

146iQ - 118210-00

MODBUS Register Table

Rev AC
V 01.06.17.35763

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
9	Zero Flow (sccm)	float				sccm		Zero Flow (sccm)
13	Total Flow (sccm)	float				sccm		Total Flow (sccm)
501		string		6	9	characters		Formatted Time: HH:MM(:SS)
506		string		9	11	characters		Formatted Date: MM/DD/(YY)YY
512	Last Calibration Time	unsigned16	0			sec		Last Calibration Time (Seconds from 01-Jan-1970)
513	Previous Calibration Time	unsigned16	0			sec		Previous Calibration Time (Seconds from 01-Jan-1970)
514	General Alarm	unsigned32	1	0				General Alarm Flag
516	Instrument Serial Number	string	empty	0	14	characters		Serial Number
524	Firmware Version	string	empty	0	32	characters		Firmware Version
540		string	iQSeries	0	16	characters		HostName
548	Alerts	unsigned32	1	0				General Warning Flag
550	Instrument Warmup Enable	unsigned16	0	0	1			Instrument Warmup Flag set to 1 initially if warm up is enabled and either after all the module alarms are cleared up or after 2 hours set to 0
651	Pressure Alarm Status	unsigned16	1	0				Pressure Alarm Status
652	Flow Pressure Faults 3	unsigned16	0	0	65535			Pressure Faults 3: Bit7 - Board Communication Failure Bit14 - Power supplies Bit15 - General when any faults detected

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
653		unsigned16	0	0	65535			Pressure Cal Status0 - Do nothing1 - Reset all values to defaults2 - Update high point sensor 13 - Update low point sensor 14 - Update high point sensor 25 - Update low point sensor 26 - Update high point sensor 37 - Update low point sensor 391 - Reset all values to defaults done92 - Update high point sensor 1 done93 - Update low point sensor 1 done94 - Update high point sensor 2 done95 - Update low point sensor 2 done96 - Update high point sensor 3 done97 - Update low point sensor 3 done
654	Flow Pressure Cal Faults 1	unsigned16	0	0	65535			Pressure Calibration Faults 1 (LSB): Bit 0-1: High point sensor 1Offset is: 00=Ok 01=user input out of range 10=measurement out of range 11=No calBit2-3: Low point sensor 1Offset is: 00=Ok 01=user input out of range 10=measurement out of range 11=No calBit4-5: High point sensor 2Offset is: 00=Ok 01=user input out of range 10=measurement out of range 11=No calBit6-7: Low point sensor 2Offset is: 00=Ok 01=user input out of range 10=measurement out of range 11=No calBit8-9: High point sensor 3Offset is: 00=Ok 01=user input out of range 10=measurement out of range 11=No calBit10-11: Low point sensor 3Offset is: 00=Ok 01=user input out of range 10=measurement out of range 11=No calBit12-15=N/A
655	Flow/Pressure Communication Alarm	unsigned16	0	0	1			Flow/Pressure Communication Alarm Status
656	Flow/Pressure Power Supply Alarm	unsigned16	0	0	1			Flow/Pressure Power Supply Alarm Status
701	Perm Oven Gas Temp (Deg. C)	float				°C		Permeation Oven Gas Temperature (deg C) [if Perm Oven installed]

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
703	Perm Oven Body Temp (Deg. C)	float				°C		Permeation Oven Oven Body Temperature (deg C) [if Perm Oven installed]
705	Permeation Oven Alarms	unsigned16	1	0				Permeation Oven Alarms [if Perm Oven installed]
706	Perm Oven Oven Temperature Alarm Status	unsigned16	0	0	1			Perm Oven Oven Temperature Alarm Status [if Perm Oven installed]
707	Perm Oven Board Communication Alarm Status	unsigned16	0	0	1			Perm Oven Board Communication Alarm Status [if Perm Oven installed]
708	Perm Oven 5V Alarm Status	unsigned16	0	0	1			Perm Oven 5V Alarm Status [if Perm Oven installed]
709	Perm Oven 3.3V Alarm Status	unsigned16	0	0	1			Perm Oven 3.3V Alarm Status [if Perm Oven installed]
710	Perm Oven 3V Alarm Status	unsigned16	0	0	1			Perm Oven 3V Alarm Status [if Perm Oven installed]
711	Perm Oven 2.5V Alarm Status	unsigned16	0	0	1			Perm Oven 2.5V Alarm Status [if Perm Oven installed]
712	Perm Oven 24V Alarm Status	unsigned16	0	0	1			Perm Oven 24V Alarm Status [if Perm Oven installed]
713		unsigned16	0	0				Perm Oven Bit-packed faults 4: [if Perm Oven installed]Bit0 = UnusedBit1 = Heater status faultBit2 = heater power fault.Bit3 = 5 volts power fault.Bit 4 = 3.3 volts power fault.Bit5 = 2.5 volts power fault.Bit6 = 3 volts power fault.Bit7=Board communication failureBit8= Calibration fault.Bit9-13 = UnusedBit14 = Power supply failureBit 15 = Any faults in Fault 0 or and Fault 1
714		float	25			°C		Min Oven temperature [if Perm Oven installed]
716		float	105			°C		Max Oven temperature [if Perm Oven installed]
718	Perm Oven Body Thermistor Short	unsigned16	0	0	1			Perm Oven Body Thermistor Short Alarm Status [if Perm Oven installed]
719	Perm Oven Gas Thermistor Short	unsigned16	0	0	1			Perm Oven Gas Thermistor Short Alarm Status [if Perm Oven installed]
720	Perm Oven Body Thermistor Open	unsigned16	0	0	1			Perm Oven Body Thermistor Open Alarm Status [if Perm Oven installed]
721	Perm Oven Gas Thermistor Open	unsigned16	0	0	1			Perm Oven Gas Thermistor Short Alarm Status [if Perm Oven installed]
751	PSB Alarms	unsigned16	1	0				PSB Alarms Count

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
752	Faults 0	unsigned16	0	0	65535			Zero Gas Alicat's MFC Status Faults 0:Bit0 = Temperature Overflow(TOV)Bit1 = Temperature Underflow(TOV)Bit2 = Volumetric Overflow (VOV)Bit3 = Volumetric Underflow (VOV)Bit4 = Mass Overflow (MOV)Bit5 = Mass Underflow (MOV)Bit6 = Pressure Overflow (POV)Bit7 = Totalizer Overflow (OVR)Bit8 = PID Loop in Hold (HLD)Bit9 = ADC Error (ADC)Bit10= PID Exhaust (EXH)Bit11= Over Pressure Limit (OPL)Bit12= Flow Overflow during totalize (TMF)Bit13= Measurement was aborted
753	Faults 1	unsigned16	0	0	65535			Span Gas #1 Alicat's MFC Status Faults 1:Bit0 = Temperature Overflow(TOV)Bit1 = Temperature Underflow(TOV)Bit2 = Volumetric Overflow (VOV)Bit3 = Volumetric Underflow (VOV)Bit4 = Mass Overflow (MOV)Bit5 = Mass Underflow (MOV)Bit6 = Pressure Overflow (POV)Bit7 = Totalizer Overflow (OVR)Bit8 = PID Loop in Hold (HLD)Bit9 = ADC Error (ADC)Bit10= PID Exhaust (EXH)Bit11= Over Pressure Limit (OPL)Bit12= Flow Overflow during totalize (TMF)Bit13= Measurement was aborted

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
754	Faults 2	unsigned16	0	0	65535			Span Gas #2 (optional) Alicat's MFC StatusFaults 2:Bit0 = Temperature Overflow(TOV)BIT1 = Temperature Underflow(TOV)BIT2 = Volumetric Overflow (VOV)BIT3 = Volumetric Underflow (VOV)BIT4 = Mass Overflow (MOV)Bit5 = Mass Underflow (MOV)Bit6 = Pressure Overflow (POV)Bit7 = Totalizer Overflow (OVR)Bit8 = PID Loop in Hold (HLD)Bit9 = ADC Error (ADC)Bit10= PID Exhaust (EXH)Bit11= Over Pressure Limit (OPL)Bit12= Flow Overflow during totalize (TMF)Bit13= Measurement was aborted
755	Faults 3	unsigned16	0	0	65535			PSB Board most significant word Faults 3:Bit0..6=N/ABIT7=Board communication failureBIT8=Reset info block to defaultBIT9=Verfiy info block failBIT10=Reset calibration block to defaultBIT11=Verify calibration block failBit 12 - 13 = N/ABit14=Power Supply FailureBit15=General when any faults detected
756		unsigned16	0	0	65535			Status bits from STEP board 1:Bit Description0 Channel A 0=OK 1=Error (current>4A)1 Channel B 0=OK 1=Error (current>4A)2 Channel C 0=OK 1=Error (current>4A)3 Channel D 0=OK 1=Error (current>4A)4 Channel A 0=Off 1=On5 Channel B 0=Off 1=On6 Channel C 0=Off 1=On7 Channel D 0=Off 1=On8-11 5V Supply 0=Fail 0xa=Good12-15 24V Supply 0=Fail 0xa=Good

