thermoscientific

48iQ, 410iQ, 410iQHL - 118208-00

Rev AE

MODBUS Register Table

V 01.06.17.35763

Register	DATA LOGGING/STREAMING VARIABLES	TYPE	DEFAULT	MINIMUM	MAXIMUM	UNITS	PRECISION	DESCRIPTION
1	Auto Conc	float	0					Auto Range Mode Concentration(Basic Units ppb or ug/m3 for Logging and Protocols)
3	Concentration (ppb or ug/m3)	float	0			Basic Units		Single/Auto Low/Dual Low Range Concentration(Basic Units ppb or ug/m3 for Logging and Protocols)
5	High Concentration (ppb or ug/m3)	float	0			Basic Units		Auto High/Dual High Range Concentration(Basic Units ppb or ug/m3 for Logging and Protocols)
7	Auto Range Status	unsigned16	0	0	1			Auto Range Status0 = Low Range1 = High Range
11	S/R	float					6	Single/Low Range S/R
13	High S/R	float					6	Hi Range S/R
15	Instrument Temperature (Deg. C)	float	25			°C	1	Instrument Temperature
17	Bench Temperature (Deg. C)	float				°C		Bench Temperature
25	Bench Pressure (mmHg)	float	750	500	1000	mmHg	1	Bench Pressure (mmHg)
27	Sample Flow (L/min)	float	0			L/min	3	Sample Flow (L/min)
29	Reference Intensity	float					1	Reference Intensity
31	Wheel Speed (RPM)	float				RPM		Filter Wheel Motor Speed
55	IR Detector Bias Monitor	float				Volts		IR Detector Bias Monitor
63	Scrubber Efficiency	float	0	0	100	%		Scrubber Efficiency
91	Concentration Background (ppb or ug/m3)	float	0			Basic Units		User Calibration Background Concentration value in basic units (ppb or ug/m3)
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 initally if warm up is enabled and either after all the module alarms are cleared up or after 2 hours set to 0
551	Bench Alarms	unsigned16	0	0	1			Bench Alarm Count
552	Conc Alarms	unsigned16	0	0	1			Concentration Alarm Count for Conc/AutoZero/AutoSpan
553	Concentration Alarm	unsigned16	0	0	1			Concentration Alarm Status
554	Pressure Alarm	unsigned16	0	0	1			Pressure Alarm Status
555	Flow Alarm	unsigned16	0	0	1			Flow Alarm Status
556	Instrument Temperature Alarm	unsigned16	0	0	1			Instrument Temperature Alarm Status
557	Auto Zero Alarm	unsigned16	0	0	1			Auto Zero Cal/Check Alarm Status
558	Auto Span Alarm	unsigned16	0	0	1			Auto Span Cal/Check Alarm Status
559		string	0	0	11			Single/Auto Low/Dual Low Range Concentration Reading (String in User Selected Units)
565		string	0	0	11			Auto High/Dual High Range Concentration Reading (String in User Selected Units)
571		string	0	0	11			Single/Auto Low/Dual Low Range Corrected Concentration Reading (String in User Selected Units)
577		string	0	0	11			Auto High and Dual High Range Corrected Concentration Reading (String in User Selected Units)
583	Corrected Concentration (ppb or ug/m3)	float	0			Basic Units		Single/Auto Low/Dual Low Range corrected Concentration(Basic Units ppb or ug/m3 for Logging and Protocols)
585	Corrected High Concentration (ppb or ug/m3)	float	0			Basic Units		Auto High/Dual High Range corrected Concentration(Basic Units ppb or ug/m3 for Logging and Protocols)

587	Auto Corr Conc	float	0					Auto Range Mode corrected Concentration(Basic Units ppb or ug/m3 for Logging and Protocols)
589	i0 Reference Alarm	unsigned16	0	0	1			Reference Alarm Status
590	Scrubber Gas Conc Alarm	unsigned16	0	0	1			Scrubber Gas Concentration Alarm
591	Scrubber Efficiency Alarm	unsigned16	0	0	1			Scrubber Efficiency Alarm
592	Scrubber Test Done Alarm	unsigned16	0	0	1			Scrubber Test Done Alarm
593	Scrubber Eff Alarms	unsigned16	0	0	3			Scrubber Eff Alarms Count
594		float	0			Basic Units		Single/Lo Range Virtual Concentration(Basic Units for UI calibration screens only)
596		float	0			Basic Units		Hi Range Virtual Concentration(Basic Units for UI calibration screens only)
601	Number of active NDIR Bench Alarms	unsigned16	1	0				Number of active NDIR Bench Alarms
602	NDIR Bench Faults 0	unsigned16	0	0	65535			Fault 0 Bit-packed faults:Bit0=Bench temp thermistor openBit1=Bench temp thermistor shortBit2=Bench temp more that 1C below setpointBit3=Bench temp more than 1C above setpointBit4=Motor speed too lowBit5-Motor speed too highBit6=Ambient temperature too lowBit7=Ambient temperature too highBit8=Ambient temp thermistor openBit9=Ambient temp thermistor shortBit10=IR source current lowBit11=IR source current highBit12=IR detector bias lowBit13=IR detetor bias highBit14=Ambient heater fan failureBit15=Case fan failure

