Ultraflow 150 Specifications

The following is a list of specifications for an ultrasonic flow monitor. The intent is to provide a specification to ensure that only high quality, proven technologies are considered.

- The flow must be of ultrasonic design, operating with transducer frequency greater than 20kHz
- Ultrasonic signals must be digitally generated and received
- Response time must be programmable from 1sec – 720 seconds
- Single or dual TEFC (totally enclosed fan-cooled) 42-110CFM blowers shall be provided to provide purge air to the transducers
- The stack electronics must be capable of supporting up to four transducers
- Transducers must be either 50 or 20kHz frequency
- 50kHz transducers must be electro-static design
- 20kHz transducers must be piezo-ceramic design
- Transducers nozzle assemblies must have Teflon nose pieces for protection from acidic condensation
- Purge blowers must be supplied with aluminum weatherhood enclosures platform mounted
- Transducers nozzles must have quick connect/disconnect latches for ease of withdrawal and insertion
- Stack electronics must be able to support two paths; Path A, Path B and Path A+BA 232 serial port must be available from the stack electronics to support a laptop interface
- A Modbus software interface package must be supplied to initialize parameters, download measured values, upload parameter values, etc.
- All stack electronics must be housed in a stainless steel stack enclosure
- A barometric pressure transducer shall be located with the stack electronics enclosure
- The stack electronics must be capable to accepting both a temperature and pressure analog input
- Only a single twisted pair of wire will be necessary for communication from the stack to a control room mounted remote panel
- The remote display shall include at least four analog outputs; eight isolated digital inputs; and eight dry contacts
- The remote display shall have RS232C, RS422 and RS485 serial communication capability, all operating in a “polled” and “broadcast” mode and share be capable or enabling remote initiation of calibration
- The remote display shall be able to graph at least six measured variables and at least 100 discrete readings of each variable
- The remote display shall include software that has both alarm and fault event logs. The logs shall be capable of archiving at least the last one hundred alarms and faults complete with a time stamp, error code and current status indicator

- The stack electronics box and the enhanced remote panel shall both have security protection via passwords or key lock systems
- The remote display shall be a standard 19” rack mount display with a height less than 8” to permit easy installation into existing rack mounts
- The remote panel must have the ability to provide a 5^{th} degree polynomial correlation curve or 3-point look-up table to correlate the flow monitor to Method 2
- The remote panel must have a 3-point look-up panel to determine internal temperature calculations
- Operator must be able to view both “raw” and corrected flow velocities
- The remote panel must have an RJ-45 Ethernet port with an internally mounted web server. The server shall be DHCP compatible and be accessible via any web browser.
- The web server shall be capable of supporting two masters on the same LAN
- The web browser interface shall permit viewing of variables as well as changing of variable values
- The web server shall also have the capability to communicate via Modbus TCP
- Internal firmware within the server shall be capable of remote upgrade