RAINWATER RETENTION SYSTEM

ML-Pluvial 3.0 E

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ML-
Pluvial

Background

Urban growth, increasing runoff volumes and climate change have forced cities and municipalities to re-evaluate their criteria, methods and practices.
to reassess their stormwater management criteria, methods and practices.

Faced with these changes, Provan now offers a complete automatic stormwater retention system.

Description

Provan's ML-Pluvial system offers the flexibility and versatility to adapt to different types of facilities and environments.

The ML-Pluvial system includes:

- Basic system :
  - Rainfall detection element
  - Control panel
  - Electric check valve

- Complete system:
  - Rain detection element
  - Control panel
  - Electric check valve
  - Flow regulator
  - Non-return valve

The panel can be supplied from 120 Vac to 575 3ph, 60HZ, as required.

A number of options are available in terms of detection method, type of environment and panel location.

The panel is equipped with LEDs indicating valve position, time remaining before release, alarms, water level (LT version) or rain intensity (PL version).

Alarm outputs are available for connection to the building management system.

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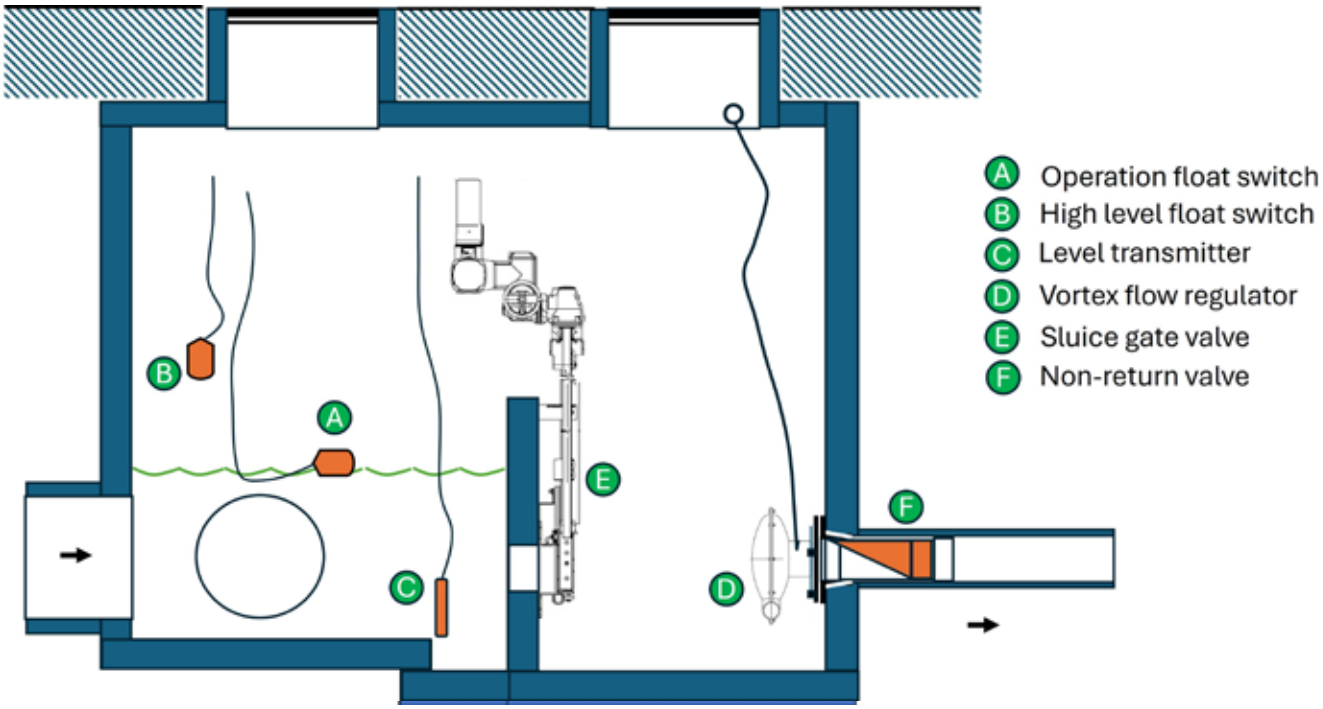
Typical holding chamber



Rainfall detection can be by float (A), by level transmitter (C) or by a rain gauge installed outside the chamber.

A high-level float (B) is also available for detection of overflow (high level) or high-level alarm in a valve chamber.