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
757		unsigned16	0	0	65535			Status bits from STEP board 2:Bit Description0 Channel A 0=OK 1=Error (current>4A)1 Channel B 0=OK 1=Error (current>4A)2 Channel C 0=OK 1=Error (current>4A)3 Channel D 0=OK 1=Error (current>4A)4 Channel A 0=Off 1=On5 Channel B 0=Off 1=On6 Channel C 0=Off 1=On7 Channel D 0=Off 1=On8-11 5V Supply 0=Fail 0xa=Good12-15 24V Supply 0=Fail 0xa=Good
758		unsigned16	0	0	65535			Status bits from STEP board 3:Bit Description0 Channel A 0=OK 1=Error (current>4A)1 Channel B 0=OK 1=Error (current>4A)2 Channel C 0=OK 1=Error (current>4A)3 Channel D 0=OK 1=Error (current>4A)4 Channel A 0=Off 1=On5 Channel B 0=Off 1=On6 Channel C 0=Off 1=On7 Channel D 0=Off 1=On8-11 5V Supply 0=Fail 0xa=Good12-15 24V Supply 0=Fail 0xa=Good
759		unsigned16	0	0	65535			Status bits from STEP board 4:Bit Description0 Channel A 0=OK 1=Error (current>4A)1 Channel B 0=OK 1=Error (current>4A)2 Channel C 0=OK 1=Error (current>4A)3 Channel D 0=OK 1=Error (current>4A)4 Channel A 0=Off 1=On5 Channel B 0=Off 1=On6 Channel C 0=Off 1=On7 Channel D 0=Off 1=On8-11 5V Supply 0=Fail 0xa=Good12-15 24V Supply 0=Fail 0xa=Good
760	PSB Communication Alarm	unsigned16	0	0	1			PSB Communication Status
761	PSB Power Supply Alarm	unsigned16	0	0	1			PSB Power Supply Status
762	STEP 1 Channel 1 Error	unsigned16	0	0	1			Channel 1 Error from STEP board
763	STEP 1 Channel 2 Error	unsigned16	0	0	1			Channel 2 Error from STEP board

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
764	STEP 1 Channel 3 Error	unsigned16	0	0	1			Channel 3 Error from STEP board
765	STEP 1 Channel 4 Error	unsigned16	0	0	1			Channel 4 Error from STEP board
766	STEP 1 5V Error	unsigned16	0	0	1			STEP 1 5V Error
767	STEP 1 24V Error	unsigned16	0	0	1			STEP 1 24V Error
768	STEP 2 Channel 1 Error	unsigned16	0	0	1			Channel 1 Error from STEP board
769	STEP 2 Channel 2 Error	unsigned16	0	0	1			Channel 2 Error from STEP board
770	STEP 2 Channel 3 Error	unsigned16	0	0	1			Channel 3 Error from STEP board
771	STEP 2 Channel 4 Error	unsigned16	0	0	1			Channel 4 Error from STEP board
772	STEP 2 5V Error	unsigned16	0	0	1			STEP 2 5V Error
773	STEP 2 24V Error	unsigned16	0	0	1			STEP 2 24V Error
774	STEP 3 Channel 1 Error	unsigned16	0	0	1			Channel 1 Error from STEP board
775	STEP 3 Channel 2 Error	unsigned16	0	0	1			Channel 2 Error from STEP board
776	STEP 3 Channel 3 Error	unsigned16	0	0	1			Channel 3 Error from STEP board
777	STEP 3 Channel 4 Error	unsigned16	0	0	1			Channel 4 Error from STEP board
778	STEP 3 5V Error	unsigned16	0	0	1			STEP 3 5V Error
779	STEP 3 24V Error	unsigned16	0	0	1			STEP 3 24V Error
780	STEP 4 Channel 1 Error	unsigned16	0	0	1			Channel 1 Error from STEP board
781	STEP 4 Channel 2 Error	unsigned16	0	0	1			Channel 2 Error from STEP board
782	STEP 4 Channel 3 Error	unsigned16	0	0	1			Channel 3 Error from STEP board
783	STEP 4 Channel 4 Error	unsigned16	0	0	1			Channel 4 Error from STEP board
784	STEP 4 5V Error	unsigned16	0	0	1			STEP 4 5V Error
785	STEP 4 24V Error	unsigned16	0	0	1			STEP 4 24V Error
801	Analog Input 1	float	0					Analog Input 1 Reading
803	Analog Input 2	float	0					Analog Input 2 Reading
805	Analog Input 3	float	0					Analog Input 3 Reading
807	Analog Input 4	float	0					Analog Input 4 Reading
809	Analog Alarms	unsigned16	1	0				Analog Alarms
810	Analog IO Faults 0	unsigned16	0	0	65535			Analog IO Faults 0: Bit-packed faults: Bit0 = 15V Status Diagnostic Failed Bit1 = Negative 15V Status Diagnostic Failed Bit2 = 5V Status Diagnostic Failed Bit3 = 3.3V Status Diagnostic Failed Bit4 = 5V Reference Status Diagnostic Failed Bit5..15 = N/A

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
811	Analog IO Faults 2	unsigned16	0	0	65535			Analog IO Faults 2: Bit-packed faults:Bit0 = Voltage Output Channel 1 Failed Bit1 = Voltage Output Channel 2 Failed Bit2 = Voltage Output Channel 3 Failed Bit3 = Voltage Output Channel 4 Failed Bit4 = Voltage Output Channel 5 Failed Bit5 = Voltage Output Channel 6 Failed Bit6 = Current Output Channel 1 Failed Bit7 = Current Output Channel 2 Failed Bit8 = Current Output Channel 3 Failed Bit9 = Current Output Channel 4 Failed Bit10 = Current Output Channel 5 Failed Bit11 = Current Output Channel 6 Failed Bit12 = AD5755 Temperature Too HighBit13 = AD5755-1 SPI Communications AlertBit14 = AD5755-2 SPI Communications Alert Bit15 = AD5755-3 SPI Communications Alert
812	Analog IO Faults 3	unsigned16	0	0	65535			Analog IO Faults 3: Bit-packed faults:Bit0..6 = N/A Bit7 = Board Communication FailureBit8 = Information block set defaultBit9 = Information block corruptedBit10 = Calibration block set defaultBit11 = Calibration block corruptedBit12..13 = N/A Bit14 = Power Supply FailureBit15 = General when any faults detected

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
813		unsigned16	0	0	65535			Analog IO Calibration Status: 0 = Calibration IdleVoltage Input Calibration 1 = Calculate voltage input start2 = Calculate voltage input stop3 = Calculate voltage input default4 = Calibration voltage input done Voltage Output Calibration 5 = Calculate voltage output start6 = Calculate voltage output stop7 = Calculate voltage output default8 = Calibration voltage output done Current Output Calibration 9 = Calculate current output start10 = Calculate current output stop11 = Calculate current output default12 = Calibration voltage output done
814	Analog IO Cal Faults 1	unsigned16	0	0	65535			Analog IO Cal Faults 1: Bit-packed faults for voltage input calibration:Bit0-1 = Channel 1 voltage input calibration failureOffset is: 00 = Ok 01 = Low 10 = High 11 = No calBit2-3 = Channel 2 voltage input calibration failureOffset is: 00 = Ok 01 = Low 10 = High 11 = No calBit4-5 = Channel 3 voltage input calibration failureOffset is: 00 = Ok 01 = Low 10 = High 11 = No calBit6-7= Channel 4 voltage input calibration failureOffset is: 00 = Ok 01 = Low 10 = High 11 = No calBit8..15 = N/A

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
815	Analog IO Cal Faults 2	unsigned16	0	0	65535			Analog IO Cal Faults 2: Bit-packed faults for voltage output 5V range calibration:Bit0-1 = Channel 1 voltage output calibration failureOffset is: 00 = Ok 01 = Low 10 = High 11 = No calBit2-3 = Channel 2 voltage output calibration failureOffset is: 00 = Ok 01 = Low 10 = High 11 = No calBit4-5 = Channel 3 voltage output calibration failureOffset is: 00 = Ok 01 = Low 10 = High 11 = No calBit6-7 = Channel 4 voltage output calibration failureOffset is: 00 = Ok 01 = Low 10 = High 11 = No calBit8-9 = Channel 5 voltage output calibration failureOffset is: 00 = Ok 01 = Low 10 = High 11 = No calBit10-11 = Channel 6 voltage output calibration failureOffset is: 00 = Ok 01 = Low 10 = High 11 = No calBit12..15=N/A
816	Analog IO Cal Faults 3	unsigned16	0	0	65535			Analog IO Cal Faults 3: Bit-packed faults for voltage output 10V range calibration:Bit0-1 = Channel 1 voltage output calibration failureOffset is: 00 = Ok 01 = Low 10 = High 11 = No calBit2-3 = Channel 2 voltage output calibration failureOffset is: 00 = Ok 01 = Low 10 = High 11 = No calBit4-5 = Channel 3 voltage output calibration failureOffset is: 00 = Ok 01 = Low 10 = High 11 = No calBit6-7 = Cahnnel 4 voltage output calibration failureOffset is: 00 = Ok 01 = Low 10 = High 11 = No calBit8-9 = Channel 5 voltage output calibration failureOffset is: 00 = Ok 01 = Low 10 = High 11 = No calBit10-11 = Channel 6 voltage output calibration failureOffset is: 00 = Ok 01 = Low 10 = High 11 = No calBit12..15=N/A

