SENSIA
Rockwell Automation + SLB

CALDON SVM G3
Transmitter

Modbus Register Addresses and Parameters

Document No. MA24129

IMPORTANT SAFETY INFORMATION

SYMBOLS AND TERMS

Read user instructions carefully and visually inspect the equipment to become familiar with the device before installing, operating, or maintaining it.

Equipment should be installed, operated, serviced, and maintained only by qualified personnel. Sensia assumes no responsibility for consequences arising from the use of this material.

The following messages may be used in this document to help ensure personal safety and efficient handling of equipment.

DANGER

A hazardous situation which, if not avoided, will result in serious injury or death.

WARNING

A hazardous situation which, if not avoided, can result in serious injury or death, major loss of property, or catastrophic business risk.

WARNING – ELECTRICAL SHOCK

An electrical hazard which will result in personal injury if instructions are not followed.

CAUTION

A hazardous situation which, if not avoided, can result in minor or moderate injury, loss of property, or business risk.

Important Non-urgent information that may impact the outcome of a process or procedure.

Note Additional information or a tip that may help the user to work more efficiently.

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For technical support, please refer to https://www.sensiaglobal.com/Technical-Support.

For all other inquiries, please refer to https://www.sensiaglobal.com/Customer-Care or dial 1-866-773-6742.

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PUBLISHER NOTES

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Table of Contents

Section 1: Purpose

This manual documents the parameters and Modbus addresses necessary for maintaining the SVM G3 transmitter and connecting the SVM to PLCs, flow computers, and other devices. It includes the addresses and locations of typical setup configuration values and output data. It also defines the formats and ranges for these values.

It is always preferable to use Sensia-provided software for changing transmitter settings.

The parameters defined include the following:

- Flow scaling and counts factor
- Analog interface parameters
- Modbus and display interface parameters

Typically, the software bounds the inputs to prevent unacceptable inputs. Nevertheless, this document defines and recommends ranges for the inputs based on engineering analysis.

All addresses in this document are base 0 addresses. It may be necessary to add 1 if the polling device is a base 1 device.

1.1 RELATED DOCUMENTS

The SVM G3 transmitters use the Modbus protocol for serial communication. See this guide for details:

- Modicon Modbus Protocol Reference Guide (PI-MBUS-300 Rev. J) dated June 1996.

The following documents may also be useful:

- Sensia SVM 289Ci User Manual MA23102
- Sensia SVM 389Ci User Manual MA23103

1.2 INTENDED AUDIENCE

The SVM flowmeters can be customized following the information provided in this manual. This manual is intended to be used by plant site operators, site engineers, and supervisory personnel, and assumes the user is familiar with Modbus terminology.

1.3 PROCEDURE FOR CHANGING CONFIGURATION INPUTS (E.G., HOLDING REGISTERS)

Important Always read a register to confirm its current value before changing it.

The process for changing parameters external to Sensia's software is a multi-step process and outside the scope of this manual. For many applications, the meter configuration will be locked via a switch behind the display and cannot be accessed without breaking a seal. Typical configuration values are shown here to allow the user to read current settings and adjust the users displays accordingly.

The general process for changing a holding register parameter is as follows for reference only.

1. Identify the parameter to be changed and the address of its Holding Register.
2. Read the contents of the Holding Register to confirm its as-found value.
3. Login it to the meter with username and password that has write privileges.
4. Obtain Configuration Lock to Prevent Changes from other users.
5. Change the register(s) using Modbus protocol.

6. Activate the Burn and Use Register.
7. Read register(s) to confirm change was accepted.

1.4 SUMMARY OF SOFTWARE FOR G3 TRANSMITTER

The following table summarizes the available software for the G3 transmitter.

TABLE 1.4.1 G3 SOFTWARE

Product	Model Transmitter	Software Versions (all revisions unless Indicated)
SVM 289Ci-G3 Series (Petroleum)	G3	9A-SW-000128
SVM 389Ci-G3 Series (Gas)	G3	9A-SW-000128

The G3 transmitter is adaptable to user-specified values for some Modbus registers. Registers that can be changed are noted in the tables that follow.

Section 2: User Setup Variables

The following sections define the addresses typically used for the software setup variables. It is strongly recommended that the user makes any changes using Sensia's USM Advisor software.

2.1 DISPLAY/FLOW SETTINGS

TABLE 2.1.1 DISPLAY REGISTERS

Setup Variable	Variable Definition	HR Address	Notes
Flow Rate Unit Selection	Integer	784	Value Selection 1 CFS (Cubic Feet per Second) 2 CFM (Cubic Feet per Minute) 3 CMS (Cubic Meters per Second) 4 CFH (Cubic Feet per Hour) 5 CMH (Cubic Meters per Hour) 6 BPH (Barrels per Hour) 7 GPM (US Gallons per Min) 8 CMM (Cubic Meters per Minute) 9 CC/S (Cubic Centimeters per Second) 10 CC/M (Cubic Centimeters per Minute) 11 CC/H (Cubic Centimeters per Hour) 12 CI/S (Cubic Inches per Second) 13 CI/M (Cubic Inches per Minute) 14 CI/H (Cubic Inches per Hour) 7 and up are for 9A-SW000110 Only
Mass Flow Units Selection	Integer	785	0 lb/s 1 lb/m 2 lb/h 3 klb/h 4 Mlb/h 5 Metric Tonnes/h 6 kg/s 7 kg/m 8 kg/h 9 k kg/h 10 M kg/h
Counts Factor	Float	3048	Number of Counts per unit volume / Mass (See Flow Type Selection)
Flow Type	Integer	6690	0 = Actual Volume 1 = Volume at STD Conditions 2 = Mass Flow
Velocity Units	Integer	2022	0 m/s 1 ft/s 2 in/s
SOS Units	Integer	116	0 m/s 1 ft/s 2 in/s

2.2 OPERATIONAL SETTINGS, TIME CONSTANTS, AND CUTOFF SETTINGS

TABLE 2.2.1 OPERATIONAL REGISTERS

Setup Variable	Variable Definition	HR Address	Notes
Low Flow Cutoff	Float	3064	Flow rates below this value (in absolute value) are clamped to 0 (display and pulses) and the flow meter's totalizers do not update.
Application Cycle Time	Float	18	Period (in seconds) that the Modbus registers are updated (typically 1 to 3 seconds).
Estimator Time Constant	Float	1234	Time Constant Used for Diagnostic Values (seconds)
Computed Flow Time Constant	Float	3258	Response time constant (seconds).

