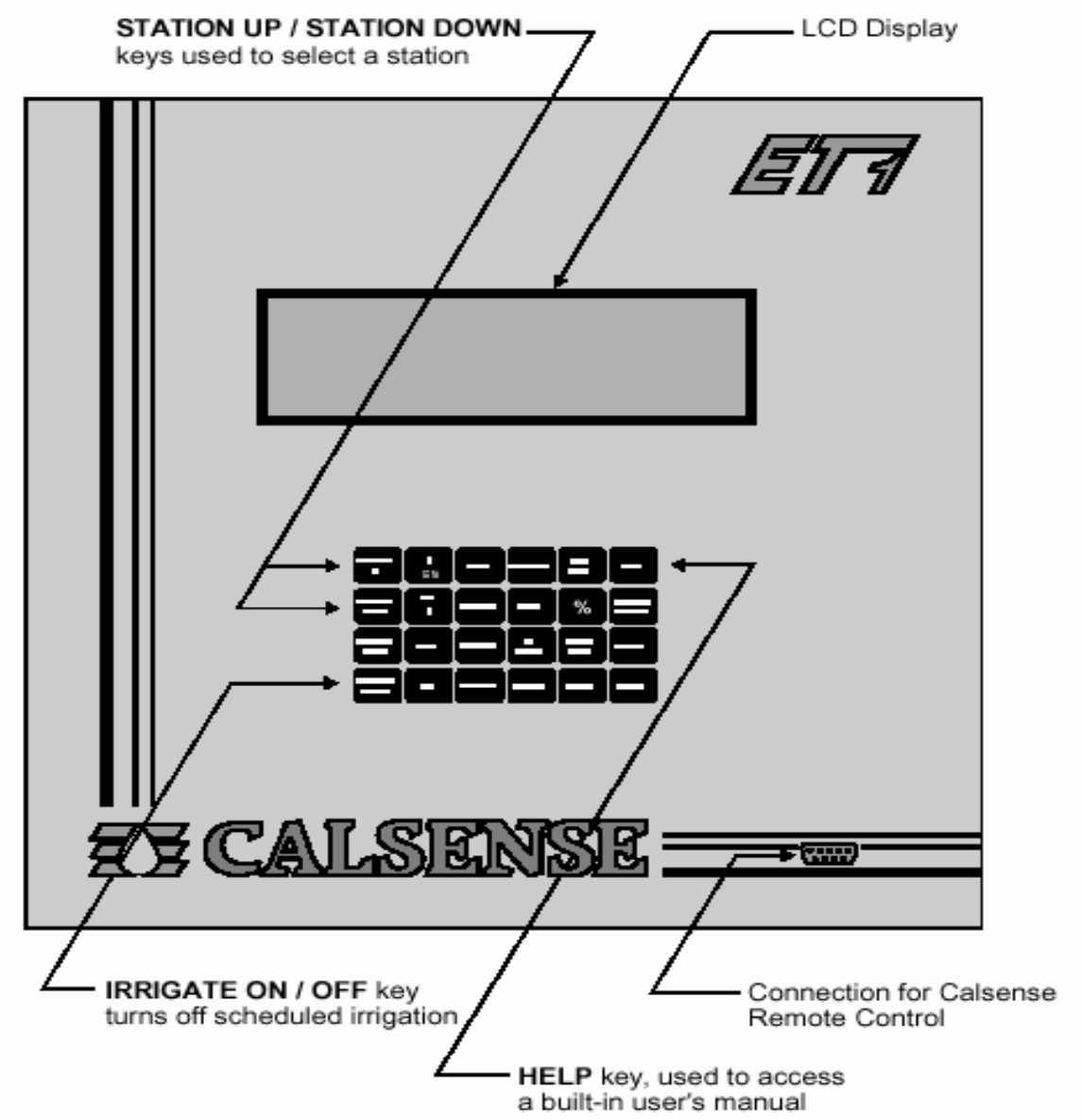
FLOW METER

ET1 FLOW METER, MASTER VALVE & PUMP SETUP

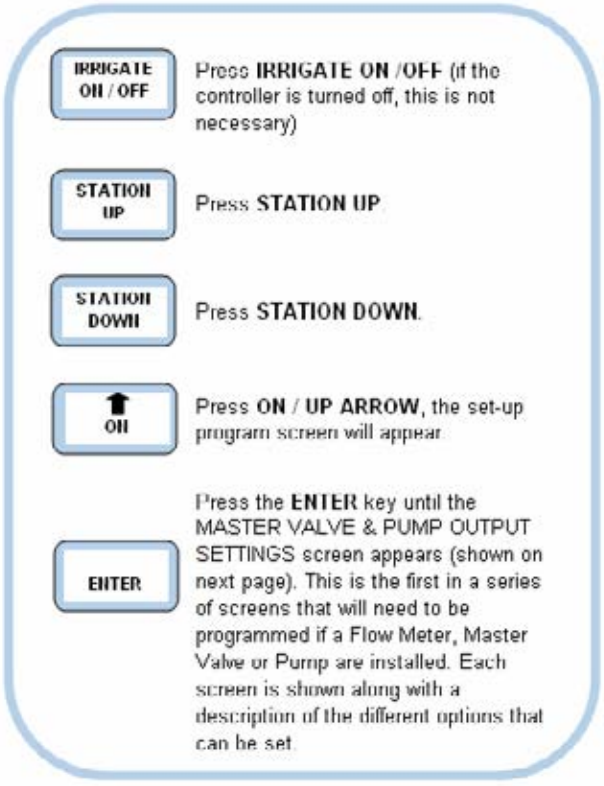


FLOW METER

ET1 FLOW METER, MASTER VALVE AND PUMP SET-UP

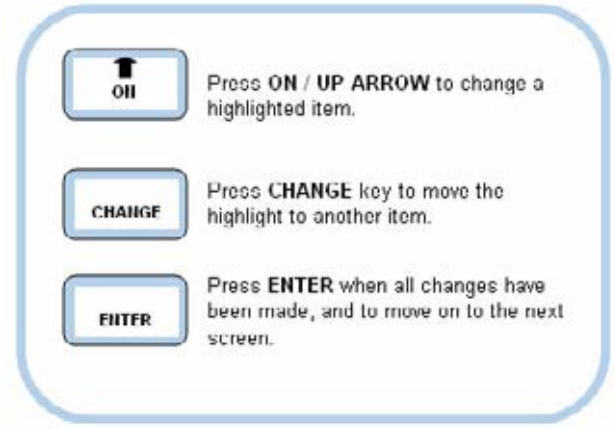
ET1 SETUP KEY SEQUENCE: After the Calsense Flow Meter and / or Master valve and / or Pump are installed, they must be enabled and options set in the controller's set-up program. Enter set-up using the following.

ET1 SETUP KEY SEQUENCE



ET1 SET-UP CHANGE KEY SEQUENCE: All Changes in Set-up are made using the following procedures:

ET1 SETUP CHANGE SEQUENCE



MASTER VALVE & PUMP OUTPUT SETTINGS

The MASTER VALVE & PUMP OUTPUT SETTINGS screen will appear with the type of master valve highlighted, in the example below the setting is for a normally closed master valve. There are two (2) settings,

- **CLOSED:** If a normally closed master valve is installed.
- **OPEN:** If a normally open master valve is installed.

CAUTION:

It is very important to select the correct setting,
it must match the type of master valve installed.

MASTER VALVE & PUMP OUTPUT SETTING:

Master Valve Output NORMALLY CLOSED

Pump Output use is NORMAL

The pump output has three settings.

- **NORMAL:** if a pump is installed or if a pump is not installed and the output is not being used for a special purpose.
- **STEADY ALERT:** If the pump output is to be connected to some type of signaling device such as a steady light to alert the user to a possible problem (e.g. 'MAINLINE BREAK').
- **BLINKING ALERT:** If the pump output is to be connected to some type of signaling device such as a blinking light to alert the user to a possible problem (e.g. 'MAINLINE BREAK').

MASTER VALVE & PUMP OUTPUT SETTING:

Master Valve Output NORMALLY CLOSED

Pump Output use is NORMAL

PUMP BY PROGRAM

