

# PC-based Flow Computer

The Hint PC based Flow Computer (PFC) is the perfect companion to integrate in (Fiscal) flow metering systems for the calculation of flow related values or quantities of any kind. The PFC provides multistream processing capabilities in a redundant hardware configuration.



The PFC is a collection of software modules configured based on the requirements of the metering system and capable to run on the windows NT platform, featuring added real time functionality.

This means that the PFC is hardware independent, providing the option of selecting qualified robust, reliable or even redundant hardware (Industrial PC). Pre-selected, tested and certified hardware can be advised by HINT.

## Software Concept

The Flow Calculation are based on software function modules developed for the current metering principles.

- Diff pressure systems (orifice, venturi incl. multi-range)
- Turbine meters
- Ultrasonic flowmeters
- Coriolis & Vortex

The function modules use NMI certified calculations methods

## Software Configuration

The modules for the calculation methods are composed of function blocks The same function block can be incorporated in different function modules depending on the nature of the calculation method.

This includes function blocks created to determine fluid properties.

The development basis for the software modules and blocks is OA Enterprise. To run the PFC application a runtime license for OA Enterprise is required. Running more than one metering system on the same computer or even redundant computer still requires only one license.

## Fluid Properties

Accurate flow calculation required detailed knowledge of fluid properties. Fluid properties can either be entered manually in the PFC or calculated by dedicated calculation blocks based on internationally accepted ISO standards using fluid composition values obtained from a Gas Chromatograph.

Property calculation blocks are available to calculate the following properties under standard conditions (to ISO 6976: 1995):

- Compressibility
- Gross Heat Value
- Relative Density
- Density
- Wobbe index

## Compressibility (live conditions)

Additional calculation blocks are available to calculate the compressibility under live conditions. These blocks are covering the following calculation methods:

- AGA8-92DC method (ISO-12213-2)
- S-GERG88 method (4 variants) (ISO-12213-3)
- NX-19 method with G9 correction



## Process Interfaces

To interface with the process, remote I/O hardware modules are used, connected to the PFC, using standard PC interfaces (Ethernet LAN connections, RS-232 via com ports)

The selected interface hardware is based on proven technology. The interfaces use digital data transfer from the transmitters and other remote equipment to exclude any negative effects to the accuracy. Protocols the PFC can handle are: Hart, Profibus, Ind. Fieldbus, OPC.

## User Interfaces

The following user interfaces are available for the PFC:

- Keyboard monitor and mouse directly connected to the PFC for local system configuration
- Remote Desktop for service / maintenance
- Laptop, notebook (service) or Controlsystem (monitoring) connected through LAN.
- Remote connection using web technology for data gathering initiated from the office domain
- LCD display showing the most relevant inputs values and calculation results for operational purposes.

## Data Storage

Measured values, calculated results and events and alarms are logged in a database compatible with MS SQL Server

Facilities for remote data collection from the office domain for hydrocarbon accounting and production reallocation are available via protected network connections.

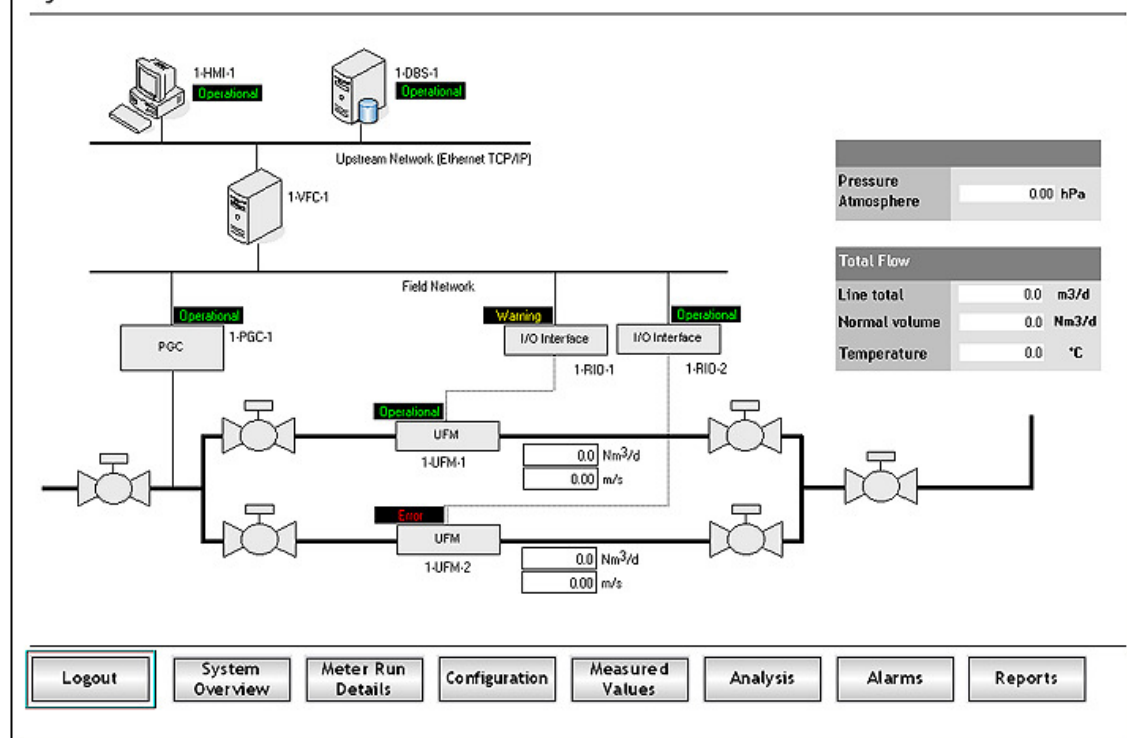
## Key Features

- + Flow Calculation based on software function modules
- + Multistream & redundant operation capabilities  
Modules are available for
  - diff pressure systems (orifice, venturi incl. multi-range)
  - pd- / turbine meters
  - ultrasonic flowmeters
  - Coriolis & Vortex
- + Determination of fluid properties based on international standards (eg AGA / ISO)
- + Standard interfaces and protocols used for Process connections
- + User interfaces:
  - Windows based
  - Web based
- + ODBC data storage facilities based on MS SQL Server
- + Excellent facilities for remote data collection from the office domain via protected network



## Hint Virtual Flow Computer System Overview

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