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
817	Analog IO Cal Faults 4	unsigned16	0	0	65535			Analog IO Cal Faults 4: Bit-packed faults for current output calibration:Bit0-1= Channel 1 current output calibration failureOffset is: 00 = Ok 01 = Low 10 = High 11 = No calBit2-3= Channel 2 current output calibration failureOffset is: 00 = Ok 01 = Low 10 = High 11 = No calBit4-5= Channel 3 current output calibration failureOffset is: 00 = Ok 01 = Low 10 = High 11 = No calBit6-7= Channel 4 current output calibration failureOffset is: 00 = Ok 01 = Low 10 = High 11 = No calBit8-9= Channel 5 current output calibration failureOffset is: 00 = Ok 01 = Low 10 = High 11 = No calBit10-11= Channel 6 current output calibration failureOffset is: 00 = Ok 01 = Low 10 = High 11 = No calBit12..15=N/A
818	Analog IO Voltage Output Channel 1 Alarm	unsigned16	0	0	1			Analog IO Voltage Output Channel 1 Alarm Status
819	Analog IO Voltage Output Channel 2 Alarm	unsigned16	0	0	1			Analog IO Voltage Output Channel 2 Alarm Status
820	Analog IO Voltage Output Channel 3 Alarm	unsigned16	0	0	1			Analog IO Voltage Output Channel 3 Alarm Status
821	Analog IO Voltage Output Channel 4 Alarm	unsigned16	0	0	1			Analog IO Voltage Output Channel 4 Alarm Status
822	Analog IO Voltage Output Channel 5 Alarm	unsigned16	0	0	1			Analog IO Voltage Output Channel 5 Alarm Status
823	Analog IO Voltage Output Channel 6 Alarm	unsigned16	0	0	1			Analog IO Voltage Output Channel 6 Alarm Status
824	Analog IO Current Output Channel 1 Alarm	unsigned16	0	0	1			Analog IO Current Output Channel 1 Alarm Status
825	Analog IO Current Output Channel 2 Alarm	unsigned16	0	0	1			Analog IO Current Output Channel 2 Alarm Status
826	Analog IO Current Output Channel 3 Alarm	unsigned16	0	0	1			Analog IO Current Output Channel 3 Alarm Status

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
827	Analog IO Current Output Channel 4 Alarm	unsigned16	0	0	1			Analog IO Current Output Channel 4 Alarm Status
828	Analog IO Current Output Channel 5 Alarm	unsigned16	0	0	1			Analog IO Current Output Channel 5 Alarm Status
829	Analog IO Current Output Channel 6 Alarm	unsigned16	0	0	1			Analog IO Current Output Channel 6 Alarm Status
830	Analog IO Chip Temperatures Alarm	unsigned16	0	0	1			Analog IO Chip Temperatures Alarm Status
831	Analog IO Chip 1 Communication Alarm	unsigned16	0	0	1			Analog IO Chip 1 Communication Alarm Status
832	Analog IO Chip 2 Communication Alarm	unsigned16	0	0	1			Analog IO Chip 2 Communication Alarm Status
833	Analog IO Chip 3 Communication Alarm	unsigned16	0	0	1			Analog IO Chip 3 Communication Alarm Status
834	Analog IO Communication Alarm	unsigned16	0	0	1			Analog IO Communication Alarm Status
835	Analog IO Power Supply Alarm	unsigned16	0	0	1			Analog IO Power Supply Alarm Status
951	Digital IO Alarms	unsigned16	1	0				Digital IO Alarms

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
952	Digital IO Faults 0	unsigned16	0	0	65535			Digital IO Board fault register 1 least significant wordBit 0 = Solenoid1 above 500mA shut down and alarmBit 1 = Solenoid1 below 10mA and output is onBit 2 = Solenoid2 above 500mA shut down and alarmBit 3 = Solenoid2 below 10mA and output is onBit 4 = Solenoid3 above 500mA shut down and alarmBit 5 = Solenoid3 below 10mA and output is onBit 6 = Solenoid4 above 500mA shut down and alarmBit 7 = Solenoid4 below 10mA and output is onBit 8 = Solenoid5 above 500mA shut down and alarmBit 9 = Solenoid5 below 10mA and output is onBit 10 = Solenoid6 above 500mA shut down and alarmBit 11 = Solenoid6 below 10mA and output is onBit 12 = Solenoid7 above 500mA shut down and alarmBit 13 = Solenoid7 below 10mA and output is onBit 14 = Solenoid8 above 500mA shut down and alarmBit 15 = Solenoid8 below 10mA and output is on
953	Digital IO Faults 1	unsigned16	0	0	65535			Digital IO Board fault register 2
954	Digital IO Faults 3	unsigned16	0	0	65535			Digital IO Board fault register 4 most significant wordBit0..9= N/A Bit 7 = Board Communication FailureBit8 = Information block set defaultBit9 = Information block corruptedBit10 = Calibration block set defaultBit11 = Calibration block corruptedBit12..13 = N/ABit14 = Power Supply Bit15 = General when any faults detected
955	External Alarm 1	unsigned16	0	0	1			Digital IO External Alarm 1
956	External Alarm 2	unsigned16	0	0	1			Digital IO External Alarm 2
957	External Alarm 3	unsigned16	0	0	1			Digital IO External Alarm 3

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
958	Digital IO Fault Reset	unsigned16	0	0	255			Reset the solenoid faults Bit0 = 24V Switchable Output 0 Bit1 = 24V Switchable Output 1 Bit2 = 24V Switchable Output 2 Bit3 = 24V Switchable Output 3 Bit4 = 24V Switchable Output 4 Bit5 = 24V Switchable Output 5 Bit6 = 24V Switchable Output 6 Bit7 = 24V Switchable Output 7 Bit8..15 = N/A
959	Digital IO Solenoid1 High Alarm	unsigned16		0	1			Digital I/O solenoid1 above 500mA alarm
960	Digital IO Solenoid1 Low Alarm	unsigned16		0	1			Digital I/O solenoid1 below 10mA alarm
961	Digital IO Solenoid2 High Alarm	unsigned16		0	1			Digital I/O solenoid2 above 500mA alarm
962	Digital IO Solenoid2 Low Alarm	unsigned16		0	1			Digital I/O solenoid2 below 10mA alarm
963	Digital IO Solenoid3 High Alarm	unsigned16		0	1			Digital I/O solenoid3 above 500mA alarm
964	Digital IO Solenoid3 Low Alarm	unsigned16		0	1			Digital I/O solenoid3 below 10mA alarm
965	Digital IO Solenoid4 High Alarm	unsigned16		0	1			Digital I/O solenoid4 above 500mA alarm
966	Digital IO Solenoid4 Low Alarm	unsigned16		0	1			Digital I/O solenoid4 below 10mA alarm
967	Digital IO Solenoid5 High Alarm	unsigned16		0	1			Digital I/O solenoid5 above 500mA alarm
968	Digital IO Solenoid5 Low Alarm	unsigned16		0	1			Digital I/O solenoid5 below 10mA alarm
969	Digital IO Solenoid6 High Alarm	unsigned16		0	1			Digital I/O solenoid6 above 500mA alarm
970	Digital IO Solenoid6 Low Alarm	unsigned16		0	1			Digital I/O solenoid6 below 10mA alarm
971	Digital IO Solenoid7 High Alarm	unsigned16		0	1			Digital I/O solenoid7 above 500mA alarm
972	Digital IO Solenoid7 Low Alarm	unsigned16		0	1			Digital I/O solenoid7 below 10mA alarm

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
973	Digital IO Solenoid8 High Alarm	unsigned16		0	1			Digital I/O solenoid8 above 500mA alarm
974	Digital IO Solenoid8 Low Alarm	unsigned16		0	1			Digital I/O solenoid8 below 10mA alarm
975	Digital IO Power Supply Alarm	unsigned16		0	1			Digital I/O power supply alarm
976	Digital IO Communication Alarm	unsigned16	0	0	1			Digital IO Communication Alarm
977		unsigned16	0	0	1			Digital IO Relay Test Mode Alarm
978		unsigned16	0	0	1			Digital IO Solenoid Test Mode Alarm
1001		integer16	0	-99	60			Maintenance History Calculated Months Left Photometer DMC Module
1002		integer16	0	-99	60			Maintenance History Calculated Months Left Lamp
1003		integer16	0	-99	60			Maintenance History Calculated Months Left Lamp Heater
1004		integer16	0	-99	60			Maintenance History Calculated Months Left Detector
1005		integer16	0	-99	60			Maintenance History Calculated Months Left Ozonator
1006		integer16	0	-99	60			Maintenance History Calculated Months Left Ozonator Lamp
1007		integer16	0	-99	60			Maintenance History Calculated Months Left Ozonator Lamp Heater
1008		integer16	0	-99	60			Maintenance History Calculated Months Left Flow System
1009		integer16	0	-99	60			Maintenance History Calculated Months Left Pump
1010		integer16	0	-99	60			Maintenance History Calculated Months Left Capillary (Pump)
1011		integer16	0	-99	60			Maintenance History Calculated Months Left Capillary (Reference)
1012		integer16	0	-99	60			Maintenance History Calculated Months Left Capillary (Ozonator)
1013		integer16	0	-99	60			Maintenance History Calculated Months Left Capillary (Perm Oven)