The PUMP USE BY PROGRAM screen will appear with all programs set to use a pump. There are 2 settings possible:

- **PUMP NEEDED:** If the pump is to be turned on when a program irrigates.
- **NO PUMP:** If the pump is not to be turned on when a program irrigates, or if there is no pump installed.

PUMP USE by PROGRAM:

PROG A stations : PUMP NEEDED
PROG B stations : PUMP NEEDED
PROG C stations : PUMP NEEDED
PROG D stations : PUMP NEEDED
PROG E stations : PUMP NEEDED
PROG F stations : PUMP NEEDED
DRIP 1 stations : PUMP NEEDED
DRIP 2 stations : PUMP NEEDED

FLOW METER USE AND SIZE

When the FLOW METER USE AND SIZE of screen appears, no flow meter will be selected. If a flow meter is installed change the setting to YES, the screen will appear as shown below.

FLOW METER USE and SIZE OF:

Flow Meter(s) are connected ? NO

If a standard Calsense flow meter is installed press **ENTER** to move to the next screen. IF a Calsense FMBX flow meter is installed, move highlight to CHOOSE FROM LIST, and change the setting to ENTER OWN.

FLOW METER USE and SIZE OF:

Flow Meter(s) are connected ? YES

Choose the Flow Meter from a list OR
Set your own Parameters ?

CHOOSE FROM LIST

After pressing **ENTER** the FLOW METER CHOICES screen will appear ("NOT USED" will appear if this was the initial setup of the flow meter).

FLOW METER CHOICES:

Meter 1
NOT USED

Change the highlighted setting to the appropriate size of flow meter installed. The possible settings are:

SIZE	MODEL NUMBER
1" brass Tee	FM-1B
1-1/4" Brass Tee	FM -1.25B
1-1/2" Brass Tee	FM- 1.50B
1-1/2" Sch 80 PVC Tee	FM- 1.5
2" Sch 80 PVC Tee	FM-2
2" Brass Tee	FM-2B
3" Sch 80 PVC Tee	FM-3
4" thru 18"	FMBX (Saddle Mounted)

Note: In a Calsense (-F) controller there will be three flow meters listed on the FLOW METER CHOICES screen and a size will need to be set for each flow meter installed.