The ML-Pluvial system can include the flow regulator and non-return valve. The

ML-Pluvial system does not include the holding chamber.

Installation

All mechanical components are secured with chemical or mechanical anchors (included).

The typical height of a wall-mounted valve, from the center of the pipe to above the actuator, for a DN200 wall-mounted valve is 1.5m.

Two types of installation are available

- Integral
- Remote

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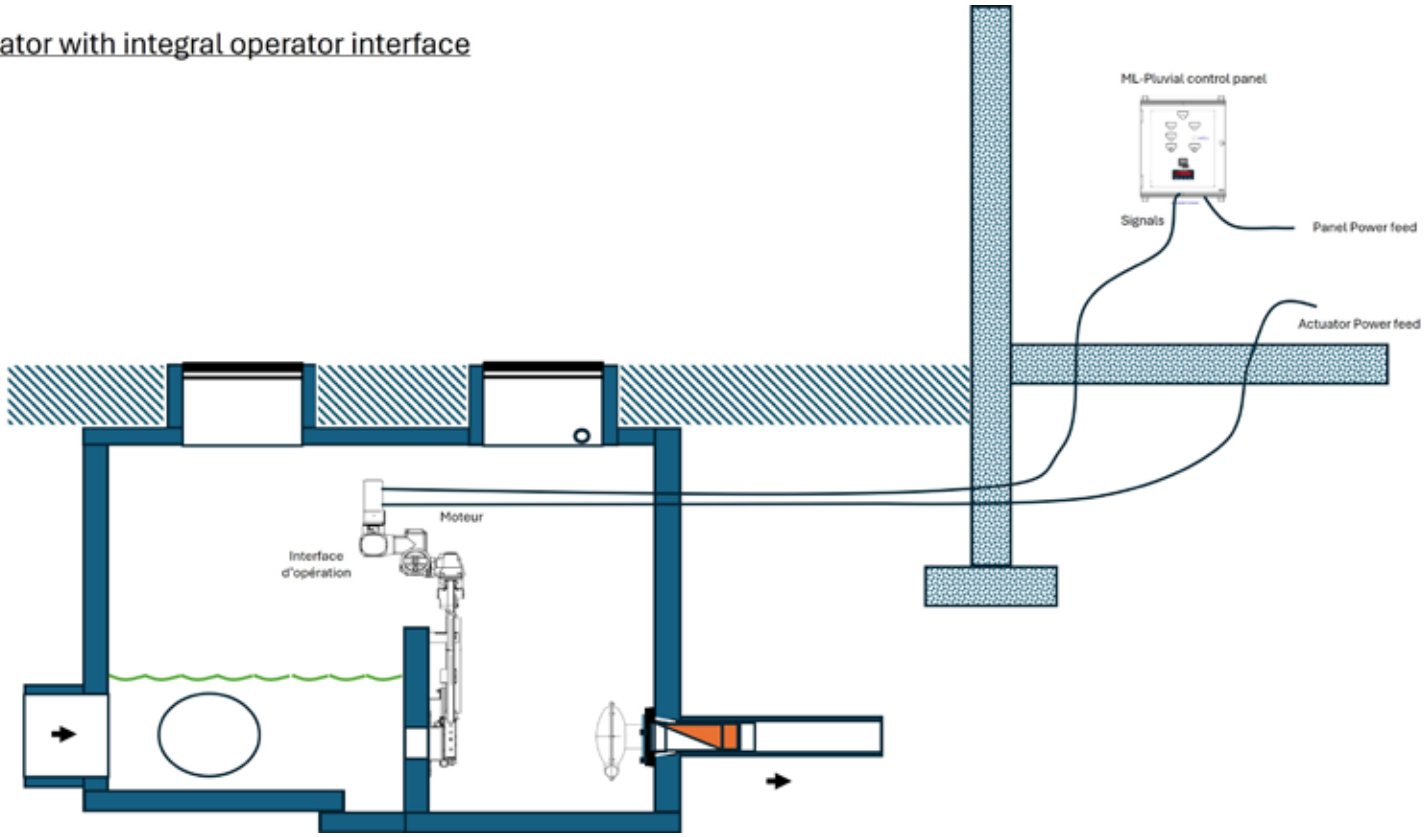
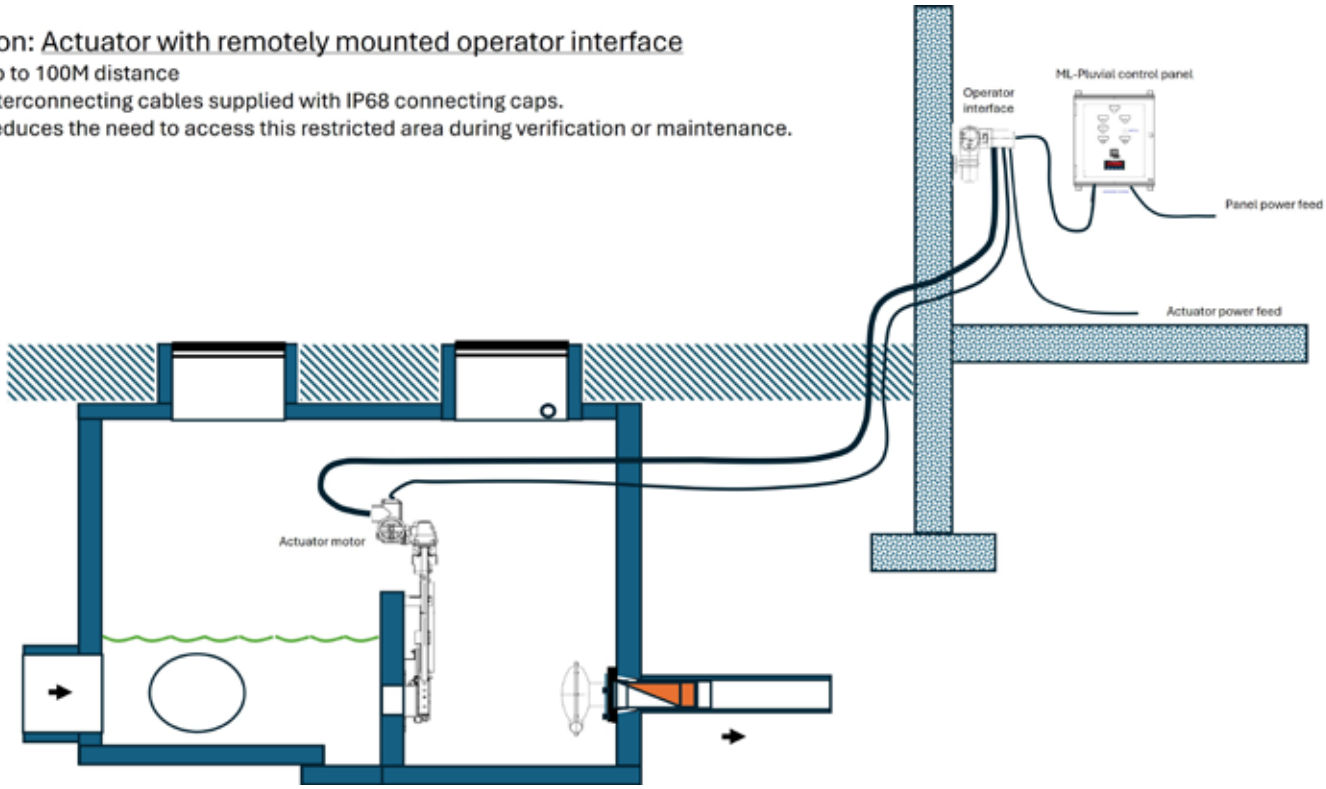
Actuator with integral operator interface