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
1014		integer16	0	-99	60			Maintenance History Calculated Months Left DC Power Supply
1015		integer16	0	-99	60			Maintenance History Calculated Months Left Foam Fan Filter
1016		integer16	0	-99	60			Maintenance History Calculated Months Left System Components
1017		integer16	0	-99	60			Maintenance History Calculated Months Left Purafil
1018		integer16	0	-99	60			Maintenance History Calculated Months Left Charcoal
1019		integer16	0	-99	60			Maintenance History Calculated Months Left Dri-Rite
1020		integer16	0	-99	60			Maintenance History Calculated Months Left Permeation Tube
1021		integer16	0	-99	60			Maintenance History Calculated Months Left 21
1022		integer16	0	-99	60			Maintenance History Calculated Months Left 22
1023		integer16	0	-99	60			Maintenance History Calculated Months Left 23
1024		integer16	0	-99	60			Maintenance History Calculated Months Left 24
1025		integer16	0	-99	60			Maintenance History Calculated Months Left 25
1026		integer16	0	-99	60			Maintenance History Calculated Months Left 26
1027		integer16	0	-99	60			Maintenance History Calculated Months Left 27
1028		integer16	0	-99	60			Maintenance History Calculated Months Left 28
1029		integer16	0	-99	60			Maintenance History Calculated Months Left 29
1030		integer16	0	-99	60			Maintenance History Calculated Months Left 30
1031		integer16	0	-99	60			Maintenance History Calculated Months Left 31
1032		integer16	0	-99	60			Maintenance History Calculated Months Left 32
1033		integer16	0	-99	60			Maintenance History Calculated Months Left 33
1034		integer16	0	-99	60			Maintenance History Calculated Months Left 34
1035		integer16	0	-99	60			Maintenance History Calculated Months Left 35
1036		integer16	0	-99	60			Maintenance History Calculated Months Left 36

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
1037		integer16	0	-99	60			Maintenance History Calculated Months Left 37
1038		integer16	0	-99	60			Maintenance History Calculated Months Left 38
1039		integer16	0	-99	60			Maintenance History Calculated Months Left 39
1040		integer16	0	-99	60			Maintenance History Calculated Months Left 40
1041		integer16	0	-99	60			Maintenance History Calculated Months Left 41
1042		integer16	0	-99	60			Maintenance History Calculated Months Left 42
1043		integer16	0	-99	60			Maintenance History Calculated Months Left 43
1044		integer16	0	-99	60			Maintenance History Calculated Months Left 44
1045		integer16	0	-99	60			Maintenance History Calculated Months Left 45
1046		integer16	0	-99	60			Maintenance History Calculated Months Left 46
1047		integer16	0	-99	60			Maintenance History Calculated Months Left 47
1048		integer16	0	-99	60			Maintenance History Calculated Months Left 48
1049		integer16	0	-99	60			Maintenance History Calculated Months Left 49
1050		integer16	0	-99	60			Maintenance History Calculated Months Left 50
1051	Maintenance History Alert	unsigned16	0	0	1			Maintenance History Alert
1101	Predictive Diagnostics Alerts List	string		0	300			Predictive Diagnostics Alerts List
1301	Predictive Diagnostic Alert 1	unsigned16	0	0	1			Predictive Diagnostic Alert 1
1302	Predictive Diagnostic Alert 2	unsigned16	0	0	1			Predictive Diagnostic Alert 2
1303	Predictive Diagnostic Alert 3	unsigned16	0	0	1			Predictive Diagnostic Alert 3
1304	Predictive Diagnostic Alert 4	unsigned16	0	0	1			Predictive Diagnostic Alert 4
1305	Predictive Diagnostic Alert 5	unsigned16	0	0	1			Predictive Diagnostic Alert 5
1306	Predictive Diagnostic Alert 6	unsigned16	0	0	1			Predictive Diagnostic Alert 6
1307	Predictive Diagnostic Alert 7	unsigned16	0	0	1			Predictive Diagnostic Alert 7
1308	Predictive Diagnostic Alert 8	unsigned16	0	0	1			Predictive Diagnostic Alert 8
1309	Predictive Diagnostic Alert 9	unsigned16	0	0	1			Predictive Diagnostic Alert 9
1310	Predictive Diagnostic Alert 10	unsigned16	0	0	1			Predictive Diagnostic Alert 10

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
1311	Predictive Diagnostic Alert 11	unsigned16	0	0	1			Predictive Diagnostic Alert 11
1312	Predictive Diagnostic Alert 12	unsigned16	0	0	1			Predictive Diagnostic Alert 12
1313	Predictive Diagnostic Alert 13	unsigned16	0	0	1			Predictive Diagnostic Alert 13
1314	Predictive Diagnostic Alert 14	unsigned16	0	0	1			Predictive Diagnostic Alert Capillary
1315	Predictive Diagnostic Alert 15	unsigned16	0	0	1			Predictive Diagnostic Alert Flow Path
1316	Predictive Diagnostic Alert 16	unsigned16	0	0	1			Predictive Diagnostic Alert Sample Pump
1317	Predictive Diagnostic Alert 17	unsigned16	0	0	1			Predictive Diagnostic Alert 17
1318	Predictive Diagnostic Alert 18	unsigned16	0	0	1			Predictive Diagnostic Alert 18
1319	Predictive Diagnostic Alert 19	unsigned16	0	0	1			Predictive Diagnostic Alert 19
1320	Predictive Diagnostic Alert 20	unsigned16	0	0	1			Predictive Diagnostic Alert 20
1321	Predictive Diagnostic Alerts	unsigned16	0	0	1			Predictive Diagnostic Alerts
1401	Photometer Bench Alarms	unsigned16	0	0	999			Bench Alarm Count (also includes flow and photometer pressure from the flow/pres status and alarms screen)
1402		string	0	0	11			Virtual Concentration string for single/low range (user defined units)
1408		string	0	0	11			Virtual Concentration string for high range (user defined units) [not in 146iQ]
1414	Calculated Flow A (L/min)	float	0			L/Min		Calculated Flow (L/Min)
1416	Conc Alarm	unsigned16	0	0	1			Concentration Alarm Status [not in 146iQ]
1417		float	0					Zero Check Conc in base units (ppb or ug/m3) [not in 146iQ]
1419	Zero Check Alarm	unsigned16	0	0	1			Zero Check Alarm Status [not in 146iQ]
1420		float	0					Span Check Concentration value in user units [not in 146iQ]
1422	Span Check Alarm	unsigned16	0	0	1			Span Check Alarm Status [not in 146iQ]
1423		float	0			basic units		Ozonator Level 1 Check Conc base units (ppb or ug/m3) [not in 146iQ]
1425	Ozonator Level 1 Check Alarm	unsigned16	0	0	1			Ozonator Level 1 Check Alarm Status [not in 146iQ]
1426		float	0			basic units		Ozonator Level 2 Check Conc base units (ppb or ug/m3) [not in 146iQ]

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
1428	Ozonator Level 2 Check Alarm	unsigned16	0	0	1			Ozonator Level 2 Check Alarm Status [not in 146iQ]
1429		float	0			basic units		Ozonator Level 3 Check Conc base units (ppb or ug/m3) [not in 146iQ]
1431	Ozonator Level 3 Check Alarm	unsigned16	0	0	1			Ozonator Level 3 Check Alarm Status [not in 146iQ]
1432		float	0			basic units		Ozonator Level 4 Check Conc base units (ppb or ug/m3) [not in 146iQ]
1434	Ozonator Level 4 Check Alarm	unsigned16	0	0	1			Ozonator Level 4 Check Alarm Status [not in 146iQ]
1435		float	0			basic units		Ozonator Level 5 Check Conc base units (ppb or ug/m3) [not in 146iQ]
1437	Ozonator Level 5 Check Alarm	unsigned16	0	0	1			Ozonator Level 5 Check Alarm Status [not in 146iQ]
1438		float	0			basic units		Ozonator Level 6 Check Conc base units (ppb or ug/m3) [not in 146iQ]
1440	Ozonator Level 6 Check Alarm	unsigned16	0	0	1			Ozonator Level 6 Check Alarm Status [not in 146iQ]
1441	Photometer Flow A Alarm Status	unsigned16	0	0	1			Flow A Alarm Status [not in 146iQ]
1442	Photometer Pressure A (mmHg)	float	0	0	1000	mmHg	1	Photometer Pressure (mmHg)
1444	Photometer Pressure A Alarm	unsigned16	0	0	1			Photometer Pressure Alarm Status [not in 146iQ]
1445	Photometer Pump Pressure	float	0	0	1000		1	Pump Pressure (mmHg)
1447		unsigned16	0	0	1			Module Alarm Count: non-zero if any alarms in this module active: Conc/AutoZero/AutoSpan
1448	Photometer Pressure B (mmHg)	float	0	0	1000	mmHg	1	Photometer Pressure B (mmHg)
1451	Photometer O3 Alarm Count	unsigned16	1	0				Number of active Photometer alarms
1452	Photometer Heater Current (A)	float	0	0.01	1.4	A	2	Lamp Heater current (mA)
1454	Cell A Photometer Frequency (Hz)	float	0	5	200000	Hz	0	Channel A Frequency
1456	Cell B Photometer Frequency (Hz)	float	0	5	200000	Hz	0	Channel B Frequency
1458	Photometer O3 Cell A frequency Max Alarm	unsigned16	0	0	1			Cell A frequency Max Alarm Status
1459	Photometer O3 Cell B frequency Max Alarm	unsigned16	0	0	1			Cell B frequency Max Alarm Status