2.3 ANALOG INPUT/OUTPUT, AND PROCESS INPUTS

TABLE 2.3.1 STATUS/PULSE MODE AND VOLTAGE REGISTERS

Setup Variable	Variable Definition	HR Address	Notes
Pulser Mode	Integer	20022	Value: Selection 0: A is Frequency (+/- flows), B is Quadrature 1: A is Frequency (+/- flows), B is Direction (+ indicates high, - indicates low) 2: A is Frequency (+ flows), B is Frequency (- flows)
Voltage for Pulse and Status – A	Integer	20026	Value: Selection 0: 5 volts Any other value: 12 volts
Voltage for Pulse and Status – B	Integer	20028	Value: Selection 0: 5 volts Any other value: 12 volts

PROCESS INPUTS

TABLE 2.3.2 METER BODY TEMPERATURE (MBT) REGISTERS

Setup Variable	Variable Definition	HR Address	Notes
Default MBT	Float	2058	This register can be used to provide a constant value defined by the user.
Source for MBT	Integer	2050	Value Selection 0 Default MBT 1 A/I #1 2 A/I #2 3 A/I #3 5 RTD 6 Modbus Register 7 Internal Calculation (9A-SW-000110 Only)
MBT Units	Integer	2052	Value Selection 0 deg F 1 deg C
Offset MBT	Float	2054	Sets an offset for the Meter Body Temperature when using an analog input.
Slope MBT	Float	2056	Sets the slope for the Meter Body Temperature when using an analog input.

Where: $\text{MBT} = \text{Offset} + \text{Slope} * \text{Analog Input(mA)}$

TABLE 2.3.3 FLUID TEMPERATURE (FT) REGISTERS

Setup Variable	Variable Definition	HR Address	Notes
Default FT	Float	3070	This register can be used to provide a constant value defined by the user.
Source FT	Integer	2024	Value Selection 0 Default FT 1 A/I #1 2 A/I #2 3 A/I #3 5 Meter Body Temperature (MBT) 6 Modbus Register 7 Internal Calculation (9A-SW-000110 Only)
FT Units	Integer	2016	Value Selection 0 def F 1 def C
Offset FT	Float	3230	Sets an offset for the Fluid Temperature when using an analog input.
Slope FT	Float	3232	Sets the slope for the Fluid Temperature when using an analog input.

Where: $\text{FT} = \text{Offset} + \text{Slope} * \text{Analog Input(mA)}$

TABLE 2.3.4 PRESSURE REGISTERS

Setup Variable	Variable Definition	HR Address	Notes
Default Pressure	Float	3072	This register can be used to provide a constant value defined by the user.
Source Pressure	Integer	2026	Value Selection 0 Default pressure 1 A/I #1 2 A/I #2 3 A/I #3 6 Modbus Register
Pressure Units	Integer	2018	Value Selection 0 psig 1 kg/cm^2 2 bar 3 KPaG 4 MPaG
Offset Pressure	Float	3234	Sets an offset for the pressure when using an analog input.
Slope Pressure	Float	3236	Sets the slope for the pressure when using an analog input.

Where: $\text{Pressure} = \text{Offset} + \text{Slope} * \text{Analog Input(mA)}$

TABLE 2.3.5 DENSITY REGISTERS

Setup Variable	Variable Definition	HR Address	Notes
Default Density	Float	3074	This register can be used to provide a constant value defined by the user.
Source Density	Integer	2028	Value Selection 0 Default density 1 A/I #1 2 A/I #2 3 A/I #3 5 Internal Calculation (using acoustic measurements) 6 Modbus Register
Density Units	Integer	2020	Value Selection 0 g/cc 1 kg/m^3 2 API deg 3 lb/cf
Offset Density	Float	3238	Sets an offset for density when using an analog input.
Slope Density	Float	3240	Sets the slope for density when using an analog input.

Where: $\text{Density} = \text{Offset} + \text{Slope} * \text{Analog Input(mA)}$

TABLE 2.3.6 VISCOSITY REGISTERS

Setup Variable	Variable Definition	HR Address	Notes
Default Viscosity	Float	3076	This register can be used to provide a constant value defined by the user.
Source Viscosity	Integer	2030	Value Selection 0 Default viscosity 1 A/I #1 2 A/I #2 3 A/I #3 5 Internal Calculation (using acoustic measurements) 6 Modbus Register
Viscosity Units			Always centistokes (cSt)
Offset Viscosity	Float	3240	Sets an offset for viscosity when using an analog input.
Slope Viscosity	Float	3242	Sets the slope for viscosity when using an analog input.

Where: $\text{Viscosity} = \text{Offset} + \text{Slope} * \text{Analog Input(mA)}$

PROCESS OUTPUTS

TABLE 2.3.7 ANALOG OUTPUT 1 REGISTERS

Setup Variable	Variable Definition	HR Address	Notes
AO #1 Offset	Float	3262	Sets the offset for Analog Output 1.
AO #1 Slope	Float	3260	Sets the slope for Analog Output 1.
AO #1 Map	UINT	2032	Process value choices: Value Selection 0 Flow 2 Temperature 3 Pressure 4 Density 5 Viscosity

Where: $\text{Current} = \text{Offset} + \text{Slope} * \text{Analog Input(mA)}$

TABLE 2.3.8 ANALOG OUTPUT 2 REGISTERS

Setup Variable	Variable Definition	HR Address	Notes
AO #2 Offset	Float	3266	Sets the offset for Analog Output 2.
AO #2 Slope	Float	3264	Sets the slope for Analog Output 2.
AO #2 Map	Int	2034	Process value choices: Value Selection 0 Flow 2 Temperature 3 Pressure 4 Density 5 Viscosity

Where: $\text{Current} = \text{Offset} + \text{Slope} * \text{Analog Input(mA)}$

TABLE 2.3.9 STATUS BIT MASKS

Setup Variable	Variable Definition	HR Address	Notes
Status Bit A	Integer	2012	This register indicates the status of the various Analog Outputs. The value corresponds to the bit map located in table below.
Status Bit B	Integer	2014	
Display/Modbus Mask	Integer	2042	

TABLE 2.3.10 BIT MAP FOR MASKING ALARMS TO BE INCLUDED IN THE STATUS OUTPUT

Bit	Alarm
0	Oscillator Alarm
1	VOS Alarm
2	Path Alert
3	Path Fail
4	CFG Modified
5	Flatness Ratio
6	Swirl
7	Plane Balance
8	Asymmetry Ratio
9	Meter Body Temperature Out of Range
10	Fluid Temperature Out of Range
11	Fluid Pressure Out of Range
12	Fluid Density Out of Range
13	Fluid Viscosity Out of Range
14	Platform Alarm
15	Future

2.4 COMMUNICATIONS, UNITS, AND DISPLAY

TABLE 2.4.1 TOTALIZER LIMIT

Setup Variable	Variable Definition	HR Address	Notes
Totalizer Wrap Around Value	Float	3052	Absolute value at which totalizers wrap around. For example, if this register were set to 1000.0, then the totalizer would wrap around back to 0 after 999.9.

COMMUNICATION PORTS

There are three total serial communication ports available on the G3 transmitter. The table below indicates the Holding Registers for each of the three communication ports. COM 3 is used if the meter is outfitted with a HART module and should not be modified or used in this configuration.

TABLE 2.4.2 SERIAL COMMUNICATION CONFIGURATION

Setup Variable	Variable Definition	HR Address			Notes
		COM 1	COM 2	COM 3	
Baud Rate	Integer	78	92	106	Allows the following various baud rates: 9600 19200 38400 57600
Modbus Address	Integer	88	102	116	Modbus Address (default as delivered is set to 1)

Note Communications settings are indicated on the display on startup..