Option: Actuator with remotely mounted operator interface

- Up to 100M distance
- Interconnecting cables supplied with IP68 connecting caps.
- Reduces the need to access this restricted area during verification or maintenance.



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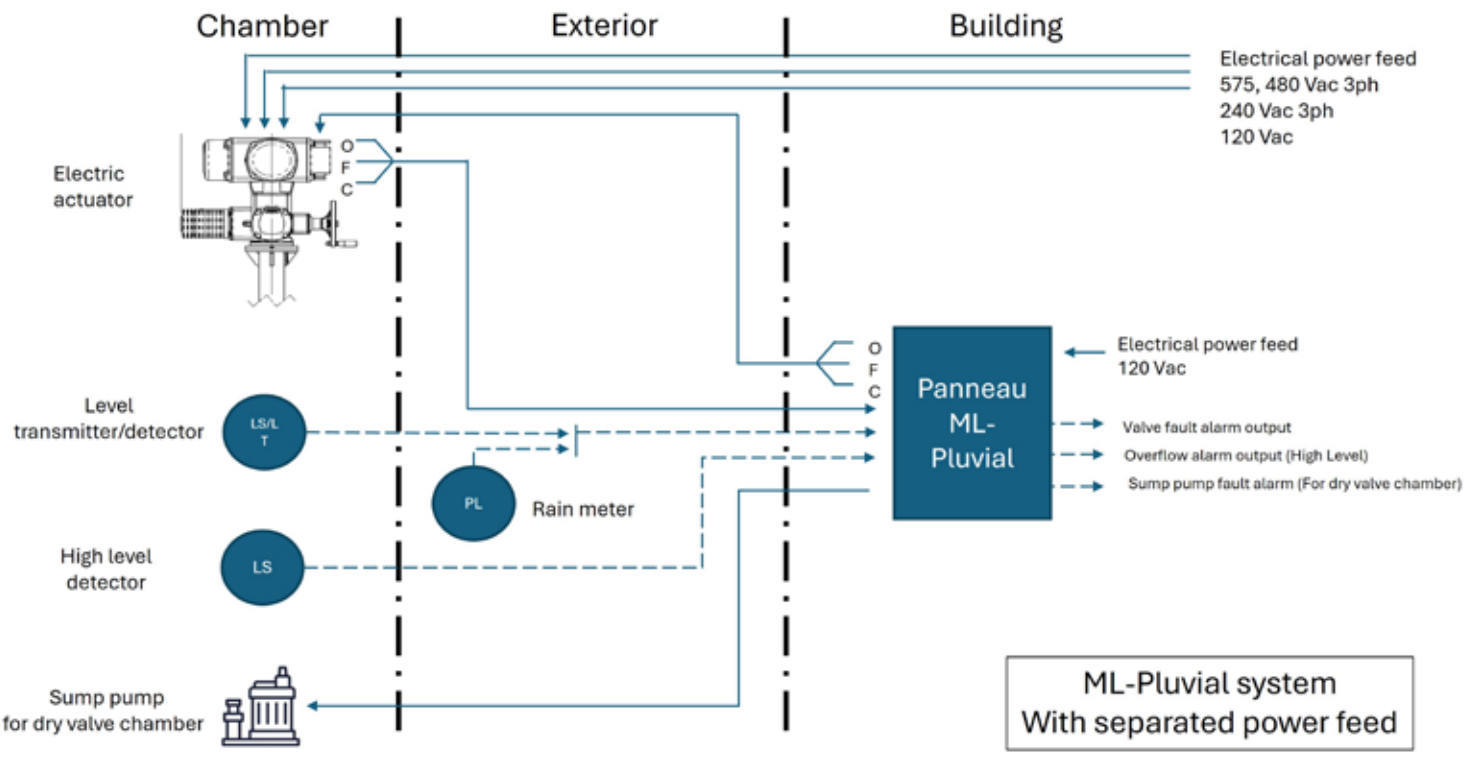
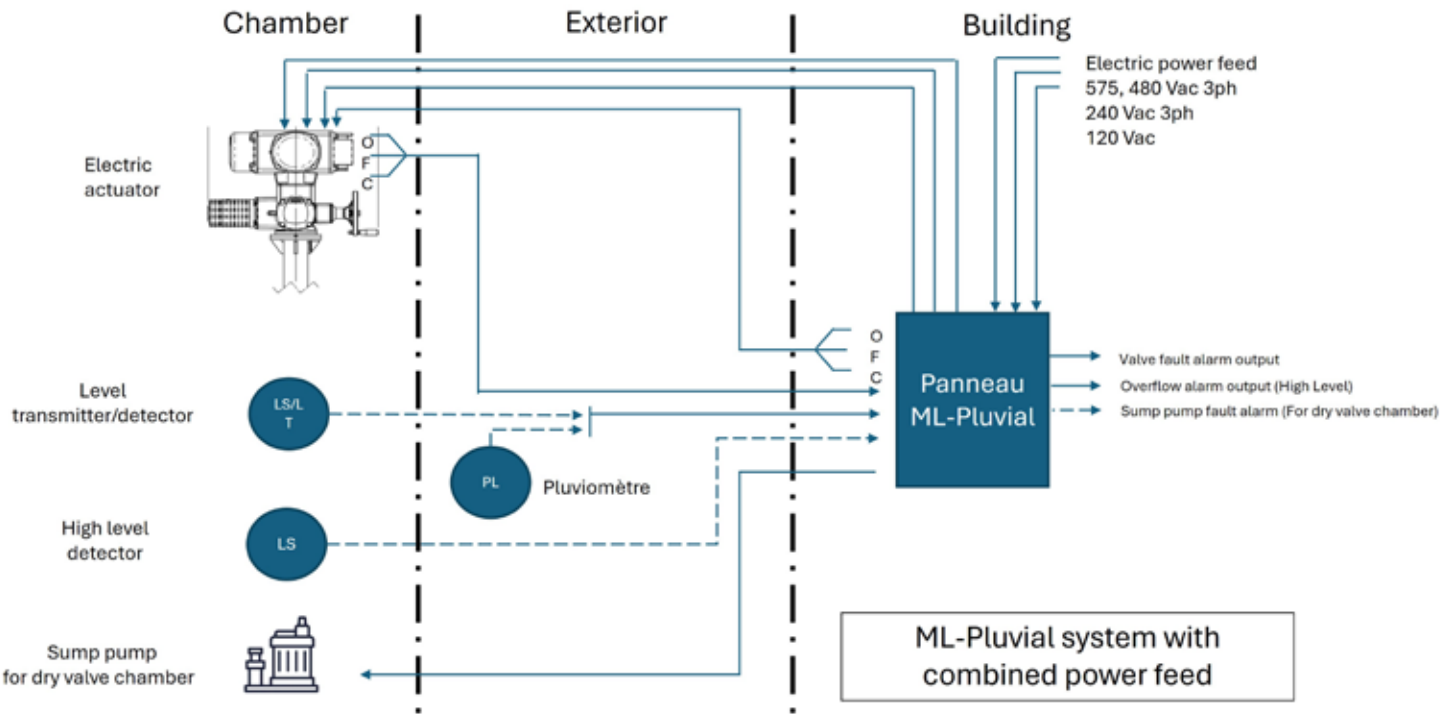
Electrical connection