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
1460	PhotometerO3 Lamp Temp Sensor Short Alarm	unsigned16	0	0	1			Lamp Temp Sensor Short Alarm Status
1461	PhotometerO3 Lamp Temp Sensor Open Alarm	unsigned16	0	0	1			Lamp Temp Sensor Open Alarm Status
1462	PhotometerO3 Bench Temp Sensor Short Alarm	unsigned16	0	0	1			Bench Temp Sensor Short Alarm Status
1463	PhotometerO3 Bench Temp Sensor Open Alarm	unsigned16	0	0	1			Bench Temp Sensor Open Alarm Status
1464	PhotometerO3 Lamp Connection Alarm	unsigned16	0	0	1			Lamp Connection Alarm Status
1465	PhotometerO3 Lamp Short Alarm	unsigned16	0	0	1			Lamp Short Alarm Status
1466	PhotometerO3 Communication Alarm	unsigned16	0	0	1			Communication Alarm Status
1467	PhotometerO3 Power Supply Alarm	unsigned16	0	0	1			Power Supply Alarm Status
1468	PhotometerO3 Lamp Current Alarm	unsigned16	0	0	1			Lamp Current Alarm Status
1469	PhotometerO3 Lamp Temp Alarm	unsigned16	0	0	1			Lamp Temperature Alarm Status
1470	Bench Temp Alarm Status	unsigned16	0	0	1			Bench Temp Alarm Status
1471	Photometer Bench Temperature (Deg. C)	float	0	0	60	°C	1	Bench temperature (°C)
1473	Photometer Lamp Temperature (Deg. C)	float	0	0	85	°C	1	Lamp temperature (°C)
1475	Lamp Current	float	0	2	17.5	mA	2	Lamp Current
1477		unsigned16	0	0	1			Enable/disable the module
1501	O3 Ozonator Alarms	unsigned16	1	0				Number of active Ozonator Alarms
1502	Ozonator Heater Current	float	0	0.01	1.4	A	2	Lamp Heater current (mA)
1504		float	0	0	60	°C	1	Bench temperature (°C)
1508		unsigned16	0	0	1			Enable/disable the module
1510	Ozonator Lamp Temp Sensor Short Alarm	unsigned16	0	0	1			Lamp Temp Sensor Short Alarm Status

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
1511	Ozonator Lamp Temp Sensor Open Alarm	unsigned16	0	0	1			Lamp Temp Sensor Open Alarm Status
1512	Ozonator Lamp Connection Alarm	unsigned16	0	0	1			Lamp Connection Alarm Status
1513	Ozonator Lamp Short Alarm	unsigned16	0	0	1			Lamp Short Alarm Status
1514	Ozonator Communication Alarm	unsigned16	0	0	1			Communication Alarm Status
1515	Ozonator Power Supply Alarm	unsigned16	0	0	1			Power Supply Alarm Status
1516	Ozonator Lamp Temp Alarm	unsigned16	0	0	1			Lamp Temperature Alarm Status
1517	Ozonator Lamp Temperature (Deg. C)	float	0	0	65	°C	1	Lamp temperature (°C)
1519	Ozonator Lamp Current (mA)	float	0	2	17.5	mA	2	Lamp current (mA) UNUSED IN THE CODE!!!
1601	Selected Tank Name	string	--	0	12			Selected Tank Name
1607		float	0			PPM		Selected Zero/Span
1609	Requested Total Flow (sccm)	float	0			sccm		Requested Total Flow (sccm)
1611	Requested Concentration (PPM)	float	0			PPM		Requested Concentration (ppm)
1613		float	0			sccm		Requested Zero Flow (sccm)
1615		float	0			sccm		Requested Gas Flow (sccm)
1617	Instrument Temperature Alarm Status	unsigned16	0	0	1			Instrument Temperature Alarm Status
1618		unsigned16	0	0	1			MFC faults 0 bit 0:Temperature Overflow
1619		unsigned16	0	0	1			MFC faults 0 bit 1:Temperature Underflow
1620		unsigned16	0	0	1			MFC faults 0 bit 2:Volumetric Overflow
1621		unsigned16	0	0	1			MFC faults 0 bit 3:Volumetric Underflow
1622		unsigned16	0	0	1			MFC faults 0 bit 4:Mass Overflow
1623		unsigned16	0	0	1			MFC faults 0 bit 5:Mass Underflow
1624		unsigned16	0	0	1			MFC faults 0 bit 6:Pressure Overflow
1625		unsigned16	0	0	1			MFC faults 0 bit 11:Over Pressure Limit
1626		unsigned16	0	0	1			MFC faults 0 bit 12:Flow Overflow During Totalize
1627		unsigned16	0	0	1			MFC faults 0 bit 13:Measurement Was Aborted

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
1628		unsigned16	0	0	1			MFC faults 1 bit 0:Temperature Overflow
1629		unsigned16	0	0	1			MFC faults 1 bit 1:Temperature Underflow
1630		unsigned16	0	0	1			MFC faults 1 bit 2:Volumetric Overflow
1631		unsigned16	0	0	1			MFC faults 1 bit 3:Volumetric Underflow
1632		unsigned16	0	0	1			MFC faults 1 bit 4:Mass Overflow
1633		unsigned16	0	0	1			MFC faults 1 bit 5:Mass Underflow
1634		unsigned16	0	0	1			MFC faults 1 bit 6:Pressure Overflow
1635		unsigned16	0	0	1			MFC faults 1 bit 11:Over Pressure Limit
1636		unsigned16	0	0	1			MFC faults 1 bit 12:Flow Overflow During Totalize
1637		unsigned16	0	0	1			MFC faults 1 bit 13:Measurment Was Aborted
1638		unsigned16	0	0	1			MFC faults 2 bit 0:Temperature Overflow
1639		unsigned16	0	0	1			MFC faults 2 bit 1:Temperature Underflow
1640		unsigned16	0	0	1			MFC faults 2 bit 2:Volumetric Overflow
1641		unsigned16	0	0	1			MFC faults 2 bit 3:Volumetric Underflow
1642		unsigned16	0	0	1			MFC faults 2 bit 4:Mass Overflow
1643		unsigned16	0	0	1			MFC faults 2 bit 5:Mass Underflow
1644		unsigned16	0	0	1			MFC faults 2 bit 6:Pressure Overflow
1645		unsigned16	0	0	1			MFC faults 2 bit 11:Over Pressure Limit
1646		unsigned16	0	0	1			MFC faults 2 bit 12:Flow Overflow During Totalize
1647		unsigned16	0	0	1			MFC faults 2 bit 13:Measurment Was Aborted
1648		unsigned16	0					MFC Peripherals Module Alarm Count
1649	Ozonator Flow	float				sccm	1	Ozonator Flow
1901	Instrument Temperature (Deg. C)	float	25	0	50	°C	3	MFC Module Temperature
1903	Gas Flow (sccm)	float				sccm		Gas Flow (sccm)
1905	Gas Concentration (PPM)	float				PPM		Gas Concentration (ppm)
1907	MFC Alarms	unsigned16	0					MFC Module Alarm Count
2051	User Digital Out 1	unsigned16	0	0	1			User Digital Out 1
2052	User Digital Out 2	unsigned16	0	0	1			User Digital Out 2

