

Master Valve, Flow Meter and Pressure Transducer Assembly

The Acclima flow module incorporates a Netafim hydrometer and an optional Setra Model 3100R150PG089 pressure transducer along with an Acclima 2-wire interface module to simplify the installation of the water entry system. The module provides for flow measurement, master valve control and water pressure measurement. These three functions are interfaced to the Acclima 2-wire system through a device that requires only 2 connections to be made to the Acclima 2-wire system. A third wire can be connected to a ground rod to enable the internal lightning arrestor system inside the device.



- Inlet
- Outlet
- Pressure Transducer
- Flow Meter & Master Valve
- 2-wire Interface Module
- Connection wires to 2-wire system

Installation:

The overall module is pre-wired and pre-assembled so that it is easily installed. Note that the direction of water flow through the device is marked on the hydrometer body. It should be installed so the pressure transducer is downstream from the hydrometer. A slip by thread male adapter is required to connect the hydrometer input to a schedule 40 PVC water inlet line. It is advised that the adapter be taped and tightly screwed into the hydrometer before the assembly is glued into the water line.

The downstream water manifold is also glued into a slip adapter on the downstream side of the pressure transducer.

Wiring:

After the module is installed in the water line the wire connections can be made. Simply connect the red wire from the interface device to the red wire in the 2-wire system. Likewise connect the white wire to the 2-wire system. Insure that the connections are tight and then use grease caps to protect the connections from water.

If the system is installed in an area where lightning is a problem, attach the green wire to a ground rod that is pounded deep into the subsoil in the bottom of the valve box.

Settings on the Netafim Hydrometer:



Manual Bleeder (on other side)

Master Valve Mode Selector

The Master Valve Mode Selector must be set to “Automatic”.

The manual bleeder valve must be turned fully counter-clockwise. If it is turned ¼ turn clockwise the master valve will open and water will flow regardless of whether the solenoid is energized or not.

CS3500 System Configuration:



Master Valve Serial Number

Write down the Master Valve serial number listed on the interface ‘brick’. This is the number shown above in the ‘Master Valve’ window. In the picture above it is 7300701. You will need this number to configure the Master Valve. You will also need the numbers associated with the Flow Meter and the Pressure Transducer. The number for the Flow Meter is always the Master Valve number plus 1. The number for the Pressure Transducer is always the Master Valve number plus 2.

Master Valve Configuration:

Connect to the CS3500 system using **Irrigation Manager Software**.

1. Select the 'Configure Devices' window.
2. Select 'Install System Devices'.
3. Enter the serial number of the Master Valve.
4. The CS3500 will search for the device and report that a 'switch' has been found. A dialog will appear that asks whether the switch is to be used as a master valve – normally open, a master valve – normally closed, a pump relay, a back-flush valve, etc. Select the function "master valve – normally closed" then click 'next'. A new entry will appear in the devices list indicating that a normally closed master valve has been installed.

Flow Meter Configuration:

1. Return to the configure devices menu and click 'install system devices'.
2. Enter the serial number of the flow meter port. This is always one plus the serial number of the master valve port.
3. When that is entered a new device will appear in the devices list. You can then highlight it and edit it. Edits include giving it a name, modifying the diameter and manufacturer code, etc. In the flow meter dialog box select the Netafim diameter that matches the unit you are installing.

Pipe ID	Mfgr.	Manufacturer Part Number
1.5"	Netafim	LHM15TG0053-MEL
2.0"	Netafim	LHM2TG0085-MEL
3.0"	Netafim	LHM3FG0205-MEL
4.0"	Netafim	LHM4FG0556-MEL
6.0"	Netafim	LHM6FG1739-MEL
8.0"	Netafim	LHM8FG317-MEL

Then click the apply button 'apply' in the lower left corner of the screen.

Pressure Transducer Configuration:

1. Select the 'Configure Devices' window.
2. Select 'Install System Devices'.
3. Enter the serial number of the Pressure Transducer. When that is entered an additional new device appears in the devices list. You can highlight it and give it a name if you wish.

Assigning Irrigation Zones to the new flow meter:

Since the CS3500 supports multiple water sources and multiple flow meters it is necessary to assign the various zones to the appropriate water source. Flow meters are treated as a water source. Open the 'assign zones' dialog box and assign the appropriate zones to the flow meter.

Product Description and Specifications:

Valve Switch:

Output Voltage:	24 Volts ac
Inrush Current:	3.0 Amperes Max.
Steady State Load:	1.5 Amperes Max.

A small light emitting diode underneath the label illuminates whenever the master valve is energized.

Flow Transducer:

The Netafim models that are supported in Irrigation Manager Software are:

Pipe ID	Mfgr.	Manufacturer Part Number	Construction	Code
1.5"	Netafim	LHM15TG0053-MEL	Brass	A
2.0"	Netafim	LHM2TG0085-MEL	Brass	B
3.0"	Netafim	LHM3FG0205-MEL	Brass	C
4.0"	Netafim	LHM4FG0556-MEL	Brass	D
6.0"	Netafim	LHM6FG1739-MEL	Brass	E
8.0"	Netafim	LHM8FG317-MEL	Brass	F

Any of the flow meters in the table above can be selected in the Irrigation Manager Software when you install the module

A small green LED under the label in the flow meter area illuminates and extinguishes every 100 pulses from the flow meter. This gives a visual indication of flow activity at the water entry point.

Pressure Transducer:

The Setra 3100R150PG089 Pressure Transducer monitors the manifold water pressure. . It is useful in identifying low pressure conditions wherein a full spray pattern will not be delivered by sprinkler heads. Under such conditions it is not recommended that irrigation be commenced as the under-watered pattern areas will stress. The CS3500 can be

restricted from irrigation when low pressure conditions are present as measured by the transducer.

It is also useful in **remote diagnostics** of an installed CS3500 irrigation system. For example, a malfunctioning master valve can be detected without visiting the site by noting the absence of water pressure when the valve is on using the remote connection capabilities of the CS3500. Manifold leaks can be detected by noting the rate of pressure drop when the master valve is turned off. Broken mains and laterals can also be diagnosed in the same manner.

Operating Range:	0 to 150 psi (gauge)
Accuracy:	+,- 0.25% of full scale
Maximum Pressure:	450 psig

Interface Module:

The 'brick' with the wires coming out of it provides the intelligence to take pressure and flow measurements and activate the master valve. It also keeps track of the cumulative flow through the flow meter. The cumulative flow is saved in non-volatile memory whenever power to the device is lost. All configuration parameters are likewise saved.

A small LED at the left side of the brick shows activity on the 2-wire system. This light will flash whenever the controller is communicating with any device on the entire system. It is useful in determining whether the wiring to the flow meter module is connected and free from breaks and scraped insulation.

The module consumes approximately 15 ma rms from the 2-wire line.