TABLE 2.4.3 ETHERNET COMMUNICATION CONFIGURATION

Setup Variable	Variable Definition	HR Address	Notes
DHCP Enabled	Integer	32	Should Not be enable in most applications.
IPV4_Part1	Integer	34	
IPV4_Part2	Integer	36	
IPV4_Part3	Integer	38	
IPV4_Part4	Integer	40	
Subnet_Part1	Integer	58	
Subnet_Part2	Integer	60	
Subnet_Part3	Integer	62	
Subnet_Part4	Integer	64	
Gateway IP_Part1	Integer	66	
Gateway IP _Part2	Integer	68	
Gateway IP _Part3	Integer	70	
Gateway IP _Part4	Integer	72	
CBM_Port	Integer	74	This is a custom port for CBM data transfer (49502)

2.5 ALARM TESTS

TABLE 2.5.1 ALARM LIMITS

Setup Variable	Variable Definition	HR Address	Notes
Velocity of Sound Differential Limit	Float	21154	Defines the amount the VOS of different paths can differ prior to triggering an alarm.
Flatness Ratio Max Limit	Float	3214	Defines the maximum Flatness Ratio for the meter prior to triggering an alarm.
Flatness Ratio Min Limit	Float	3216	Defines the minimum Flatness Ratio for the meter prior to triggering an alarm.
Swirl Max Limit	Float	3218	Defines the maximum Swirl for the meter prior to triggering an alarm.
Swirl Min Limit	Float	3220	Defines the minimum Swirl for the meter prior to triggering an alarm.
Asymmetry Ratio Max Limit	Float	3222	Defines the maximum Asymmetry Ratio for the meter prior to triggering an alarm.
Asymmetry Ratio Min Limit	Float	3224	Defines the maximum Asymmetry Ratio for the meter prior to triggering an alarm.
Plane Balance Max Limit	Float	3226	Defines the maximum deviation between the Plane A and Plane B flow.
Plane Balance Min Limit	Float	3228	Defines the minimum deviation between the Plane A and Plane B flow.
Oscillator Test Threshold	Float	1218	Defines the maximum oscillator test threshold prior to triggering an alarm.
Gain Split Threshold	Float	1220	Defines the maximum split deviation threshold for Path Gains prior to triggering an alarm.
Gain Alarm Limit	Float	1222	Defines the maximum path gain value prior to triggering an alarm.

Section 3: Result Registers

The following tables define the addresses for the Modbus user outputs for all systems.

3.1 STATUS DATA

TABLE 3.1.1 PATH STATUS REGISTERS

Variable	Variable Definition	HR Address	IR Address	Notes
Path 1 State	INT	50006	190	Path state bit 0 - No signal (no zcd) bit 1 - Tup Deviation bit 2 - Tdown Deviation bit 3 - Delta T Deviation bit 4 - XCorr bit 5 - SNR Up Low bit 6 - SNR Down Low bit 7 - Delta T hit limit bit 8 - Instantaneous Vnorm test bit 9 - Gain split bit 10 - Invalid bit 11 – Pre-valid bit 12 – High Gain bit 13 – APC Data Checksum
Path 2 State	INT	50008	192	
Path 3 State	INT	50010	194	
Path 4 State	INT	50012	196	
Path 5 State	INT	50014	690	
Path 6 State	INT	50016	692	
Path 7 State	INT	50018	694	
Path 8 State	INT	50020	696	
Path 9 State	INT	4818	4818	
Path 10 State	INT	4820	4820	
Path 11 State	INT	4822	4822	
Path 12 State	INT	4824	4824	
Path 13 State	INT	4826	4826	
Path 14 State	INT	4828	4828	
Path 15 State	INT	4830	4830	
Path 16 State	INT	4832	4832	
Path 1 Status	INT	51150	74	Value Description 0 Valid 1 Pre-valid 2 Invalid 3 Gain Split 4 VOS Alarm 5 VOT (outlier test) Alarm
Path 2 Status	INT	51151	75	
Path 3 Status	INT	51152	76	
Path 4 Status	INT	51153	77	
Path 5 Status	INT	51154	574	
Path 6 Status	INT	51155	575	
Path 7 Status	INT	51156	576	
Path 8 Status	INT	51157	577	
Path 9 Status	INT	7332	7332	
Path 10 Status	INT	7334	7334	
Path 11 Status	INT	7336	7336	
Path 12 Status	INT	7338	7338	
Path 13 Status	INT	7340	7340	

Variable	Variable Definition	HR Address	IR Address	Notes
Path 14 Status	INT	7342	7342	
Path 15 Status	INT	7344	7344	
Path 16 Status	INT	7346	7346	

TABLE 3.1.2 SYSTEM & METER STATUS DATA REGISTERS

Variable	Variable Definition	HR Address	IR Address	Units	Notes
System Status	Integer	10010	72	N/A	Value Description 0 Normal 1 System Reset 2 Bad executable checksum 3 Bad configuration checksum 4 External trigger (if required) not received
Meter State Vector	Integer	10011	1101	N/A	Corresponds to the following bit values: Bit Description 0 Oscillator Alarm 1 VOS Alarm 2 Path Alert 3 Path Fail 4 CFG Modified 5 Flatness Ratio Alarm 6 Swirl Alarm 7 Plane Balance Alarm 8 Asymmetry Ratio Alarm 9 Meter Body Temp Out of Range 10 Fluid Temp Out of Range 11 Fluid Pressure Out of Range 12 Fluid Density Out of Range 13 Fluid Viscosity Out of Range 14 Platform Alarm 15 Future
Persistent Alarms (PA)	Integer	50002	404	N/A	Persistent alarms (PA); requires a user response to clear the alarm. Corresponds to the following bit values: Bit Description 0 Executable checksum failure 1 Config. checksum failure 2 Non-volatile Memory failure 3 Watchdog reset 4 Required external trigger failure 5 Oscillator alarm 6 Meter Body Temp failure 7 Path failure

Variable	Variable Definition	HR Address	IR Address	Units	Notes
Platform State	Integer	50004	40696	N/A	Corresponds to the following bit values: Bit Description 0 Normal 1 Path VOS Failure 2 MXR RTD Out of Range 3 A/I #1 Out of Range 4 A/I #2 Out of Range 5 A/I #3 Out of Range 6 System Time Out of Range

3.2 PATH ACOUSTIC DATA

TABLE 3.2.1 GAIN REGISTERS

Variable	Variable Definition	HR Address	IR Address	Units	Notes
Path 1 Average Gain	Float	5100	212	dB	Average of the upstream and downstream Gain
Path 2 Average Gain	Float	5102	214	dB	
Path 3 Average Gain	Float	5104	216	dB	
Path 4 Average Gain	Float	5106	218	dB	
Path 5 Average Gain	Float	5108	712	dB	
Path 6 Average Gain	Float	5110	714	dB	
Path 7 Average Gain	Float	5112	716	dB	
Path 8 Average Gain	Float	5114	718	dB	
Path 9 Average Gain	Float	4834	4834	dB	
Path 10 Average Gain	Float	4836	4836	dB	
Path 11 Average Gain	Float	4838	4838	dB	
Path 12 Average Gain	Float	4840	4840	dB	
Path 13 Average Gain	Float	4842	4842	dB	
Path 14 Average Gain	Float	4844	4844	dB	
Path 15 Average Gain	Float	4846	4846	dB	
Path 16 Average Gain	Float	4848	4848	dB	
Path 1 Up Gain	Float	5116	280	dB	Upstream Gain
Path 2 Up Gain	Float	5118	282	dB	
Path 3 Up Gain	Float	5120	284	dB	
Path 4 Up Gain	Float	5122	286	dB	
Path 5 Up Gain	Float	5124	780	dB	
Path 6 Up Gain	Float	5126	782	dB	
Path 7 Up Gain	Float	5128	784	dB	
Path 8 Up Gain	Float	5130	786	dB	
Path 9 Up Gain	Float	4850	4850	dB	

