# ACC-99D Irrigation Controller Product Specification

**Part 1 – General**

* 1. The controller shall be a full-featured commercial-industrial product for the purpose of irrigation operation, management, and monitoring of control valves and sensors. The controller shall be of a two-wire decoder design that is provided with a standard 99-station output module (plastic or metal enclosures).

**Part 2 – Programming and Operational Software**

2.1 Programming

1. The controller shall have 6 independent programs with unique day schedules, start times, and station run times.
2. Each program shall offer up to 10 start times.
3. Each program and all stations may be given alphanumeric names to ease programming of large systems.
4. The controller shall be capable of running any 6 automatic programs simultaneously. Each program may be designated to Overlap or Stack, as hydraulics permit, or the entire controller may be given a SmartStack™ limit of the total number of programs allowed to operate simultaneously.
5. The controller programs shall have 4 weekly schedule options to choose from:
6. 7-day calendar
7. Up to 31-day interval calendar
8. Odd day programming and even day programming
9. It shall also have a 365-day calendar clock to accommodate true odd-even watering
10. Each station shall be programmable in seconds of run time, from 15 seconds to 6 hours.
11. The controller shall be equipped with programmable Non-Water Days to prevent watering on selected days of the week.
12. Each program in the controller shall have programmable Non-Water Windows, to prevent automatic irrigation during unwanted hours of the day, regardless of other programming changes.
13. Each program may be assigned a programmable delay between stations, to allow for slow-closing valves or pressure recharging.
14. Delays between stations shall be programmable in 1-second increments from 0 to 60 seconds and in 1-minute increments from 60 seconds up to 6 hours.
15. Two pump start/master valve circuits shall be included, and shall be programmable by station.
16. The controller shall be equipped 4 click sensor inputs, for rain and other shutoff sensors, with programmable response by program.
17. The controller may be placed in programmable rain shutdown for up to 31 days for weather or construction events, and will then resume automatic irrigation automatically.
18. Program backup shall be provided by a non-volatile memory circuit that will hold the program data indefinitely.
19. The controller shall also track time of day and date during power outages by means of a replaceable, commonly available CR2032 lithium battery.

2.2 Software

1. The controller shall have manual Seasonal Adjust settings, 0% to 300% in 1% increments.
2. The controller shall have automatic Seasonal Adjust settings when installed with a Solar Sync™ weather sensor.
3. All adjusted station run times shall display both the original run time duration and the actual run time resulting from adjustment.
4. The controller shall be capable of determining and displaying the total run time input for each program.
	* + 1. It shall have the capability to store a program in backup memory for easy retrieval and shall also have a test program for quick system checks.
5. The controller shall allow Easy Retrieve™ backup of all programming and configuration to preserve the original configuration, which may be restored anytime.
6. The controller shall permit grouping stations into SSGs (Simultaneous Station Groups) to consolidate system watering events, to permit manual flow management, and to operate similar stations at the same time within a program. The controller shall permit up to 20 SSGs of up to 4 stations.
7. The controller shall offer a flow sensor input, using K-factor and Offset calibration (or factory model number entry), to provide real-time flow monitoring and reporting.
8. The flow sensor shall permit controller learning of all station flows, and automatic creation of a station flow database, that then compares actual flow as seen by the sensor to the total learned flow of all running stations.
	1. In high- or low-flow conditions, the controller shall automatically perform flow diagnostics to identify problematic stations, terminate them, and continue irrigating with stations that perform normally.
	2. In mainline break situations, the controller shall terminate all stations and close the normally closed master valve to prevent damage and waste.
9. The controller shall display all measured flow in Imperial or Standard International (metric) units by Controller, Program, and Station. Flow totals shall be visible in Today v. Yesterday, Week to Date v. Last Week, Month to Date v. Last Month, and Year to Date v. Last Year.
10. The controller shall display an extensive, plain-language Data History of Alarm Logs (last 250 events), Controller Logs (last 250 events), and Station Activity (last 1500 events), for rapid diagnostics and recordkeeping.
11. The controller software shall be flash-updatable via USB cable to the most recent iteration of the software, while preserving the original scheduling information, without requiring any hardware replacement.
12. The controller shall feature a Decoder diagnostics menu allowing programming of decoder addresses, configuration of multi-station and sensor decoders, and operational views of live current draw at the output module and by each station.
13. The controller shall program simple station numbers into each decoder and shall not require stations to be associated with random serial numbers.