As the valve chambers and/or manifolds may be inside or remote from a building, a number of electrical connection configurations are available.

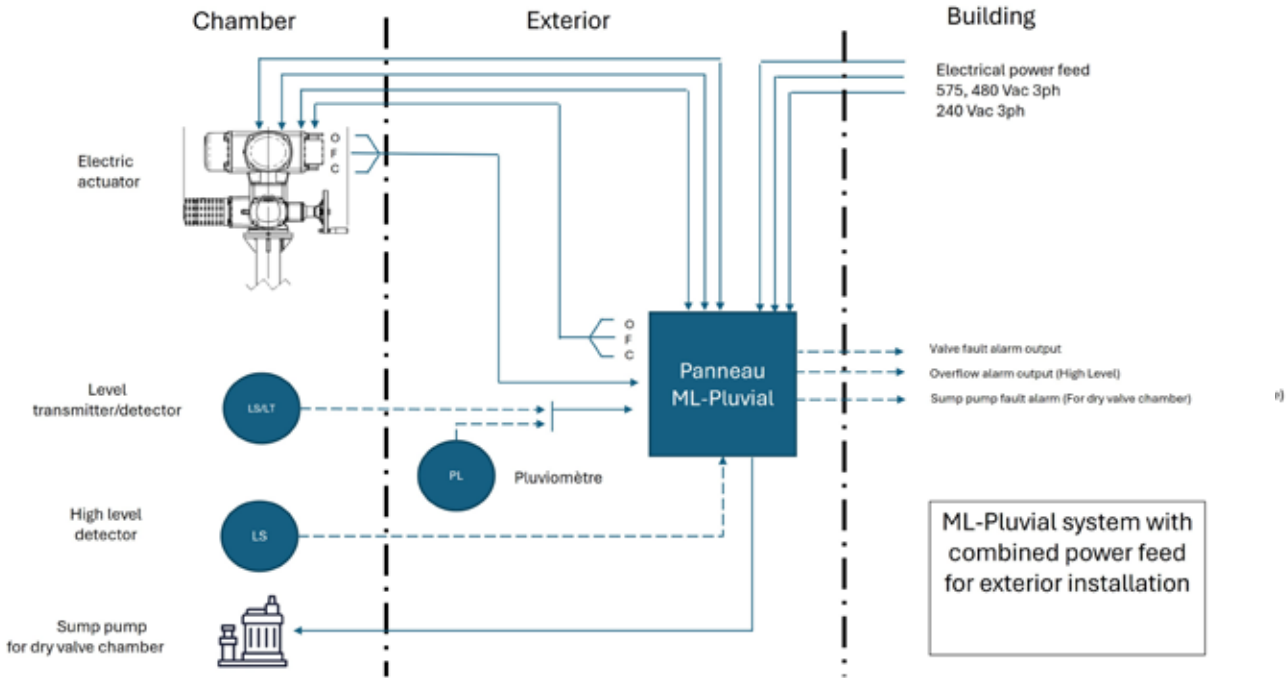
Separate valve power supply



Centralized valve power supply



Centralized power supply for outside



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Compliance

City of Montreal

BY-LAW RESPECTING CONNECTIONS TO PUBLIC WATER AND SEWER SYSTEMS AND STORMWATER MANAGEMENT

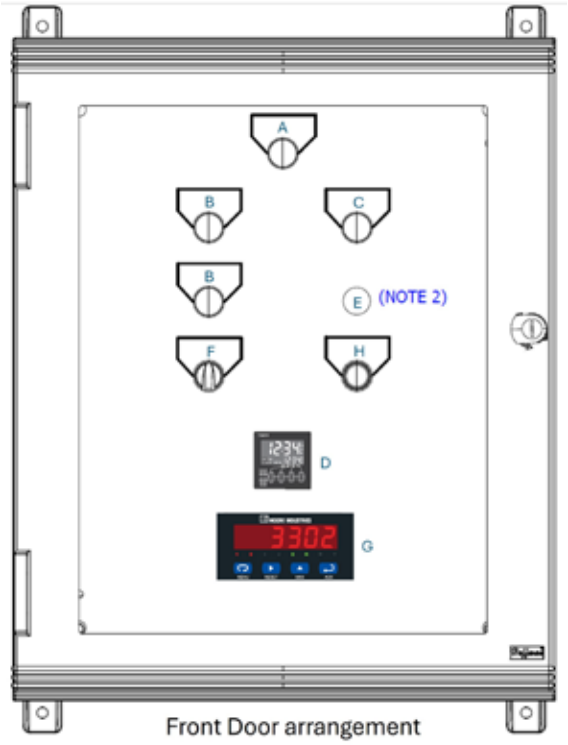
CHAPTER IV - STORMWATER MANAGEMENT

Automatic deferred discharge system

Our system offers several methods of stormwater management. It can operate on a raise of the water level in a manhole or collection chamber, by using a float or level transmitter, or using an outdoor rain gauge.

The panel is fitted with indicators showing :

- (A) Power supply.
- (B) Valve status (open/closed).
- (C) Valve fault alarm.
- (D) Time remaining before rainwater release.
- (E) High level alarm (option for overflow or dry valve chamber).
- (G) Water level or precipitation intensity value (Option)
- (F) Operation selector Open/Auto/Closed



Front Door arrangement

Basic operating mode

All versions of our system have the single purpose of retaining rainwater for a predetermined time, once an inflow or downpour is detected.

The initial state of the valve/sluice gate can be open or closed for systems using a rain gauge. Realigne.

- Starts a countdown once a high water level is detected above the drain bottom.
- When the countdown is complete, the drain valve opens.
- The valve closes again when the level falls below the start threshold.

LT version (Level Transmitter)

- Starts a countdown once a high level is detected above the drain bottom, indicating a downpour, and the rate of level change is low, indicating the end of the downpour.
- The countdown is reset if the rate of level change becomes high again during the holdback period, indicating a new shower.
- The countdown is reset if the level reaches the overflow, and will be restarted when the overflow ceases.
- Once the countdown is complete, the discharge valve opens.
- The valve closes again when the level falls below the start threshold.

PL version (rain gauge)

- Starts a countdown once a downpour has ended.
- If a new shower occurs during the countdown, the countdown is reset to zero.
- When the countdown is complete, the drain valve opens.
- The valve can remain open or close again when the level falls below the start-up threshold.

An optional high-level alarm can be provided by means of a float located in the holding chamber. Realigne

This option includes a level float for a dry valve chamber and a submersible pump.
The operation of this pump is supervised by the ML-Pluvial system. A pump failure alarm is included.

Option (Communication)

The basic ML-Pluvial system provides the building or fire management system with dry contacts to inform managers of system status.

The ML-Pluvial system is also available with Modbus/TCP communication.

Special version

The ML-Pluvial system can be adapted for unique modes of operation.

