



SoftFlow PLC

SoftFlow PLC uses standard off the shelf technology to deliver flow computer functionality for up to 100 measurement streams within a single commercially available PLC.

SoftFlow PLC offers significant commercial, technical and long term operational benefits over the traditional flow computer solution.

Utilisation of this technology will let our customers achieve their ambitions to:-

- integrate the metering system electronics into the plant control system
- save panel space
- rationalise spares requirement
- utilise existing operator HMI for normal day to day operation
- simplify management of the metering system

Features ...

- ◆ Up to 100 metering streams per unit with no logical limit on the number and type of sample points that can be implemented.
- ◆ Target iteration time for the application is 200 milliseconds.
- ◆ The run-time application is managed via screens displayed from a web server hosted on the PLC through the browser on any PC with network access.
- ◆ The SoftFlow PLC application is created using an off-line point and click configuration tool then downloaded to the PLC when it has been prepared.

Flow Signal Interfaces ...

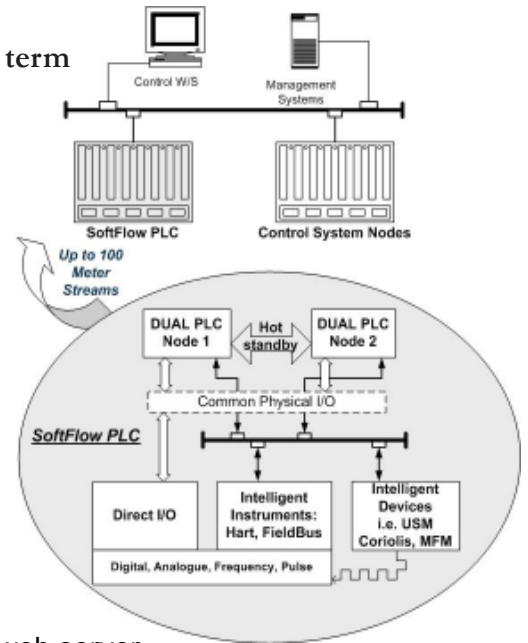
The following primary flow elements are supported:-

- ◆ dual pulse inputs from PD meter, Turbine, USM and Coriolis.
- ◆ analogue inputs from DP across an Orifice or Venturi meter
- ◆ flow and process inputs from Smart transmitters

Meter Point Functionality ...

- Flow rate calculation and Totaliser integration
- Devices total accumulation up to a configurable rollover value
- Indication of rollover status
- Notification for management systems of internal keypad and alarm change
- Modbus interface to 3rd party systems
- Alarm generation and management
- Maintenance mode totalisation
- Maintenance and Measurement Operational modes
- Keypad override and fail to Keypad on signal outside of limits
- Low flow cut off

Delivery of effective data gathering, information delivery and management tools to the international hydrocarbon production and processing industries through innovation and partnership with our customers is our business.



Products Supported ...

- ◆ Oil
- ◆ Gas
- ◆ Condensate
- ◆ Water



SoftFlow PLC ...

Equipment and Configuration Options ...

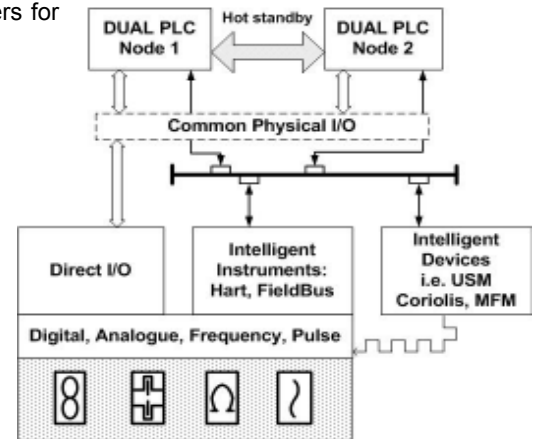
In its full implementation, to ensure continuous operation SoftFlow PLC hosts on a dual redundant configuration using the following equipment and software:-

- Hot standby dual redundant PLC, containing two processors, two web servers for browser display, memory and common synchronisation module.
- Remote multidrop bus system with modules for:-
 - ◆ Dual Pulse & Prover Gate Switch input
 - ◆ Analogue & Digital I/O
 - ◆ Digital communications
 - ◆ Frequency Counting
- SoftFlow PLC software

Any networked PC workstation can display the user interface using browser technology.

Using a dual configuration the process runs continuously and modules can be removed, upgraded and software changed live without significant interruption to the overall process. Options for a lower integrity solution using a single processor configuration which can use either remote or local I/O depending on the geography of the installation are also available.

Networks are used to connect the different modules allowing distribution of the equipment to multiple locations and therefore optimisation of space if required.



Programming

SoftFlow PLC is implemented using fully IEC 61131-3 compliant PLC programming languages. As such it is intended to either run alongside or be integrated with existing applications performing other aspects of the plant control.

The implementation is configured through setup files that define number of streams, their meter setup, calculation algorithms, product and calculation standards.

Enabling Technology

SoftFlow PLC currently hosts on the Modicon Quantum PLC range from Telemecanique (a brand of Schneider Electric) which supports the following “enabling” equipment :-

- A Quantum compatible module that interfaces dual pulse signals. This board provides pulse fidelity checking to API standard and gating of prover switch signals allowing synchronised capture of pulse counts between the start and end of each prove run.
- An on board web server to host a browser compatible interface to the PLC. The programming tools for this interface are provided by Schneider Electric as part of the global Telemecanique Factory Cast product strategy.
- Standard Quantum dual hot standby equipment provides a platform for continuous processing.



Standards

The SoftFlow PLC calculations library is continuously evolving as the product develops, all relevant API, IP, ASA and ISO measurement standards are being implemented for US and SI units of measure.