603	NDIR Bench Faults 3	unsigned16	0	0	65535			Fault 3 Bit-packed faults:Bit0..6=N/A Bit7 = Board communication failureBit8 = Information block set defaultBit9 = Infomation block corruptedBit10 = Calibration block set defaultBit11 = Calibration block corruptedBit12..13 =N/ABit14 = Power Supply FailureBit15 = General when any faults detected
604		unsigned16	0	0	65535			Calibration Status0 = Calibration IdleAmbient Calibration Steps1 = Calibrate ambient offset start2 = Calibrate ambient offset stop3 = Calibrate ambient offset default4 = Calibrate ambient offset done Bench Calibration Steps5 = Calibrate bench offset start6 = Calibrate bench offset stop7 = Calibrate bench offset default8 = Calibrate bench offset done Calculate Initial S/RNote: No target needed9 = Calculate initial S/R start10 = Calculate initial S/R stop11 = Calculate initial S/R default12 = Calculate initial S/R done Detector Gain Adjustment13 = Detector gain adjust start14 = Detector gain adjust stop15 = Detector gain adjust default16 = Detector gain adjust done
605	NDIR Bench Cal Faults 1	unsigned16	0	0	65535			Bit-packed faults 1 (LSB):Bit0-1 = Lamp temperature calibration failureOffset is: 00=Ok 01=Low 10=High 11=No calBit2-3 = Bench temperature calibration failureOffse t is: 00=Ok 01=Low 10=High 11=No calBit4-5= Initial S over R calculation failureInitial S over R: 00=Ok 01=Low 10=High 11=No calBit6-7 = Detector gain adjustment failureGain is: 00=Ok 01=Low 10=High 11=No calBit8..15=N/A

606	Bench Temp Thermistor Open Alarm	unsigned16	0	0	1			Bench Temp Thermistor Open Alarm Status
607	Bench Temp Thermistor Short Alarm	unsigned16	0	0	1			Bench Temp Thermistor Short Alarm Status
608	NDIR Bench Temp 1C below setpoint Alarm	unsigned16	0	0	1			Bench Temp 1C below setpoint Alarm Status
609	NDIR Bench Temp 1C above setpoint Alarm	unsigned16	0	0	1			Bench Temp 1C above setpoint Alarm Status
610	Bench Motor Speed too low Alarm	unsigned16	0	0	1			Bench Motor Speed too low Alarm Status
611	Bench Motor Speed too high Alarm	unsigned16	0	0	1			Bench Motor Speed too high Alarm Status
612	Bench Amb Temp Thermistor Open Alarm	unsigned16	0	0	1			Bench Amb Temp Thermistor Open Alarm Status
613	Bench Amb Temp Thermistor Short Alarm	unsigned16	0	0	1			Bench Amb Temp Thermistor Short Alarm Status
614	Bench IR Source Current Low Alarm	unsigned16	0	0	1			Bench IR Source Current Low Alarm Status
615	Bench IR Source Current High Alarm	unsigned16	0	0	1			Bench IR Source Current High Alarm Status
616	Bench IR Detector Bias Low Alarm	unsigned16	0	0	1			Bench IR Detector Bias Low Alarm Status
617	Bench IR Detector Bias High Alarm	unsigned16	0	0	1			Bench IR Detector Bias High Alarm Status
618	NDIR Bench Communication Alarm	unsigned16	0	0	1			Communication Alarm Status
619	NDIR Bench Power Supply Alarm	unsigned16	0	0	1			Power Supply Alarm Status
620	NDIR Bench Ambient Temperature Low Alarm	unsigned16	0	0	1			Instrument ambient temp too low alarm status
621	NDIR Bench Ambient Temperature High Alarm	unsigned16	0	0	1			Instrument ambient temp too high alarm status
622	NDIR Bench Ambient Heater Fan Failure Alarm	unsigned16	0	0	1			Ambient heater fan failure status
623	NDIR Bench Case Fan Failure Alarm	unsigned16	0	0	1			Case fan failure status
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 FailureBit14 - Power supplies Bit15 - General when any faults detected

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 range10=measurement out of range 11=No calBit4-5: High point sensor 2Offset is: 00=Ok 01=user input out of range10=measurement out of range 11=No calBit6-7: Low point sensor 2Offset is: 00=Ok 01=user input out of range10=measurement out of range 11=No calBit8-9: High point sensor 3Offset is: 00=Ok 01=user input out of range10=measurement out of range 11=No calBit10-11: Low point sensor 3Offset is: 00=Ok 01=user input out of range10=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
751	PSB Alarms	unsigned16	1	0				PSB Alarms Count