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Operation

The ML-Pluvial system is designed to operate in automatic mode at all times.

The system offers the possibility of forcing the valve open or closed in manual mode, for maintenance purposes and operational checks, from the panel.

In the event of a system failure, the valve can be operated from the electric actuator operator interface.

In the event of a complete failure (such as a power failure, fire or other), the valve can be operated from the manual handwheel of the electric actuator.

Operation thresholds and retention times are adjusted at the time of commissioning.

Technical specifications

Panel

- Dimensions: 20" wide x 24" high x 10" deep
- Wall-mounted.
- Available in steel, fiberglass or stainless steel.
- Power supply 120 Vac, 5 A
  - Optional 208, 240, 480, 575 Vac
- CSA approved
- Digital outputs via replaceable interface relays.

Valve actuator

- Power supply 120, 240, 480, 575 Vac
- Power< 1.5KW
- CSA approved

Valves

- Ball: Dezurik PEC Series
- Knife Gate: Dezurik KGC Series
- Wall valve: Wapro

Non-return valve

- Wapro

Flow regulators

- UFT

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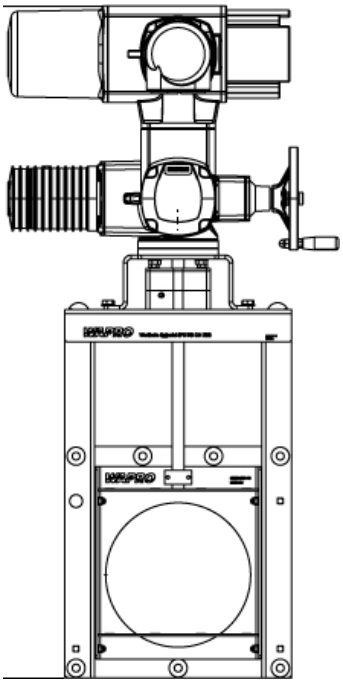
Retention valve

The ML-Pluvial system includes the retention valve. For small pipe diameters, we offer :

Excentric Plug Valves

Knife Gate Valves

For larger pipe diameters, we offer: sluice gates



Motorized wall valve

Electric actuator

These valves are equipped with electric actuators from Auma, Bernard Controls or other manufacturers.

- These actuators can be supplied with
120 Vac, 208 Vac, 240 Vac, 480 Vac and 575 Vac.

- They are all fitted with a handwheel for manual operation.

- They are sized according to valve type and size.

Note: All these brands of electric actuators are fitted with torque limiters, protecting the electric motor against overheating and breakage in the event of valve obstruction.

Actuator operating interface

The control module features a display and pushbuttons. All housings offer IP68 protection. The control module can be supplied integral with the electric motor or for remote mounting.

Operator interface module

OR

Remote up to 100M

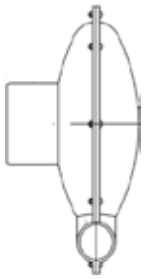
Manual actuator operation

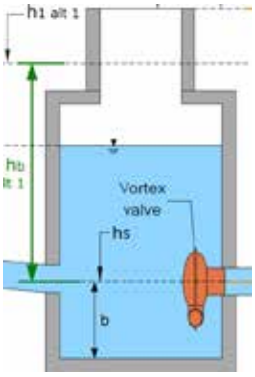
The regular actuator is supplied with a disengageable manual handwheel integral to the actuator motor. The actuator can be supplied with a square nut for key operation from the top of the chamber.

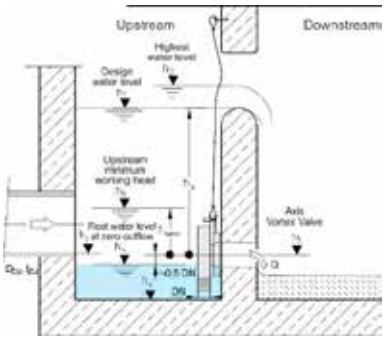
The complete actuator can also be mounted on a pedestal outside the chamber.

Flow regulator

The ML-Pluviale system can include a Vortex flow regulator from MFT, Fluidvertic VSU or VSL series. These regulators are available with sleeve or sliding flange connections.