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
2053	User Digital Out 3	unsigned16	0	0	1			User Digital Out 3
2054	User Digital Out 4	unsigned16	0	0	1			User Digital Out 4
2055	User Digital Out 5	unsigned16	0	0	1			User Digital Out 5
2056	User Digital Out 6	unsigned16	0	0	1			User Digital Out 6
2057	User Digital Out 7	unsigned16	0	0	1			User Digital Out 7
2058	User Digital Out 8	unsigned16	0	0	1			User Digital Out 8
2059	User Digital Out 9	unsigned16	0	0	1			User Digital Out 9
2060	User Digital Out 10	unsigned16	0	0	1			User Digital Out 10
2061	User Digital Out 11	unsigned16	0	0	1			User Digital Out 11
2062	User Digital Out 12	unsigned16	0	0	1			User Digital Out 12
2063	User Digital Out 13	unsigned16	0	0	1			User Digital Out 13
2064	User Digital Out 14	unsigned16	0	0	1			User Digital Out 14
2065	User Digital Out 15	unsigned16	0	0	1			User Digital Out 15
2066	User Digital Out 16	unsigned16	0	0	1			User Digital Out 16
2101	Auto Concentration (ppb or ug/m3)	float	0					Concentration for current range in base units (ppb or ug/m3) (user defined units)
2103	Concentration (ppb or ug/m3)	float	0			basic units		Single/Low Range Concentration in Basic Units (ppb or ug/m3)
2105	High Concentration (ppb or ug/m3)	float	0			basic units		High Range Concentration in Basic Units (ppb or ug/m3) [not in 146iQ]
2107	Auto Range	unsigned16	0	0	1			Auto Range selection 0=low range 1=high range [not in 146iQ]
2109	Cell A Noise (Hz)	float	0	0	1E+06	Hz	6	Cell A Noise
2111	Cell B Noise (Hz)	float	0	0	1E+06	Hz	6	Cell B Noise [not in 146iQ]
2113	O3 Cell A Lo Range Conc (ppb or ug/m3)	float	0	-1000	500000	basic units		Cell A concentration in ppb units for range low
2115	O3 Cell A Hi Range Conc (ppb or ug/m3)	float	0	-1000	500000	basic units		Cell A concentration in ppb units for range high
2117	O3 Cell B Lo Range Conc (ppb or ug/m3)	float	0	-1000	500000	basic units		Cell B concentration in ppb units for range low [not in 146iQ]
2119	O3 Cell B Hi Range Conc (ppb or ug/m3)	float	0	-1000	500000	basic units		Cell B concentration in ppb units for range high [not in 146iQ]
2121		unsigned16	0	0	3			0=49 old plumbing [not in 146iQ]1=49PS old plumbing2=49PS new plumbing3=49 new plumbing [not in 146iQ]

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
2123	Background	float	0	-25	25		2	Photometer Background
2125		float	0	-25	25		2	Background Auto Cal New
2127		float	1				2	Span Coefficient Auto Cal New Low
2129		float	1				2	Span Coefficient Auto Cal New High
2131		float	0	-1000	500000			Manual Calibration Adjusted Concentration in ppb units (user defined units)
2133		float	0	-1000	500000			Manual Calibration Adjusted Concentration in ppb units (user defined units)
2135	Calculated Flow B (L/Min)	float	0			L/Min		Calculated Flow B (L/Min)
2137	Photometer Flow B Alarm Status	unsigned16	0	0	1			Flow B Alarm Status [not in 146iQ]
2451		string	0.0.0.0	7	15	characters		Dynamic IP Address
2459		string	0.0.0.0	7	15	characters		Dynamic Subnet Mask
2467		string	0.0.0.0	7	15	characters		Dynamic Gateway Address
2475		string	00:00:00	17	17	characters		Wired MAC Address
2484	Ethernet Configuration Alarm	unsigned16	0	0	1			Ethernet Configuration Alarm Flag
2485	Ethernet IP Address Configuration Alarm	unsigned16	0	0	1			Ethernet IP Address Configuration Alarm Flag
2486	Ethernet Subnet Mask Configuration Alarm	unsigned16	0	0	1			Ethernet Subnet Mask Configuration Alarm Flag
2487	Ethernet Gateway Configuration Alarm	unsigned16	0	0	1			Ethernet Gateway Configuration Alarm Flag
2488	Ethernet DNS Configuration Alarm	unsigned16	0	0	1			Ethernet DNS Configuration Alarm Flag
2489	Ethernet DNS Configuration Alarm	unsigned16	0	0	1			Ethernet DNS Configuration Alarm Flag
5158		string	0.0.0.0	7	15	characters		Wired DNS Address
5166		string	0.0.0.0	7	15	characters		Wired DNS Address 2
5174	Ethernet Configuration commit	unsigned16	0	0	1			Ethernet Configuration commit
5182		unsigned16	0	0	2			Date Format: 0=MM/DD/YYYY (US) 1=DD/MM/YYYY (EU)2=YYYY-MM-DD (ISO 8601)
5183		unsigned16	50	5	100	%		Screen Brightness
5184		unsigned16	0	0	1			Sleep Enable Status

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
5185		unsigned16	5	1	720	minutes		Sleep Timeout value in minutes
5186		unsigned16	0	0	23			Update clock time: Hours - set 5208 to 2(GUI) or 3(Modbus) - set desired time registers - set 5236 to 1 - set 5208 to 0
5187		unsigned16	0	0	59			Update clock time: Minutes - set 5208 to 2(GUI) or 3(Modbus) - set desired time registers - set 5236 to 1 - set 5208 to 0
5188		unsigned16	0	0	59			Update clock time: Seconds - set 5208 to 2(GUI) or 3(Modbus) - set desired time registers - set 5236 to 1 - set 5208 to 0
5189		unsigned16	1	1	12			Update clock time: Month - set 5208 to 2(GUI) or 3(Modbus) - set desired time registers - set 5236 to 1 - set 5208 to 0
5190		unsigned16	1	1	31			Update clock time: Day - set 5208 to 2(GUI) or 3(Modbus) - set desired time registers - set 5236 to 1 - set 5208 to 0
5191		unsigned16	2001	2001	2038			Update clock time: Year - set 5208 to 2(GUI) or 3(Modbus) - set desired time registers - set 5236 to 1 - set 5208 to 0
5192		string	0	0	32	characters		Timezone Code (Hours from UTC):DLW+12NST+11HST+10YST+9PST+8PST+8PDTMS T+7MST+7MDTCST+6CST+6CDT EST+5EST+5EDTCOT+4ART +3GST+2CVT+1UTC0 CET-1CET-2BST-3DLT-4CET-5FOX-6GLF-7CCT-8JST-9GST-10 LMA-11DLE-12
5208		unsigned16	0	0	3			Allows setting of time/date: set 5208 to 2(GUI) or 3(Modbus) - set desired time registers - set 5236 to 1 - set 5208 to 0
5209		unsigned16	0	0	2			Signal to set time/date
5210		unsigned32	0			seconds		Seconds from 1/1/1970
5212		unsigned16	1	0	2			Enable Time Server
5213		string		0	30			Set Time Server
5228		unsigned16	0					User Data Logging Treatment mode to use: Average=0 Current=1 Max=2 Min=3

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
5229		unsigned16	0					Data Logging database is ready
5230		string	0	0	2	characters		The number of digits to display after the decimal for concentration data
5231	DF Low Range Enable	unsigned16	0	0	1			Dynamic Filter Low Range Enable (1=On/0=Off)
5232	DF High Range Enable	unsigned16	0	0	1			Dynamic Filter High Range Enable (1=On/0=Off)
5233	Cal Background	unsigned16	0	0	1			Digital IO for Auto Background Calibration
5234	Cal Lo Span	unsigned16	0	0	1			Digital IO for Low Range Auto Span Calibration
5235	Cal Hi Span	unsigned16	0	0	1			Digital IO for High Range Auto Span Calibration
5236		unsigned16	0	0	2			Commit user time change: set 5208 to 2(GUI) or 3(Modbus) - set desired time registers - set 5236 to 1 - set 5208 to 0
5237		unsigned16	0	0	1			If any pop up is open on the GUI the register will read 1. To close the dialog set this register to 0.
5500	Digital IO Module Enable	unsigned16	0	0	1			Enable/disable the Digital IO module
5600		unsigned16	1	0	1			Allow Analog Outputs to go over or under range: 0 = Disable 1 = Enable
5601	Analog IO Module Enable	unsigned16	0	0	1			Enable/Disable the Analog IO module
5602		float	0					Voltage Output Minimum 1
5604		float	0					Voltage Output Minimum 2
5606		float	0					Voltage Output Minimum 3
5608		float	0					Voltage Output Minimum 4
5610		float	0					Voltage Output Minimum 5
5612		float	0					Voltage Output Minimum 6
5614		float	100					Voltage Output Maximum 1
5616		float	100					Voltage Output Maximum 2
5618		float	100					Voltage Output Maximum 3
5620		float	100					Voltage Output Maximum 4
5622		float	100					Voltage Output Maximum 5
5624		float	100					Voltage Output Maximum 6
5626		float	0					Current Output Minimum 1
5628		float	0					Current Output Minimum 2
5630		float	0					Current Output Minimum 3
5632		float	0					Current Output Minimum 4
5634		float	0					Current Output Minimum 5
5636		float	0					Current Output Minimum 6
5638		float	0					Current Output Maximum 1
5640		float	0					Current Output Maximum 2