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

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

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

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 = 3dot3V Status Diagnostic Failed Bit4 = 5V Reference Status Diagnostic Failed Bit5..15 = N/A

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 Temperautre 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/ABit7 = Board Communication FailureBit8 = Information block set defaultBit9 = Information block corruptedBit10 = Calibration block set defaultBit11 = Calibration block corruptedBit12..13 = N/ABit14 = Power Supply FailureBit15 = General when any faults detected

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 Currrent Output Calibration 9 = Calculate currrent 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

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

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
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
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
958	Digital IO Fault Reset	unsigned16	0	0	255			Reset the solenoid faultsBit0 = 24V Switchable Output 0 Bit1 = 24V Switchable Output 1 Bit2 = 24V Switchable Output 2Bit3 = 24V Switchable Output 3Bit4 = 24V Switchable Output 4Bit5 = 24V Switchable Output 5Bit6 = 24V Switchable Output 6Bit7 = 24V Switchable Output 7Bit8..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

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 Optical Bench Module
1002		integer16	0	-99	60			Maintenance History Calculated Months Left IR Source
1003		integer16	0	-99	60			Maintenance History Calculated Months Left Filter Wheel
1004		integer16	0	-99	60			Maintenance History Calculated Months Left Detector
1005		integer16	0	-99	60			Maintenance History Calculated Months Left Chopper Motor
1006		integer16	0	-99	60			Maintenance History Calculated Months Left Optical Switch
1007		integer16	0	-99	60			Maintenance History Calculated Months Left Flow System
1008		integer16	0	-99	60			Maintenance History Calculated Months Left Capillaries
1009		integer16	0	-99	60			Maintenance History Calculated Months Left Pump
1010		integer16	0	-99	60			Maintenance History Calculated Months Left DC Power Supply
1011		integer16	0	-99	60			Maintenance History Calculated Months Left Foam Fan Filter
1012		integer16	0	-99	60			Maintenance History Calculated Months Left System Components
1013		integer16	0	-99	60			Maintenance History Calculated Months Left Purafil
1014		integer16	0	-99	60			Maintenance History Calculated Months Left Charcoal
1015		integer16	0	-99	60			Maintenance History Calculated Months Left Dri-Rite
1016		integer16	0	-99	60			Maintenance History Calculated Months Left Scrubber

1017		integer16	0	-99	60			Maintenance History Calculated Months Left Scrubber Efficiency Check
1018		integer16	0	-99	60			Maintenance History Calculated Months Left Permeation Dryer
1019		integer16	0	-99	60			Maintenance History Calculated Months Left 19
1020		integer16	0	-99	60			Maintenance History Calculated Months Left 20
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

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 Filter Wheel
1302	Predictive Diagnostic Alert 2	unsigned16	0	0	1			Predictive Diagnostic Alert Sample Pump
1303	Predictive Diagnostic Alert 3	unsigned16	0	0	1			Predictive Diagnostic Alert Capillary
1304	Predictive Diagnostic Alert 4	unsigned16	0	0	1			Predictive Diagnostic Alert Flow Path
1305	Predictive Diagnostic Alert 5	unsigned16	0	0	1			Predictive Diagnostic Alert IR Source
1306	Predictive Diagnostic Alert 6	unsigned16	0	0	1			Predictive Diagnostic Alert Sample Valve
1307	Predictive Diagnostic Alert 7	unsigned16	0	0	1			Predictive Diagnostic Alert Zero Valve

1308	Predictive Diagnostic Alert 8	unsigned16	0	0	1			Predictive Diagnostic Alert Span Valve
1309	Predictive Diagnostic Alert 9	unsigned16	0	0	1			Predictive Diagnostic Alert Sample/Zero Valve
1310	Predictive Diagnostic Alert 10	unsigned16	0	0	1			Predictive Diagnostic Alert 10
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 14
1315	Predictive Diagnostic Alert 15	unsigned16	0	0	1			Predictive Diagnostic Alert 15
1316	Predictive Diagnostic Alert 16	unsigned16	0	0	1			Predictive Diagnostic Alert 16
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
1851	O,, Alarms	unsigned16	0	0				Number of active oxygen alarms [if O2 Sensor installed]
1852	Oxygen Sensor Faults 0	unsigned16	0	0	65535			Bit-packed O2 Faults 0:Bit 0...7=UnusedBit8 = Ambient temp thermistor openBit9 = Ambient temp thermistor shortBit 10...15=Unused
1853	Oxygen Sensor Faults 1	unsigned16	0	0	65535			Bit-packed O2 Faults 1:Bit0...3 = UnusedBit4 = 5 volts Fault.Bit5 = 3.3 volts Fault.Bit6 = 2.5 volts Reference Fault.Bit7= 24 volts Fault.Bit 8...15=Unused
1854	Oxygen Sensor Faults 2	unsigned16	0	0	65535			Bit-packed O2 Faults 2:