Variable	Variable Definition	HR Address	IR Address	Units	Notes
Path 10 Up Gain	Float	4852	4852	dB	
Path 11 Up Gain	Float	4854	4854	dB	
Path 12 Up Gain	Float	4856	4856	dB	
Path 13 Up Gain	Float	4858	4858	dB	
Path 14 Up Gain	Float	4860	4860	dB	
Path 15 Up Gain	Float	4862	4862	dB	
Path 16 Up Gain	Float	4864	4864	dB	
Path 1 Down Gain	Float	5132	288	dB	Downstream Gain
Path 2 Down Gain	Float	5134	290	dB	
Path 3 Down Gain	Float	5136	292	dB	
Path 4 Down Gain	Float	5138	294	dB	
Path 5 Down Gain	Float	5140	788	dB	
Path 6 Down Gain	Float	5142	790	dB	
Path 7 Down Gain	Float	5144	792	dB	
Path 8 Down Gain	Float	5146	794	dB	
Path 9 Down Gain	Float	4866	4866	dB	
Path 10 Down Gain	Float	4868	4868	dB	
Path 11 Down Gain	Float	4870	4870	dB	
Path 12 Down Gain	Float	4872	4872	dB	
Path 13 Down Gain	Float	4874	4874	dB	
Path 14 Down Gain	Float	4876	4876	dB	
Path 15 Down Gain	Float	4878	4878	dB	
Path 16 Down Gain	Float	4880	4880	dB	

TABLE 3.2.2 SIGNAL-TO-NOISE RATIO REGISTERS

Variable	Variable Definition	HR Address	IR Address	Units	Notes
Path 1 Average SNR	Integer	10059	24	N/A	Average of the upstream and downstream Signal-to-Noise ratio
Path 2 Average SNR	Integer	10060	25	N/A	
Path 3 Average SNR	Integer	10061	26	N/A	
Path 4 Average SNR	Integer	10062	27	N/A	
Path 5 Average SNR	Integer	10063	524	N/A	
Path 6 Average SNR	Integer	10064	525	N/A	
Path 7 Average SNR	Integer	10065	526	N/A	
Path 8 Average SNR	Integer	10066	527	N/A	
Path 9 Average SNR	Integer	4739	4739	N/A	
Path 10 Average SNR	Integer	4740	4740	N/A	

Variable	Variable Definition	HR Address	IR Address	Units	Notes
Path 11 Average SNR	Integer	4741	4741	N/A	
Path 12 Average SNR	Integer	4742	4742	N/A	
Path 13 Average SNR	Integer	4743	4743	N/A	
Path 14 Average SNR	Integer	4744	4744	N/A	
Path 15 Average SNR	Integer	4745	4745	N/A	
Path 16 Average SNR	Integer	4746	4746	N/A	
Path 1 Up SNR	Integer	10067	200	N/A	Upstream Signal-to-Noise Ratio
Path 2 Up SNR	Integer	10068	201	N/A	
Path 3 Up SNR	Integer	10069	202	N/A	
Path 4 Up SNR	Integer	10070	203	N/A	
Path 5 Up SNR	Integer	10071	700	N/A	
Path 6 Up SNR	Integer	10072	701	N/A	
Path 7 Up SNR	Integer	10073	702	N/A	
Path 8 Up SNR	Integer	10074	703	N/A	
Path 9 Up SNR	Integer	4747	4747	N/A	
Path 10 Up SNR	Integer	4748	4748	N/A	
Path 11 Up SNR	Integer	4749	4749	N/A	
Path 12 Up SNR	Integer	4750	4750	N/A	
Path 13 Up SNR	Integer	4751	4751	N/A	
Path 14 Up SNR	Integer	4752	4752	N/A	
Path 15 Up SNR	Integer	4753	4753	N/A	
Path 16 Up SNR	Integer	4754	4754	N/A	
Path 1 Down SNR	Integer	10075	204	N/A	Downstream Signal-to-Noise Ratio
Path 2 Down SNR	Integer	10076	205	N/A	
Path 3 Down SNR	Integer	10077	206	N/A	
Path 4 Down SNR	Integer	10078	207	N/A	
Path 5 Down SNR	Integer	10079	704	N/A	
Path 6 Down SNR	Integer	10080	705	N/A	
Path 7 Down SNR	Integer	10081	706	N/A	
Path 8 Down SNR	Integer	10082	707	N/A	
Path 9 Down SNR	Integer	4755	4755	N/A	
Path 10 Down SNR	Integer	4756	4756	N/A	
Path 11 Down SNR	Integer	4757	4757	N/A	
Path 12 Down SNR	Integer	4758	4758	N/A	
Path 13 Down SNR	Integer	4759	4759	N/A	
Path 14 Down SNR	Integer	4760	4760	N/A	
Path 15 Down SNR	Integer	4761	4761	N/A	
Path 16 Down SNR	Integer	4762	4762	N/A	

TABLE 3.2.3 PATH PERFORMANCE REGISTERS

Variable	Variable Definition	HR Address	IR Address	Units	Notes
Path 1 Performance	Integer	10051	16	%	Percentage of collected data that is accepted due to signal to noise ratio, cross-correlation tests, or statistics. A value of 100 indicates that 100% of the data is accepted.
Path 2 Performance	Integer	10052	17	%	
Path 3 Performance	Integer	10053	18	%	
Path 4 Performance	Integer	10054	19	%	
Path 5 Performance	Integer	10055	516	%	
Path 6 Performance	Integer	10056	517	%	
Path 7 Performance	Integer	10057	518	%	
Path 8 Performance	Integer	10058	519	%	
Path 9 Performance	Integer	4731	4731	%	
Path 10 Performance	Integer	4732	4732	%	
Path 11 Performance	Integer	4733	4733	%	
Path 12 Performance	Integer	4734	4734	%	
Path 13 Performance	Integer	4735	4735	%	
Path 14 Performance	Integer	4736	4736	%	
Path 15 Performance	Integer	4737	4737	%	
Path 16 Performance	Integer	4738	4738	%	

3.3 FLUID PROPERTY DATA REGISTERS

TABLE 3.3.1 SPEED OF SOUND REGISTERS

Variable	Variable Definition	HR Address	IR Address	Units	Notes
Path 1 VOS	Float	5052	40	*	Path Velocity of Sound * See SOS Units
Path 2 VOS	Float	5054	42	*	
Path 3 VOS	Float	5056	44	*	
Path 4 VOS	Float	5058	46	*	
Path 5 VOS	Float	5060	540	*	
Path 6 VOS	Float	5062	542	*	
Path 7 VOS	Float	5064	544	*	
Path 8 VOS	Float	5066	546	*	
Path 9 VOS	Float	7348	7348	*	
Path 10 VOS	Float	7350	7350	*	
Path 11 VOS	Float	7352	7352	*	
Path 12 VOS	Float	7354	7354	*	
Path 13 VOS	Float	7356	7356	*	
Path 14 VOS	Float	7358	7358	*	

