

Gulf 600 Irrigation Computer

Introduction.

The Gulf 600 field unit is an intelligent standalone irrigation field computer that is directly programmable by the user at the installed location of the unit.

The Gulf 600 field unit can be linked to a central system allowing programming and record retrieval as well as specific control functions to be conducted from the location of the central computer.

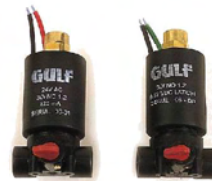
Scope of Control.

- *Number of Systems* - One Gulf 600 field unit is capable of controlling up to five independently operated irrigation systems.
- *Control per System* - Each system is able to control and monitor the following outputs and inputs:

Outputs -

- 1 Main Water Pump
- 1 Fertiliser Pump / Valve
- 1 System Main Valve
- 1 System Alarm Output
- 1 to 10 Filter Flush Outputs
- 1 to 32 Irrigation Block Valves

Outputs may be shared between systems however care should be taken that the unit is controlling the correct output selected.



Gulf Solenoid Valves



Agriplas Rx DC Output
Radio Receiver Module

Inputs -

- 1 Water Meter
- 1 Fertiliser or Chemical Meter
- 1 Rain "Stop" Input
- 1 Flush Start
- 1 Pause Input
- 1 Sequence Start Input
- 1 Emergency Input

Water and fertilizer meters and instruments



Inputs can be shared between systems however care should be taken that the units is controlled with the correct input for the system.

Operating & Programming Features.

Valve Operation & Programmes

- Each valve in the system can be programmed to irrigate on a time basis or volumetrically.
- Each valve has a maximum of three independent programmes containing three water quantities and three fertiliser / chemical quantities.
- Up to 3 extra outputs can be programmed to operate with any valve if required. This is often used for booster pumps when irrigating high lying blocks, etc.
- Every valve has it's own overflow and underflow parameters.
- Editing of water quantities while irrigation is taking place is possible.

Hydraulic and Electric Control Valves



Fertigation and chemigation equipment

Fertiliser Operation & Programmes

- Fertiliser can also be programmed to operate on a time or volumetric basis.
- Fertiliser can be injected on a proportionate basis to that of water or in one continuous cycle.
- A pre-wash and post wash amount can be programmed per valve.
- Editing of fertilizer quantities while irrigation is taking place is possible.
- Fertiliser will be shut down during a filter flushing cycle.

Sequencing Valves

- 17 Sequences per system.
- 16 Irrigating steps (valves) per sequence.

- Sequences are able to goto another on completion of there cycle.
- Sequences can be initiated and terminated by using a start and stop date.

Scheduling Sequences

- 10 Start times per day means 10 sequences can be initiated every day per system.
- Sequences can be programmed to start on any day of the week.
- Overlapping sequences will be buffered and brought into operation once the current sequence has completed irrigation.
- Buffered sequences can be cleared if not required.

Filter Flush Programmes

- Filters can be flushed on a volumetric or time basis.
- Filters can be flushed in the normal manner or by alternating the filters at each flush cycle.
- A systems main valve and or the irrigation blocks can be closed during the flushing operation.
- A final flush cycle can be programmed before irrigation is terminated.



Screen, disk and media filtration systems.

General Programming

- System pumps and mains can be delayed to start and stop in order to stagger system start and shut downs to protect equipment within the system.
- Delays and alarm overrides are available under general programming.

Manual Operations

- Sequences can be started or stopped manually.
- Flushing cycles can be started and stopped manually.
- Individual outputs can be opened and closed manually.
- Individual systems can be paused and resumed.
- Water and fertiliser can be globally increased or decreased on a percentage basis without having to change each individual valves quantities.
- Input status can be read.

Other Features.

Logs and Records

- **Events Log** – All major events taking place within the unit will be logged to inform the user at what time and on what date the event occurred.
- Other available logs include - Completed Irrigation logs, shortages, pending sequences, fault logbook, etc.
- A conditions table will be available in the new version of field unit software.

System Status

- The user can at any time during irrigation obtain the actual flow of water and fertiliser within any operating system.
- Faults are sent to the system status screen to advise the operator of any system problems.
- Other messages such as "In pause" Power Down and Rain are also displayed on the system status screen.
- Actual operating outputs and valves per system are displayed during irrigation on the system status screen.

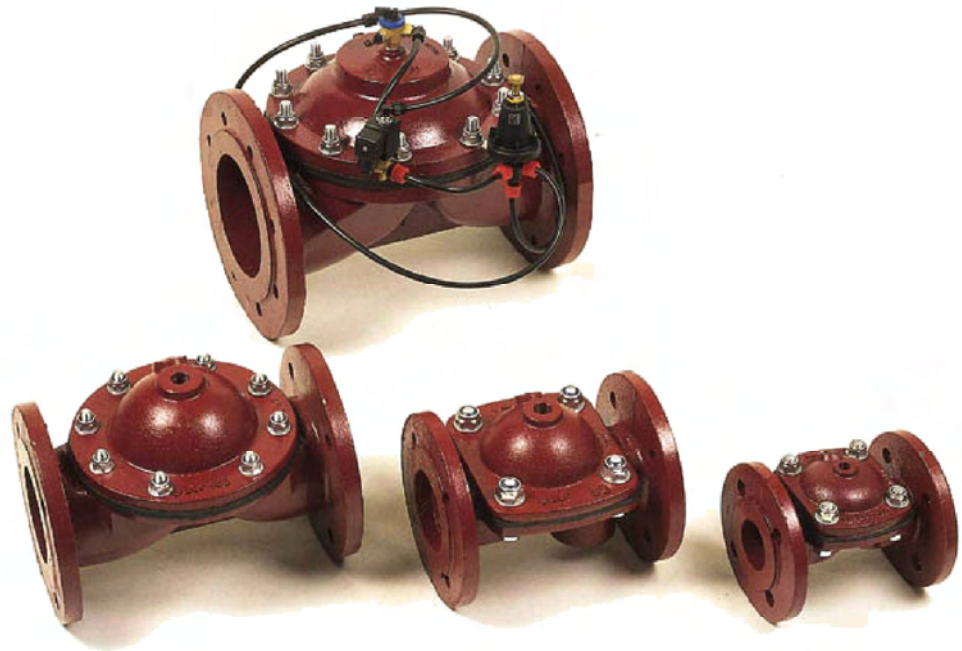
Central System Features.

Operation and programming features as explained under the Field Unit section also apply to the central system.

Other features in the central system include :

- Printing and file management allowing the user to print records or store them on file for exporting to other programmes or printing at a later date.
- Automatic scheduling import routine allows scheduling of irrigation to be conducted outside the Gulf software and be introduced into the system and sent to the field units. This import

function supports scheduling software such as "The Probe" (neutron probe) and other spreadsheets, etc.



Technical Specifications.

Power Supply.

Alternating Current (AC) - 24 Volt AC transformed from 220 Volt or 380 Volt mains.

Direct Current (DC) - Directly from external 12 Volt DC battery with minimum size of 180 amp/hr. Optional solar panel to recharge external and internal battery as required with minimum panel output of 80 Watt.

Keypad.

- 39 Key pad colour coded and clearly identified for ease of operation
- 12 Numeric keys to enter programme variables.
- 9 Direction keys to move through the programme menus and tables.
- 1 Enter key for data entry.
- 2 Action keys to Pause and Rain stop the irrigation.

- 12 Hot shortcut keys to gain access to a specific programme menu without having to take the standard route through the menus.

Facia Layout and Key description