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
5642		float	0					Current Output Maximum 3
5644		float	0					Current Output Maximum 4
5646		float	0					Current Output Maximum 5
5648		float	0					Current Output Maximum 6
5683		unsigned32	1	1	255			Serial Instrument ID
5700		unsigned16	1	0	1			Enable/Disable the Flow/Pressure module
6200	Perm Oven Enable	unsigned16	0	0	1			Enable/disable the module
6201		string	--	0	12			Permeation Tube Gas Name [if Perm Oven installed]
6207		float	190	1	100000			Permeation Tube Rate [if Perm Oven installed]
6209		float	0.382	1E-04	9.999			Permeation Tube Molar Constant [if Perm Oven installed]
6900		unsigned16	0	0	1			Enable/disable the Communication module
7000		unsigned16	0	0	1			Enable/Disable the Predictive Diagnostics module
7200	Selected Tank	unsigned16	1	1	11			Selected Tank:1: Off2-7: Solenoid 1-68: GPT NO2 9: O310: PermOven11: Purge
7201	Selected Span	unsigned16	1	1	7			Selected Span:1: Zero2-7: Span 1-6
7202	Manual Control	unsigned16	0	0	1			Manual Control
7203		float	0			sccm	1	Tank 1 Zero Flow
7205		float	0			sccm	1	Tank 2 Zero Flow
7207		float	0			sccm	1	Tank 3 Zero Flow
7209		float	0			sccm	1	Tank 4 Zero Flow
7211		float	0			sccm	1	Tank 5 Zero Flow
7213		float	0			sccm	1	Tank 6 Zero Flow
7215		float	0			sccm	1	Tank 1 Gas Flow
7217		float	0			sccm	1	Tank 2 Gas Flow
7219		float	0			sccm	1	Tank 3 Gas Flow
7221		float	0			sccm	1	Tank 4 Gas Flow
7223		float	0			sccm	1	Tank 5 Gas Flow
7225		float	0			sccm	1	Tank 6 Gas Flow
7227		float	0			PPM		Tank 1 Span 1
7229		float	0			PPM		Tank 1 Span 2
7231		float	0			PPM		Tank 1 Span 3
7233		float	0			PPM		Tank 1 Span 4
7235		float	0			PPM		Tank 1 Span 5
7237		float	0			PPM		Tank 1 Span 6
7239		float	0			PPM		Tank 2 Span 1
7241		float	0			PPM		Tank 2 Span 2
7243		float	0			PPM		Tank 2 Span 3
7245		float	0			PPM		Tank 2 Span 4

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
7247		float	0			PPM		Tank 2 Span 5
7249		float	0			PPM		Tank 2 Span 6
7251		float	0			PPM		Tank 3 Span 1
7253		float	0			PPM		Tank 3 Span 2
7255		float	0			PPM		Tank 3 Span 3
7257		float	0			PPM		Tank 3 Span 4
7259		float	0			PPM		Tank 3 Span 5
7261		float	0			PPM		Tank 3 Span 6
7263		float	0			PPM		Tank 4 Span 1
7265		float	0			PPM		Tank 4 Span 2
7267		float	0			PPM		Tank 4 Span 3
7269		float	0			PPM		Tank 4 Span 4
7271		float	0			PPM		Tank 4 Span 5
7273		float	0			PPM		Tank 4 Span 6
7275		float	0			PPM		Tank 5 Span 1
7277		float	0			PPM		Tank 5 Span 2
7279		float	0			PPM		Tank 5 Span 3
7281		float	0			PPM		Tank 5 Span 4
7283		float	0			PPM		Tank 5 Span 5
7285		float	0			PPM		Tank 5 Span 6
7287		float	0			PPM		Tank 6 Span 1
7289		float	0			PPM		Tank 6 Span 2
7291		float	0			PPM		Tank 6 Span 3
7293		float	0			PPM		Tank 6 Span 4
7295		float	0			PPM		Tank 6 Span 5
7297		float	0			PPM		Tank 6 Span 6
7299		float	0			PPM		Tank 6 GPT Span 1
7301		float	0			PPM		Tank 6 GPT Span 2
7303		float	0			PPM		Tank 6 GPT Span 3
7305		float	0			PPM		Tank 6 GPT Span 4
7307		float	0			PPM		Tank 6 GPT Span 5
7309		float	0			PPM		Tank 6 GPT Span 6
7311		float	0			PPM		Ozone Span 1
7313		float	0			PPM		Ozone Span 2
7315		float	0			PPM		Ozone Span 3
7317		float	0			PPM		Ozone Span 4
7319		float	0			PPM		Ozone Span 5
7321		float	0			PPM		Ozone Span 6
7323		float	0			PPM		PermOven Span 1
7325		float	0			PPM		PermOven Span 2
7327		float	0			PPM		PermOven Span 3
7329		float	0			PPM		PermOven Span 4
7331		float	0			PPM		PermOven Span 5
7333		float	0			PPM		PermOven Span 6

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
7335		float	0			sccm		Tank 1 Total Zero Flow
7337		float	0			sccm		Tank 1 Total Flow Span 1
7339		float	0			sccm		Tank 1 Total Flow Span 2
7341		float	0			sccm		Tank 1 Total Flow Span 3
7343		float	0			sccm		Tank 1 Total Flow Span 4
7345		float	0			sccm		Tank 1 Total Flow Span 5
7347		float	0			sccm		Tank 1 Total Flow Span 6
7349		float	0			sccm		Tank 2 Total Zero Flow
7351		float	0			sccm		Tank 2 Total Flow Span 1
7353		float	0			sccm		Tank 2 Total Flow Span 2
7355		float	0			sccm		Tank 2 Total Flow Span 3
7357		float	0			sccm		Tank 2 Total Flow Span 4
7359		float	0			sccm		Tank 2 Total Flow Span 5
7361		float	0			sccm		Tank 2 Total Flow Span 6
7363		float	0			sccm		Tank 3 Total Zero Flow
7365		float	0			sccm		Tank 3 Total Flow Span 1
7367		float	0			sccm		Tank 3 Total Flow Span 2
7369		float	0			sccm		Tank 3 Total Flow Span 3
7371		float	0			sccm		Tank 3 Total Flow Span 4
7373		float	0			sccm		Tank 3 Total Flow Span 5
7375		float	0			sccm		Tank 3 Total Flow Span 6
7377		float	0			sccm		Tank 4 Total Zero Flow
7379		float	0			sccm		Tank 4 Total Flow Span 1
7381		float	0			sccm		Tank 4 Total Flow Span 2
7383		float	0			sccm		Tank 4 Total Flow Span 3
7385		float	0			sccm		Tank 4 Total Flow Span 4
7387		float	0			sccm		Tank 4 Total Flow Span 5
7389		float	0			sccm		Tank 4 Total Flow Span 6
7391		float	0			sccm		Tank 5 Total Zero Flow
7393		float	0			sccm		Tank 5 Total Flow Span 1
7395		float	0			sccm		Tank 5 Total Flow Span 2
7397		float	0			sccm		Tank 5 Total Flow Span 3
7399		float	0			sccm		Tank 5 Total Flow Span 4
7401		float	0			sccm		Tank 5 Total Flow Span 5
7403		float	0			sccm		Tank 5 Total Flow Span 6
7405		float	0			sccm		Tank 6 Total Zero Flow
7407		float	0			sccm		Tank 6 Total Flow Span 1
7409		float	0			sccm		Tank 6 Total Flow Span 2
7411		float	0			sccm		Tank 6 Total Flow Span 3
7413		float	0			sccm		Tank 6 Total Flow Span 4
7415		float	0			sccm		Tank 6 Total Flow Span 5
7417		float	0			sccm		Tank 6 Total Flow Span 6
7419		float	0			sccm		Tank 6 GPT Total Zero Flow - NOT USED

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
7421		float	0			sccm		Tank 6 GPT Total Flow Span 1
7423		float	0			sccm		Tank 6 GPT Total Flow Span 2
7425		float	0			sccm		Tank 6 GPT Total Flow Span 3
7427		float	0			sccm		Tank 6 GPT Total Flow Span 4
7429		float	0			sccm		Tank 6 GPT Total Flow Span 5
7431		float	0			sccm		Tank 6 GPT Total Flow Span 6
7433		float	0			sccm		Ozone Total Zero Flow
7435		float	0			sccm		Ozone Total Flow Span 1
7437		float	0			sccm		Ozone Total Flow Span 2
7439		float	0			sccm		Ozone Total Flow Span 3
7441		float	0			sccm		Ozone Total Flow Span 4
7443		float	0			sccm		Ozone Total Flow Span 5
7445		float	0			sccm		Ozone Total Flow Span 6
7447		float	0			sccm		PermOven Total Zero Flow
7449		float	0			sccm		PermOvenTotal Flow Span 1
7451		float	0			sccm		PermOven Total Flow Span 2
7453		float	0			sccm		PermOven Total Flow Span 3
7455		float	0			sccm		PermOven Total Flow Span 4
7457		float	0			sccm		PermOven Total Flow Span 5
7459		float	0			sccm		PermOven Total Flow Span 6
7500	Span Coefficient	float	1	0.5	2		2	Span Coefficient for Single/Low Range
7502	Averaging Time (sec)	unsigned16	300	1	300	sec		Single/Low range concentration averaging time
7503	High Averaging Time (sec)	unsigned16	300	1	300	sec		High range concentration averaging time [not in 146iQ]
7504		float	900	0	500000			User Entered or Supplied Span Gas value for single/low range (user defined units)
7506		float	900	0	500000			User Entered or Supplied Span Gas value for high range (user defined units) [not in 146iQ]
7508	Photometer Background (ppb or ug/m3)	float	0			basic units	2	Photometer Background in base units (ppb or ug/m3)
7510		unsigned16	0	0	1			Reset Span and Background cal to their defaults.
7511	High Span Coefficient	float	1	0.5	2		2	Span Coefficient for High Range [not in 146iQ]
7513	Sample Gas Mode	unsigned16	1	0	1			Set Sample Gas Mode [not in 146iQ]
7514	Zero Gas Mode	unsigned16	0	0	1			Set Zero Gas Mode [not in 146iQ]