Variable	Variable Definition	HR Address	IR Address	Units	Notes
Path 15 VOS	Float	7360	7360	*	
Path 16 VOS	Float	7362	7362	*	

3.4 FLOW, VELOCITY, AND HYDRAULIC DATA REGISTERS

TABLE 3.4.1 PLANE FLOW DATA REGISTERS

Variable	Variable Definition	HR Address	IR Address	Units	Notes
Flow A	Float	51100	2218	User Defined	Plane A Flow at standard conditions (if enabled)
Flow B	Float	51102	2220	User Defined	Plane B Flow at standard conditions (if enabled)
VNorm A	Float	51114	2214	N/A	Plane A Flow, normalized to average
VNorm B	Float	51116	2216	N/A	Plane B Flow, normalized to average
Average Velocity	Float	5010	2206	User Defined	Average meter velocity, not expanded for temperature
Velocity A	Float	51094	2208	User Defined	Plane A average velocity
Velocity B	Float	51096	2210	User Defined	Plane B average velocity

TABLE 3.4.2 HYDRAULIC DATA REGISTERS

Variable	Variable Definition	HR Address	IR Address	Units	Notes
Flatness Ratio	Float	5014	274	N/A	Ratio of the long path velocities to the short path velocities: $\mathrm{FR} = \frac{V_1 + V_4 + V_5 + V_8}{V_2 + V_3 + V_6 + V_7}$
Plane Balance Ratio	Float	5020	402	N/A	Ratio of the Plane A velocity to the Plane B velocity: $\mathrm{PB} = \frac{V_A}{V_B}$
Asymmetry Ratio	Float	5018	400	N/A	Ratio of the average velocity of the top half of the pipe to the bottom half of the pipe: $\mathrm{AR} = \frac{V_1 + V_2 + V_5 + V_6}{V_3 + V_4 + V_7 + V_8}$
Swirl	Float	5016	276	N/A	Swirl rate of the velocity field

3.5 SOFTWARE REGISTERS

TABLE 3.5.1 SOFTWARE DATA REGISTERS

Variable	Variable Definition	HR Address	IR Address	Units	Notes
Version Code	Integer	10012	73	N/A	Part number of the software
Executable Check Sum	Integer		20148	N/A	Executable Checksum
Major Software Revision	Integer	10014	329	N/A	Major revision of the software release
Metrological Level Revision	Integer	10013	328	N/A	Metrological revision of the software release
Minor Software Revision	Integer	10015	330	N/A	Minor revision of the software release

TABLE 3.5.2 TIMING RECORD DATA REGISTERS

Variable	Variable Definition	HR Address	IR Address	Units	Notes
Date	Integer	10006	315	N/A	
Hour	Integer	10007	314	N/A	
Minute	Integer	10008	313	N/A	
Month	Integer	10005	316	N/A	
Second	Integer	10009	312	N/A	
Year	Integer	10004	317	N/A	

3.6 ANALOG INPUT/OUTPUT REGISTERS

TABLE 3.6.1 ANALOG INPUT DATA REGISTERS

Variable	Variable Definition	HR Address	IR Address	Units	Notes
Analog Input 1 Value	Float	5022	82	mA	Analog Input Value (mA)
Analog Input 2 Value	Float	5024	84	mA	
Analog Input 3 Value	Float	5026	86	mA	
Analog Input 1 Status	Float	10020	1220	N/A	Value Description 0 Normal 1 Out of Range Low 2 Out of Range High
Analog Input 2 Status	Float	10021	1221	N/A	
Analog Input 3 Status	Float	10022	1222	N/A	

TABLE 3.6.2 ANALOG OUTPUT DATA REGISTERS

Variable	Variable Definition	HR Address	IR Address	Units	Notes
Analog Output 1 Value	Float	51104	40042	mA	Analog Output Value (mA)
Analog Output 2 Value	Float	51106	40044	mA	

3.7 FLUID CHARACTERISTIC PARAMETERS

TABLE 3.7.1 FLUID OUTPUT PROPERTIES DATA REGISTERS

Variable	Variable Definition	HR Address	IR Address	Units	Notes
Density Standard	Float	51122	1122	User defined	Density converted to standard conditions
Meter Body Temperature	Float	51000	78	User defined	
Fluid Temperature	Float	5002	150	User defined	
Fluid Pressure	Float	5008	80	User defined	
Fluid Density	Float	51006	90	User defined	
Fluid Viscosity	Float	51008	266	cSt	
Log(Reynolds Number)	Float	7016	132	N/A	Log10 of Reynolds number
Meter VOS	Float	5004	208	User defined	Average meter sound velocity

TABLE 3.7.2 FLOW DATA REGISTERS

Variable	Variable Definition	HR Address	IR Address	Units	Notes
Measured Flow	Float	5000	38	User defined	Flow with conversion to standard conditions enabled
Measured Flow Low Cutoff	Float	51110	2202	User defined	Flow with conversion to standard conditions enabled, but clamped to 0 if below the minimum
Gross Flow	Float	51108	2200	User defined	Flow in gross units
Gross Flow Low Cutoff	Float	51112	2204	User defined	Flow in gross units, but clamped to 0 if below the minimum flow cutoff
Net Pressure Correction	Float	51118	1118	User defined	Pressure conversion factor to standard conditions
Net Temperature Correction	Float	51120	1120	User defined	Temperature conversion factor to standard conditions

TABLE 3.7.3 TOTALIZER AND METER FACTOR DATA REGISTERS

Variable	Variable Definition	HR Address	IR Address	Units	Notes
Positive Totalizer High	Integer	10000	1112	N/A	High 32 bits of positive totalizer
Positive Totalizer Low	Integer	10001	1113	N/A	Low 32 bits of positive totalizer
Negative Totalizer High	Integer	10002	1116	N/A	High 32 bits of negative totalizer
Negative Totalizer Low	Integer	10003	1117	N/A	Low 32 bits of negative totalizer
Meter Factor Total	Float	5012	136	N/A	Total Meter Factor

3.8 CHORDAL REGISTERS

TABLE 3.8.1 CHORDAL NORMALIZED AXIAL VELOCITY REGISTERS

Variable	Variable Definition	HR Address	IR Address	Units	Notes
CVNorm1	Float	5084	94	N/A	
CVNorm2	Float	5086	96	N/A	
CVNorm3	Float	5088	98	N/A	
CVNorm4	Float	5090	100	N/A	
CVNorm5	Float	5092	594	N/A	

TABLE 3.8.2 NORMALIZED TRANVERSE VELOCITY REGISTERS

Variable	Variable Definition	HR Address	IR Address	Units	Notes
ETr1	Float	5068	48	N/A	
ETr2	Float	5070	50	N/A	
ETr3	Float	5072	52	N/A	
ETr4	Float	5074	54	N/A	
ETr5	Float	5076	548	N/A	