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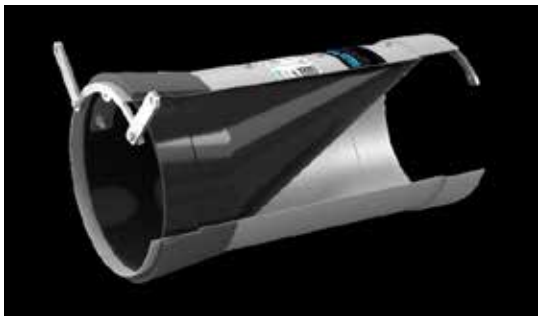
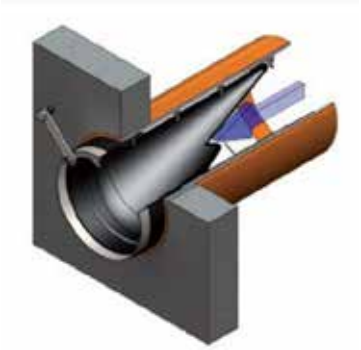
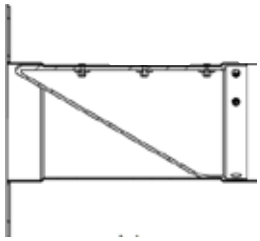
Check valve

The ML-Pluviale system can include a Wapro non-return valve, in reverse configuration, to allow the evacuation of rainwater from inside the chamber, and prevent backflow or backgassing. These valves are easy to install and require a small head to open.







Non-return valve in direct configuration, supplied in direct or reverse configurations.

Documentation: https://wapro.com/sites/default/files/2023-05/WaStop%20USA%20Eng%204.2.pdf

Commissioning

Provan includes technical support for installation planning, installation verification and commissioning.

Technical documentation

Detailed and specific technical documents are submitted for approval.

ML-Pluvial system nomenclature

ML-Pluvial	Rainwater retention system	
(A)	Type	
	S	Separate power feeds
	C	Centralized power supplies
(B)	Panel power supply	
	0	120 Vac (Type S or C)
	1	240 Vac 2Ph (Type C only)
	2	480 Vac 3ph (Type C only)
	3	575 Vac 3ph (Type C only)
(C)	Housing	
	F4X	Fiberglass Nema 4X Type S only
	A4	Nema 4 steel
	I4X	Stainless steel Nema 4X
(D)	Installation	
	IP	Indoor (public area)
	SM	Mechanical/electrical room
	EP	Outdoor (public space)
(E)	Upstream chamber level measurement/detection	
	LS	Float
	LT	Level transmitter
	PL	Rain gauge
(F)	High level detection	
	0	No
	1	Float
(G)	Alarm output	
	0	Valve fault only
	1	Valve fault / High level / Pump fault
(H)	Valve	
	B	Plug Valve
	G	Knife Gate
	M	Sluice Gates
(I)	Actuator power supply	
	0	120 Vac
	1	240 Vac 2Ph (As panel if type C)
	2	480 Vac 3ph (As panel if type C)
	3	575 Vac 3ph (As panel if type C)

(J)	Electric actuator	
	STD	IP68 with integral display
	REM	IP68 with remote display
	15M	IP68-15M permanent submersible with remote display
	60M	IP68-60M permanent submersible with remote display
(K)	Valve pipe diameter.	
	(XXXX mm)	50 to 1200 mm
(L)	Flow regulator	
	RD(XXXX mm/XX.XX LPS)	Nominal diameter/Rated flow
	X	None
(M)	Check valve	
	CAR(XXXX mm)	Pipe diameter
	X	None
(N)	Submersible pump	
	PS	Submersible pump and supervision
	X	None
(O)	Communication	
	MB	Modbus TCP
	X	None

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Model Type

ML-Pluvial/S/0/F4X/SM/LS/0/0/M/3/STD/(100mm)/RD200mm-4.0LPS/CAR200mm/PS/MB

(A)	S	Separate power feeds
(B)	0	120 Vac panel power supply
(C)	F4X	Fiberglass enclosure Nema 4
(D)	SM	For mechanical/electrical rooms
(E)	LS	Rainwater level switch
(F)	0	No level detection for valve chamber
(G)	0	Valve fault alarm only
(H)	M	Sluice gates
(I)	3	Actuator power supply 575 Vac 3Ph
(J)	STD	Actuator with integral display IP68
(K)	200mm	8" (200mm) valve
(L)	RD 200mm-4.0 LPS	Flow Regulator 200mm (8 in.), 4.0 LPS
(M)	CAR 200mm	Check Valve 200mm (8 in.)
(N)	PS	Submersible pump and supervision
(O)	MB	Modbus TCP communication