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
7515	Span Gas Mode	unsigned16	0	0	1			Set Span Gas Mode [not in 146iQ]
7516	Level1 Gas Mode	unsigned16	0	0	1			Set Level1 Gas Mode (0=Off; 1=On) [not in 146iQ]
7517	Level2 Gas Mode	unsigned16	0	0	1			Set Level2 Gas Mode (0=Off; 1=On) [not in 146iQ]
7518	Level3 Gas Mode	unsigned16	0	0	1			Set Level3 Gas Mode (0=Off; 1=On) [not in 146iQ]
7519	Level4 Gas Mode	unsigned16	0	0	1			Set Level4 Gas Mode (0=Off; 1=On) [not in 146iQ]
7520	Level5 Gas Mode	unsigned16	0	0	1			Set Level5 Gas Mode (0=Off; 1=On) [not in 146iQ]
7521	Level6 Gas Mode	unsigned16	0	0	1			Set Level6 Gas Mode (0=Off; 1=On) [not in 146iQ]
7522		unsigned16	0	0	65535			Gui signal to module for calibration. See description for tmoPhotometerO3SWCalManagerRW.0 for value table.
7523		unsigned16	0	0	1			GUI command used to accept current background calibration value.
7524		unsigned16	0	0	1			GUI command used to accept current span calibration value.
7525		unsigned16	1	0	1			Single Range Mode Enabled control [not in 146iQ]
7526		unsigned16	0	0	1			Dual Range Mode Enabled control [not in 146iQ]
7527		unsigned16	0	0	1			Auto Range Mode Enabled control
7528	Alarm O3 Concentration Min	float	0					user settable alarm [not in 146iQ]
7530	Alarm O3 Concentration Max	float	0					user settable alarm [not in 146iQ]
7532		float	0					Zero Check Alarm Max BU [not in 146iQ]
7534		float	0					Zero Check Alarm Max BU [not in 146iQ]
7536		float	0					Ozonator Level 1 Check Alarm Max BU [not in 146iQ]
7538		float	0					Ozonator Level 2 Check Alarm Max BU [not in 146iQ]
7540		float	0					Ozonator Level 3 Check Alarm Max BU [not in 146iQ]
7542		float	0					Ozonator Level 4 Check Alarm Max BU [not in 146iQ]
7544		float	0					Ozonator Level 5 Check Alarm Max BU [not in 146iQ]
7546		float	0					Ozonator Level 6 Check Alarm Max BU [not in 146iQ]
7548		float	200	200	1000			Alarm Bench Pressure Min [not in 146iQ]

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
7550		float	1000	200	1000			Alarm Bench Pressure Max [not in 146iQ]
7552		float	0.4	0.4	2.5			Alarm Bench Flow Min [not in 146iQ]
7554		float	1.6	0.4	2.5			Alarm Bench Flow Max [not in 146iQ]
7556		string	ppb	0	6			Gas Units: ppb ppm % ug/m3 mg/m3 g/m3 [not in 146iQ]
7559		float	0			ppb		user settable alarm [not in 146iQ]
7561		float	0			ppb		user settable alarm [not in 146iQ]
7563	Purge Gas Mode	unsigned16	0	0	1			Gas Mode Purge [not in 146iQ]
7564		float	0	-25	25		2	Background Manual Cal Adjusted
7566		float	1	0.5	2		2	Span Coefficient Manual Cal Adjusted Low
7568		float	1	0.5	2		2	Span Coefficient Manual Cal Adjusted High
7700		float	6	2	10	mA	1	Min Lamp Current Alarm
7702		float	8	2	10	mA	1	Max Lamp Current Alarm
7704	Bench Temperature Alarm Min Alarm	float	15	5	50	°C		Bench Temperature Alarm Min
7706	Bench Temperature Alarm Max Alarm	float	40	5	50	°C		Bench Temperature Alarm Max
7708		float	45000	0	999999	Hz		Alarm Cell A frequency Min
7710		float	150000	0	999999	Hz		Alarm Cell A frequency Max
7712		float	45000	0	999999	Hz		Alarm Cell B frequency Min
7714		float	150000	0	999999	Hz		Alarm Cell B frequency Max
7716		float	55	55	85	°C		Min Lamp Temperature Alarm
7718		float	65	55	85	°C		Max Lamp Temperature Alarm
7800		float	60	60	80	°C	1	Min Lamp Temperature Alarm
7802		float	80	60	80	°C	1	Max Lamp Temperature Alarm

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
7805		unsigned16	0	0	65535			<p>Directions to perform Calibrations using Modbus:Manual Bkg: Set 7807 to desired value and set this register to 1 (to see Adjusted Conc value read 7813 register).Auto Bkg: set this register to 2; (To see Current Bkg read 7508).Manual Reset Defaults: set this register to 5 to finish the reset.Manual Span or Manual Span Low: Set 7807 to desired span coef value and set this register to 6 (to see Adjusted Conc; read 7813).Manual Span High [not in 146iQ]: Set 7807 to desired span coef value and set this register to 7 (to see Adjusted High Range Conc read 7815); Auto Span or Auto Span Low: Set 7807 to desired span conc value and set this register to 8 (to see Current Span Coef read 7500 and to see Calculated Span Coef read 2127);</p> <p>Auto Span High [not in 146iQ]: set 7807 to desired high span conc and then set this register to 9 (to see Current High Range Conc read 2105; to see Current High Range Span Coeff read 7511 and to see Calculated High Range Span Coef read 2129); To see the new concentration value use register 2103 single and low or 2105 for high.</p>
7806	Pump Power	unsigned16	1	0	32767			Pump Control:0 = Off1 = On
7807		float	0	0				Remote target calibration
7809		float	900	0	500000	basic units		User Entered or Supplied Span Gas value for single/low range (basic units)
7811		float	900	0	500000	basic units		User Entered or Supplied Span Gas value for high range (basic units) [not in 146iQ]
7813		float	0	-1000	500000	basic units		Manual Calibration Adjusted Concentration in ppb units
7815		float	0	-1000	500000	basic units		Manual Calibration Adjusted Concentration in ppb units

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
7817		float	0			basic units		Custom O3 level 1 in basic units [not in 146iQ]
7819		float	0			basic units		Custom O3 level 2 in basic units [not in 146iQ]
7821		float	0			basic units		Custom O3 level 3 in basic units [not in 146iQ]
7823		float	0			basic units		Custom O3 level 4 in basic units [not in 146iQ]
7825		float	0			basic units		Custom O3 level 5 in basic units [not in 146iQ]
7827		float	0			basic units		Custom O3 level 6 in basic units [not in 146iQ]
7829	Selected Gas Mode	unsigned16	0	0	19			Trigger/Status for Zero/Span/Sample/etc - enum representation [not in 146iQ]0=Sample1=Zero2=Span3=Level 14=Level 25=Level 36=Level 47=Level 58=Level 69=Auto Zero (read only)10=Auto Span (read only)11=Auto Level 1 (read only)12=Auto Level 2 (read only)13=Auto Level 3 (read only)14=Auto Level 4 (read only)15=Auto Level 5 (read only)16=Auto Level 6 (read only)17=Auto Purge (read only)18=Auto Warm Up (read only)NOTE:Scheduled auto calibrations cannot be set via Modbus (AUTO ZERO;AUTO SPAN ;AUTO PURGE)
10000		string		0	50	characters		SMTP Server address for emails
10025		unsigned16	25	0				SMTP port for sending emails
10026		string		0	255	characters		E-mail From address for sending emails
10154		string		0	16	characters		E-mail password for sending emails
10162		string		0	255	characters		PCP email address
10290		string		0	255	characters		Contact Information: To: User email address
10418		string		0	255	characters		Contact Information: CC: User email address 1
10546		string		0	255	characters		Contact Information: CC: User email address 2
10674		string		0	255	characters		Contact Information: CC: User email address 3
10802		string		0	255	characters		Contact Information: CC: User email address 4

Register	Data Logging/Streaming Variables	Type	Default	Min	Max	Units	Precision	Description
10930		string		0	255	characters		Contact Information: CC: User email address 5
11058		string		0	255	characters		Contact Information: CC: User email address 6
11186		string		0	255	characters		Contact Information: CC: User email address 7
11314		string		0	255	characters		Contact Information: CC: User email address 8
11442		string		0	255	characters		Contact Information: CC: User email address 9
11570		string		0	255	characters		Contact Information: CC: User email address 10
11570		string		0	255	characters		Contact Information: CC: User email address 10

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