TABLE 3.8.3 PERCENTAGE CHORDAL UNCERTAINTY REGISTERS

Variable	Variable Definition	HR Address	IR Address	Units	Notes
UncPcntChordVel1	Float	7710	7710	%	Per Chord Uncertainty used in the determination of the chordal component of meter uncertainty
UncPcntChordVel2	Float	7712	7712	%	
UncPcntChordVel3	Float	7714	7714	%	
UncPcntChordVel4	Float	7716	7716	%	
UncPcntChordVel5	Float	7718	7718	%	

TABLE 3.8.4 ETR – TOTALIZED CHORDAL UNCERTAINTY REGISTERS

Variable	Variable Definition	HR Address	IR Address	Units	Notes
UncTotChordFlow1	Float	7720	7720	Flow Totalizer Units	Totalized Per Chord Uncertainty used in the determination of the chordal component of meter uncertainty
UncTotChordFlow2	Float	7722	7722		
UncTotChordFlow3	Float	7724	7724		
UncTotChordFlow4	Float	7726	7726		
UncTotChordFlow5	Float	7728	7728		

3.9 UNCERTAINTY REGISTERS

TABLE 3.9.1 PERCENTAGE SVM COMPONENT UNCERTAINTY REGISTERS

Variable	Variable Definition	HR Address	IR Address	Units	Notes
Integration Uncertainty	Float	7732	7732	%	Uncertainty terms used to calculate SVM uncertainty
Chordal Uncertainty	Float	7766	7766	%	
Area Uncertainty	Float	7736	7736	%	
Persistence Uncertainty	Float	7740	7740	%	

TABLE 3.9.2 TOTALIZED SVM COMPONENT UNCERTAINTY REGISTERS

Variable	Variable Definition	HR Address	IR Address	Units	Notes
Integration Uncertainty	Float	7734	7734	Flow Totalizer Units	Uncertainty terms used to calculate SVM uncertainty
Chordal Uncertainty	Float	7768	7768		
Area Uncertainty	Float	7738	7738		
Persistence Uncertainty	Float	7742	7742		

TABLE 3.9.3 FLOW SVM UNCERTAINTY REGISTERS

Variable	Variable Definition	HR Address	IR Address	Units	Notes
SVM Uncertainty	Float	7744	7744	Flow Units	
Additional SVM	Float	7752	7752	Flow Units	
Overall SVM	Float	7760	7760	Flow Units	

TABLE 3.9.4 PERCENTAGE SVM UNCERTAINTY REGISTERS

Variable	Variable Definition	HR Address	IR Address	Units	Notes
SVM Uncertainty Percent of Flow	Float	7746	7746	%	
Additional SVM Uncertainty Percent	Float	7754	7754	%	
Overall SVM Uncertainty Percent	Float	7762	7762	%	

TABLE 3.9.5 TOTALIZED SVM UNCERTAINTY REGISTERS

Variable	Variable Definition	HR Address	IR Address	Units	Notes
SVM Uncertainty Total	Float	7748	7748	Flow Totalizer Units	
Additional SVM Total	Float	7750	7750	Flow Totalizer Units	
Overall SVM Total	Float	7756	7756	Flow Totalizer Units	

Section 4: Holding Registers

Below is a list of all results stored in Holding Registers in sequential order.

HR	Tag Name
4731	Path 9 Performance
4732	Path 10 Performance
4733	Path 11 Performance
4734	Path 12 Performance
4735	Path 13 Performance
4736	Path 14 Performance
4737	Path 15 Performance
4738	Path 16 Performance
4739	Path 9 Average SNR
4740	Path 10 Average SNR
4741	Path 11 Average SNR
4742	Path 12 Average SNR
4743	Path 13 Average SNR
4744	Path 14 Average SNR
4745	Path 15 Average SNR
4746	Path 16 Average SNR
4747	Path 9 Up SNR
4748	Path 10 Up SNR
4749	Path 11 Up SNR
4750	Path 12 Up SNR
4751	Path 13 Up SNR
4752	Path 14 Up SNR
4753	Path 15 Up SNR
4754	Path 16 Up SNR
4755	Path 9 Down SNR
4756	Path 10 Down SNR
4757	Path 11 Down SNR
4758	Path 12 Down SNR
4759	Path 13 Down SNR
4760	Path 14 Down SNR
4761	Path 15 Down SNR
4762	Path 16 Down SNR
4818	Path 9 State
4820	Path 10 State
4822	Path 11 State

HR	Tag Name
4824	Path 12 State
4826	Path 13 State
4828	Path 14 State
4830	Path 15 State
4832	Path 16 State
4834	Path 9 Average Gain
4836	Path 10 Average Gain
4838	Path 11 Average Gain
4840	Path 12 Average Gain
4842	Path 13 Average Gain
4844	Path 14 Average Gain
4846	Path 15 Average Gain
4848	Path 16 Average Gain
4850	Path 9 Up Gain
4852	Path 10 Up Gain
4854	Path 11 Up Gain
4856	Path 12 Up Gain
4858	Path 13 Up Gain
4860	Path 14 Up Gain
4862	Path 15 Up Gain
4864	Path 16 Up Gain
4866	Path 9 Down Gain
4868	Path 10 Down Gain
4870	Path 11 Down Gain
4872	Path 12 Down Gain
4874	Path 13 Down Gain
4876	Path 14 Down Gain
4878	Path 15 Down Gain
4880	Path 16 Down Gain
5000	BaseFlow
5002	FluidTemperature
5004	AvgVOS
5008	FluidPress
5010	Avg Velocity
5012	MF Total

HR	Tag Name
5014	Flatness Ratio
5016	Swirl
5018	Asymmetry Ratio
5020	Plane Balance Ratio
5022	iopA 2D 1Ch 1CVal
5024	iopA 2D 1Ch 2CVal
5026	iopA 2D 1Ch 3CVal
5028	iopA 2D 1Ch 4CVal
5052	Path VOS 1
5054	Path VOS 2
5056	Path VOS 3
5058	Path VOS 4
5060	Path VOS 5
5062	Path VOS 6
5064	Path VOS 7
5066	Path VOS 8
5068	ETr 1
5070	ETr 2
5072	ETr 3
5074	ETr 4
5076	ETr 5
5084	CVNorm 1
5086	CVNorm 2
5088	CVNorm 3
5090	CVNorm 4
5092	CVNorm 5
5100	AvgPath Gain 1
5102	AvgPath Gain 2
5104	AvgPath Gain 3
5106	AvgPath Gain 4
5108	AvgPath Gain 5
5110	AvgPath Gain 6
5112	AvgPath Gain 7
5114	AvgPath Gain 8
5116	GainUp 1
5118	GainUp 2
5120	GainUp 3
5122	GainUp 4

HR	Tag Name
5124	GainUp 5
5126	GainUp 6
5128	GainUp 7
5130	GainUp 8
5132	GainDn 1
5134	GainDn 2
5136	GainDn 3
5138	GainDn 4
5140	GainDn 5
5142	GainDn 6
5144	GainDn 7
5146	GainDn 8
5148	TDown 1
5150	TDown 2
5152	TDown 3
5154	TDown 4
5156	TDown 5
5158	TDown 6
5160	TDown 7
5162	TDown 8
5164	TUp 1
5166	TUp 2
5168	TUp 3
5170	TUp 4
5172	TUp 5
5174	TUp 6
5176	TUp 7
5178	TUp 8
5180	DeltaT 1
5182	DeltaT 2
5184	DeltaT 3
5186	DeltaT 4
5188	DeltaT 5
5190	DeltaT 6
5192	DeltaT 7
5194	DeltaT 8
5196	DtStd 1
5198	DtStd 2

