL FITTINGS	
	490-40600	08-5	PEM 08-6, 2" Adjustment Flange	1.70	
	490-45697	12-7	W116-2" NPT/BSP Quick Disconnect	1.10	
	490-46201	200	Custom Stand & Support for Horizontal installed W116 Water Switch	6.00	
			SUGGESTED MAIN JETS for PEM W115 & PEM W116		
	490-45510	815-2	PEM 815-2, 17mm x 1 1/2 x 300 mm PVC pipe w. fittings	5.50	
	490-45610	815-3	PEM 815-4, 19mm x 1 1/2" x 300mm PVC pipe riser & fittings	6.50	
	490-45620	815-5	PEM 815-5, 20mm x 1 1/2" x 300mm PVC pipe riser & fittings	1.60	
	490-45625	846C	PEM 846C, 19.1mm x 1 1/2" x 300mm PVC pipe riser & fittings	2.70	
	490-45630	953	PEM 953, 1 1/2"	1.40	
	490-45640	954	PEM 954 with 1 1/2" PVC Reducer	2.90	
	490-45650	626	PEM 626 with 1 1/2" x 300mm PVC pipe	2.50	
	490-45660	02-6-1	PEM 02-6-1 with 1 1/2" x 300mm PVC pipe	2.60	
			Inside/Female Threads can be re-tapped to BSP		
			For custom fitted cable & cable size please enquire		
			Use Flow Straighteners for all Jets on Water Switches		

PEM W115- 8 of 9

2007-8 replaces 2006-10

ORDER INFORMATION PEM WATER SWITCH ASSEMBLIES

	PEM CUSTOM MADE WATER SWITCH & JET ASSEMBLIES	WT.
ORDER #	Select operating Voltage and state with order	Kg
	12VAC	
W114CS-1003	W 114 Water Switch, 812-1 Stream Jet,15cm, 3/4" riser & couplings, no stand	2.4
W114CS-1004	W 114 Water Switch, 852(952) Aerated Jet,15cm, 3/4" riser & couplings, stand	5.1
W114CS-1005	W 114 Water Switch, 812-1 Stream Jet,15cm, 3/4" riser & couplings, stand	4.3
W114CS-1012	W 114 Water Switch, 852(952) Aerated Jet,15cm, 3/4" riser & couplings, no stand	3.3
W114CS-1014	W 114 Water Switch, 812-1 Stream Jet,15cm, 3/4" riser & couplings, stand	4.3
W114CS-1019	W 114 Water Switch, 812-1 Stream Jet,15cm, 3/4" riser & couplings, no stand	2.4
W115CS-2154	W 115 Water Switch, 953 Aerated Jet,1 1/2" riser & couplings , stand	5.9
W115CS-2155	W 115 Water Switch, 815-4 Stream Jet,1 1/2" riser & couplings , stand	5.5
W115CS-2156	W 115 Water Switch, 953 Aerated Jet,1 1/2" riser & couplings , no stand	4.8
W115CS-2157	W 115 Water Switch, 815-4 Stream Jet,1 1/2" riser & couplings , no stand	4.4
W115CS-2163	W 115 Water Switch, 815-4 Stream Jet,1 1/2" riser & couplings , stand	4.3
W115CS-2165	W 115 Water Switch, 815-4 Stream Jet,1 1/2" riser & couplings , no stand	4.4
	24VAC or 24DC	
W114CS-1004	W 114 Water Switch, 852(952) Aerated Jet,15cm, 3/4" riser & couplings, stand	2.4
W114CS-1005	W 114 Water Switch, 812-1 Jet,15cm, 3/4" riser & couplings, stand	5.1
W114CS-1003	W 114 Water Switch, 812-1 Stream Jet,15cm, 3/4" riser & couplings, no stand	4.3
W114CS-1014	W 114 Water Switch, 812-1 Stream Jet,15cm, 3/4" riser & couplings, stand	3.3
W114CS-1012	W 114 Water Switch, 852(952) Aerated Jet,15cm, 3/4" riser & couplings, no stand	4.3
W114CS-1019	W 114 Water Switch, 812-1 Stream Jet,15cm, 3/4" riser & couplings, no stand	2.4
W115CS-2154	W 115 Water Switch, 953 Aerated Jet,1 1/2" riser & couplings , stand	5.9
W115CS-2155	W 115 Water Switch, 815-4 Stream Jet,1 1/2" riser & couplings , stand	5.5
W115CS-2156	W 115 Water Switch, 953 Aerated Jet,1 1/2" riser & couplings , no stand	4.8
W115CS-2157	W 115 Water Switch, 815-4 Stream Jet,1 1/2" riser & couplings , no stand	4.4
W115CS-2163	W 115 Water Switch, 815-4 Stream Jet,1 1/2" riser & couplings , stand	4.3
W115CS-2165	W 115 Water Switch, 815-4 Stream Jet,1 1/2" riser & couplings , no stand	4.4
	120VAC or 240VAC	
W114CS-1004	W 114 Water Switch, 852(952) Aerated Jet,15cm, 3/4" riser & couplings, stand	2.4
W114CS-1005	W 114 Water Switch, 812-1 Jet,15cm, 3/4" riser & couplings, stand	5.1
W114CS-1003	W 114 Water Switch, 812-1 Stream Jet,15cm, 3/4" riser & couplings, no stand	4.3
W114CS-1012	W 114 Water Switch, 852(952) Aerated Jet,15cm, 3/4" riser & couplings, no stand	3.3
W115CS-2156	W 115 Water Switch, 953 Aerated Jet,1 1/2" riser & couplings, stand	4.8
W115CS-2157	W 115 Water Switch, 815-4 Stream Jet,1 1/2" riser & couplings, stand	4.4
W115CS-2156	W 115 Water Switch, 953 Aerated Jet,1 1/2" riser & couplings, no stand	4.3
W115CS-2165	W 115 Water Switch, 815-4 Stream Jet,1 1/2" riser & couplings, no stand	4.4
	<i>Assemblies include the parts described, for other parts see SECTION 8 of 9</i>	
	<i>Pipe riser to jet length = 150mm - Assemblies for 450mm, 18" water depth.</i>	
	<i>W 114 Assemblies with stand include 90 degree supply pipe elbow NPT/BSP</i>	
	For Assemblies not listed, specify requirements & request quotation	
	W 116 Water Switch Assemblies are custom assembled to given specification	