If a Calsense FMBX flow meter is installed, you should have selected ENTER OWN PARAMETERS on the previous screen. After pressing **ENTER** the screen will appear as shown below. Enter the K value and Offset for the size and type of pipe the FMBX is installed in. The K's and Offsets are found in the Flow Meter Specification section.

FLOW METER DIRECT PARAMETER ENTRY :

METER 1

K VALUE 10.000
OFFSET 0.200

MASTER CONTROLLER

The MASTER CONTROLLER screen will appear with NO selected (as shown below). In most cases this setting will not change. If a system has multiple controllers on a single mainline, and more than one controller on a single mainline, and more than one controller has to irrigate at the same time, one controller is designed as the master controller (and is connected to a Calsense flow meter). All other controllers have monitoring disabled. The job of the master controller is to continuously monitor for mainline breaks, no other flow monitoring features will be enabled for the master controller.

Is this a MASTER CONTROLLER ? NO

Note: If YES is selected you will be asked to enter a Mainline Break Number.

LEARNED or LIMIT

The OVERFLOW GPM's screen appears with "Use LEARNED mode" selected (shown below). With this option selected, the controller will learn the flow rate of each valve over a period of eight (8) watering cycles. This learned flow rate is then used to determine when an "OVERFLOW" occurs. The other option which can be selected is "Use LIMIT mode". If this option is selected, the user will be required to enter a HIGH and a LOW limit GPM for each station, these limit GPM's will be used to determine when an "OVERFLOW' or "LOW FLOW" occurs.

Flow Meter Set-up

LEARNED (recommended) or LIMIT for your mode of Over-Flow and Low-Flow detection

Use LIMIT mode

Note: The term OVERFLOW refers to measured flow rate which exceeds the LEARNED GPMs (by a user programmable trip percentage, see FLOW DELAY / TRIP PERCENT), or exceeds the LIMIT GPMs entered by the user.

The screen following LEARNED GPMs is shown above. If at some time the user wishes to have the controller relearn each stations flow rate, change the current setting to YES.

MAINLINE BREAK

The MAINLINE BREAK screen will appear with the DURING IRRIGATION setting highlighted. The 'during IRRIGATION' number is the mainline break number used while the controller is irrigating. The 'all OTHER times' number is the mainline break number used when the controller is not irrigating. A mainline break setting During Irrigation should be higher than your highest flowing valve. For Non-Irrigation, or all other times the setting should allow for quick couplers, hose bibs, etc.

Flow Meter Set-Up

MAINLINE BREAK Numbers –

during IRRIGATION : 100 GPM
all OTHER times : 100 GPM

FLOW DELAY / TRIP PERCENT

The FLOW DELAY / TRIP PERCENT screen appears with a 120 second delay time and a 15% trip percent set. Using the UP ARROW key or the DOWN ARROW key each program can be independently set with a delay time of 15 to 1,800 seconds and a trip percentage of 1 to 99 percent.

- **FLOW DELAY:** Is the amount of time the controller waits after activating a valve before taking a flow reading. This allows for an accurate flow reading, by giving time for air to be flushed from piping and the previous valve to shut down. The only restriction is that the flow delay time should not be longer than a station run time.
- **TRIP PERCENT:** Is the amount of increase above the learned flow rate at which the controller will alert the user to an "OVERFLOW".

EXAMPLE:

If a station flow rate equals 40 then the trip percent (15%) would equal:
34 to 46 gallons per minute.

34 gpm or below would trip a low flow alert.
46 gpm or above would trip a high flow alert.

	FLOW DELAY TIME	TRIP PERCENT
PROG A :	120 seconds	15%
PROG B :	120 seconds	15%
PROG C :	120 seconds	15%
PROG D :	120 seconds	15%
PROG E :	120 seconds	15%
DRIP 1 :	120 seconds	15%
DRIP 2 :	120 seconds	15%

OVERFLOW / NO FLOW ALERTS

The OVERFLOW / NO FLOW ALERT screen appears with 'Alert / No Action' set for all programs. There are three settings possible:

- **Alert / No Action:** An alert is displayed on the screen but the valve continues to irrigate.
- **Alert / Shut-Off:** An alert is displayed on the screen and the valve is shut down.
- **No Alerts:** No alert is displayed and the valve continues to irrigate.

AUTO-LEARN

The AUTO-LEARN screen will allow the user to quickly have the controller learn each stations flow rate. By pressing the **TEST** key at this screen the controller will immediately start cycling through each valve learning each valves flow rate.

Press the < TEST > Key To Start
an AUTO-LEARN sequence.

(Auto-Learn Sets the Learned GPMs

2075 Corte del Nogal, Suite P, Carlsbad CA 92011
1-(800)-572-8608 FAX: 1-(760)-438-2619
www.calsense.com

Stock Number: PG1-FM-D1

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