HR	Tag Name
5200	DtStd 3
5202	DtStd 4
5204	DtStd 5
5206	DtStd 6
5208	DtStd 7
5210	DtStd 8
7016	LogReyn
7018	Gain0
7332	Path 9 Status
7334	Path 10 Status
7336	Path 11 Status
7338	Path 12 Status
7340	Path 13 Status
7342	Path 14 Status
7344	Path 15 Status
7346	Path 16 Status
7348	Path 9 VOS
7350	Path 10 VOS
7352	Path 11 VOS
7354	Path 12 VOS
7356	Path 13 VOS
7358	Path 14 VOS
7360	Path 15 VOS
7362	Path 16 VOS
7710	UncPcntChordVel1
7712	UncPcntChordVel2
7714	UncPcntChordVel3
7716	UncPcntChordVel4
7718	UncPcntChordVel5
7720	UncTotChordFlow1
7722	UncTotChordFlow2
7724	UncTotChordFlow3
7726	UncTotChordFlow4
7728	UncTotChordFlow5
7732	Integration Uncertainty (SVM Component), %
7734	Integration Uncertainty (SVM Component Totalized)
7736	Area Uncertainty (SVM Component), %
7738	Area Uncertainty (SVM Component Totalized)
7740	Persistence Uncertainty (SVM Component), %
7742	Persistence Uncertainty (SVM Component Totalized)
7744	SVM Uncertainty, Flow
7746	SVM Uncertainty, %
7748	SVM Uncertainty Total
7750	Additional SVM Uncertainty, Total
7752	Additional SVM Uncertainty, Flow
7754	Additional SVM Uncertainty, %
7756	Overall SVM Uncertainty, Total
7760	Overall SVM Uncertainty, Flow
7762	Overall SVM Uncertainty, %
7766	Chordal Uncertainty (SVM Component), %
7768	Chordal Uncertainty (SVM Component) Totalized
10000	Pos TotalizerHi
10001	Pos TotalizerLo
10002	Neg TotalizerHi
10003	Neg TotalizerLo
10004	RTCYear
10005	RTCMonth
10006	RTCDayOfWeek
10007	RTCHour
10008	RTCMinute
10009	RTCSecond
10010	SystemStatus
10011	MeterStateVector
10012	APUVersionCode
10013	MetroLevelRevision
10014	MajorSoftwareRev
10015	MinorSoftwareRev
10016	TruncExecChksum
10017	ConfigChecksum
10019	DipSwitch
10020	iopA 2D 1Ch 1Status
10051	Path Performance 1
10052	Path Performance 2

HR	Tag Name
10053	Path Performance 3
10054	Path Performance 4
10055	Path Performance 5
10056	Path Performance 6
10057	Path Performance 7
10058	Path Performance 8
10059	Path SNRAvg 1
10060	Path SNRAvg 2
10061	Path SNRAv
10062	Path SNRAvg 4
10063	Path SNRAvg 5
10064	Path SNRAvg 6
10065	Path SNRAvg 7
10066	Path SNRAvg 8
10067	Path SNRUp 1
10068	Path SNRUp 2
10069	Path SNRUp 3
10070	Path SNRUp 4
10071	Path SNRUp 5
10072	Path SNRUp 6

HR	Tag Name
10073	Path SNRUp 7
10074	Path SNRUp 8
10075	Path SNRDn 1
10076	Path SNRDn 2
10077	Path SNRDn 3
10078	Path SNRDn 4
10079	Path SNRDn 5
10080	Path SNRDn 6
10081	Path SNRDn 7
10082	Path SNRDn 8
40017	ConfigModCtr
51150	Path 1 Status
51151	Path 2 Status
51152	Path 3 Status
51153	Path 4 Status
51154	Path 5 Status
51155	Path 6 Status
51156	Path 7 Status
51157	Path 8 Status

Section 5: Input Registers

Below are the results stored in Input Registers listed in sequential order.

IR	Tag Name
0	TDown 1
2	TDown 2
4	TDown 3
6	TDown 4
8	DeltaT 1
10	DeltaT 2
12	DeltaT 3
14	DeltaT 4
16	Path Performance 1
17	Path Performance 2
18	Path Performance 3
19	Path Performance 4
24	Path SNRAvg 1
25	Path SNRAvg 2
26	Path SNRAv
27	Path SNRAvg 4
28	DtStd 1
30	DtStd 2
32	DtStd 3
34	DtStd 4
36	UsonicSamples
38	BaseFlow
40	Path VOS 1
42	Path VOS 2
44	Path VOS 3
46	Path VOS 4
48	ETr 1
50	ETr 2
52	ETr 3
54	ETr 4
72	SystemStatus
73	APUVersionCode
74	Path Status 1
75	Path Status 2

IR	Tag Name
76	Path Status 3
77	Path Status 4
78	MeterBodyTemp
80	FluidPress
82	iopA 2D 1Ch 1CVal
84	iopA 2D 1Ch 2CVal
86	iopA 2D 1Ch 3CVal
88	iopA 2D 1Ch 4CVal
94	CVNorm 1
96	CVNorm 2
98	CVNorm 3
100	CVNorm 4
132	LogReyn
132	Swirl MF
134	Swirl Adjustment
136	MF Total
148	TruncExecChksum
149	ConfigModCtr
150	FluidTemperature
162	ConfigChecksum
180	Refraction
182	Refract Correct
190	Path State 1
192	Path State 2
194	Path State 3
196	Path State 4
200	Path SNRUp 1
201	Path SNRUp 2
202	Path SNRUp 3
203	Path SNRUp 4
204	Path SNRDn 1
205	Path SNRDn 2
206	Path SNRDn 3
207	Path SNRDn 4

IR	Tag Name
208	AvgVOS
210	iopA 2D 1Ch 1Status
212	AvgPath Gain 1
214	AvgPath Gain 2
216	AvgPath Gain 3
218	AvgPath Gain 4
274	Flatness Ratio
276	Swirl
280	GainUp 1
282	GainUp 2
284	GainUp 3
286	GainUp 4
288	GainDn 1
290	GainDn 2
292	GainDn 3
294	GainDn 4
312	RTCSecond
313	RTCMinute
314	RTCHour
315	RTCDate
316	RTCMonth
317	RTCYear
318	DipSwitch
319	BootType
322	ThrottleVal
324	Estar Short
326	Estar Long
328	MetroLevelRevision
329	MajorSoftwareRev
330	MinorSoftwareRev
376	TUp 1
378	TUp 2
380	TUp 3
382	TUp 4
384	ThreshUp 1
386	ThreshUp 2
388	ThreshUp 3
390	ThreshUp 4

IR	Tag Name
392	ThreshDn 1
394	ThreshDn 2
396	ThreshDn 3
398	ThreshDn 4
400	Asymmetry Ratio
402	Plane Balance Ratio
404	PA Alarms
500	TDown 5
502	TDown 6
504	TDown 7
506	TDown 8
508	DeltaT 5
510	DeltaT 6
512	DeltaT 7
514	DeltaT 8
516	Path Performance 5
517	Path Performance 6
518	Path Performance 7
519	Path Performance 8
524	Path SNRAvg 5
525	Path SNRAvg 6
526	Path SNRAvg 7
527	Path SNRAvg 8
528	DtStd 5
530	DtStd 6
532	DtStd 7
534	DtStd 8
540	Path VOS 5
542	Path VOS 6
544	Path VOS 7
546	Path VOS 8
548	ETr 5
574	Path Status 5
575	Path Status 6
576	Path Status 7
577	Path Status 8
594	CVNorm 5
690	Path State 5

IR	Tag Name
692	Path State 6
694	Path State 7
696	Path State 8
700	Path SNRUp 5
701	Path SNRUp 6
702	Path SNRUp 7
703	Path SNRUp 8
704	Path SNRDn 5
705	Path SNRDn 6
706	Path SNRDn 7
707	Path SNRDn 8
712	AvgPath Gain 5
714	AvgPath Gain 6
716	AvgPath Gain 7
718	AvgPath Gain 8
780	GainUp 5
782	GainUp 6
784	GainUp 7
786	GainUp 8
788	GainDn 5
790	GainDn 6
792	GainDn 7
794	GainDn 8
876	TUp 5
878	TUp 6
880	TUp 7
882	TUp 8
884	ThreshUp 5
886	ThreshUp 6
888	ThreshUp 7
890	ThreshUp 8
892	ThreshDn 5
894	ThreshDn 6
896	ThreshDn 7
898	ThreshDn 8
1101	MeterStateVector
1112	Pos TotalizerHi
1113	Pos TotalizerLo

IR	Tag Name
1116	Neg TotalizerHi
1117	Neg TotalizerLo
1118	Net CPL
1120	Net CTL
1122	Density Std
1300	VOSchk 1
1302	VOSchk 2
1304	VOSchk 3
1306	VOSchk 4
1308	VOSchk 5
1310	VOSchk 6
1312	VOSchk 7
1314	VOSchk 8
1316	VOSchk 9
1318	VOSchk 10
1320	VOSchk 11
1322	VOSchk 12
1324	VOSchk 13
1326	VOSchk 14
1328	VOSchk 15
1330	VOSchk 16
2004	Clamp Flow
2006	Temperature
2008	Pressure
2012	Meter VOS
2014	Meter Viscosity
2018	Gain 1
2020	Gain 2
2022	Gain 3
2024	Gain 4
2026	Gain 5
2028	Gain 6
2030	Gain 7
2032	Gain 8
2034	SNR 1
2035	SNR 2
2036	SNR 3
2037	SNR 4

IR	Tag Name
2038	SNR 5
2039	SNR 6
2040	SNR 7
2041	SNR 8
2042	Status 1
2043	Status 2
2044	Status 3
2045	Status 4
2046	Status 5
2047	Status 6
2048	Status 7
2049	Status 8
2050	Alarms
2216	Plane B VNorm
2218	Plane A Flow
2220	Plane B Flow
4731	Path 9 Performance
4732	Path 10 Performance
4733	Path 11 Performance
4734	Path 12 Performance
4735	Path 13 Performance
4736	Path 14 Performance
4737	Path 15 Performance
4738	Path 16 Performance
4739	Path 9 Average SNR
4740	Path 10 Average SNR
4741	Path 11 Average SNR
4742	Path 12 Average SNR
4743	Path 13 Average SNR
4744	Path 14 Average SNR
4745	Path 15 Average SNR
4746	Path 16 Average SNR
4747	Path 9 Up SNR
4748	Path 10 Up SNR
4749	Path 11 Up SNR
4750	Path 12 Up SNR
4751	Path 13 Up SNR
4752	Path 14 Up SNR

IR	Tag Name
4753	Path 15 Up SNR
4754	Path 16 Up SNR
4755	Path 9 Down SNR
4756	Path 10 Down SNR
4757	Path 11 Down SNR
4758	Path 12 Down SNR
4759	Path 13 Down SNR
4760	Path 14 Down SNR
4761	Path 15 Down SNR
4762	Path 16 Down SNR
4818	Path 9 State
4820	Path 10 State
4822	Path 11 State
4824	Path 12 State
4826	Path 13 State
4828	Path 14 State
4830	Path 15 State
4832	Path 16 State
4834	Path 9 Average Gain
4836	Path 10 Average Gain
4838	Path 11 Average Gain
4840	Path 12 Average Gain
4842	Path 13 Average Gain
4844	Path 14 Average Gain
4846	Path 15 Average Gain
4848	Path 16 Average Gain
4850	Path 9 Up Gain
4852	Path 10 Up Gain
4854	Path 11 Up Gain
4856	Path 12 Up Gain
4858	Path 13 Up Gain
4860	Path 14 Up Gain
4862	Path 15 Up Gain
4864	Path 16 Up Gain
4866	Path 9 Down Gain
4868	Path 10 Down Gain
4870	Path 11 Down Gain
4872	Path 12 Down Gain

IR	Tag Name
4874	Path 13 Down Gain
4876	Path 14 Down Gain
4878	Path 15 Down Gain
4880	Path 16 Down Gain
7332	Path Status 9
7334	Path Status 10
7336	Path Status 11
7338	Path Status 12
7340	Path Status 13
7342	Path Status 14
7344	Path Status 15
7346	Path Status 16
7348	Path 9 VOS
7350	Path 10 VOS
7352	Path 11 VOS
7354	Path 12 VOS
7356	Path 13 VOS
7358	Path 14 VOS
7360	Path 15 VOS
7362	Path 16 VOS
7710	UncPcntChordVel1
7712	UncPcntChordVel2
7714	UncPcntChordVel3
7716	UncPcntChordVel4
7718	UncPcntChordVel5
7720	UncTotChordFlow1
7722	UncTotChordFlow2
7724	UncTotChordFlow3
7726	UncTotChordFlow4
7728	UncTotChordFlow5

IR	Tag Name
7732	Integration Uncertainty (SVM Component), %
7734	Integration Uncertainty (SVM Component Totalized)
7736	Area Uncertainty (SVM Component), %
7738	Area Uncertainty (SVM Component Totalized)
7740	Persistence Uncertainty (SVM Component), %
7742	Persistence Uncertainty (SVM Component Totalized)
7744	SVM Uncertainty, Flow
7746	SVM Uncertainty, %
7748	SVM Uncertainty Total
7750	Additional SVM Uncertainty, Total
7752	Additional SVM Uncertainty, Flow
7754	Additional SVM Uncertainty, %
7756	Overall SVM Uncertainty, Total
7760	Overall SVM Uncertainty, Flow
7762	Overall SVM Uncertainty, %
7766	Chordal Uncertainty (SVM Component), %
7768	Chordal Uncertainty (SVM Component) Totalized
20000	PrevResetSrc
20002	CurrResetSrc
20148	FullExecChksum
40042	iopDAC 1Out
40044	iopDAC 2Out
40696	PlatformState

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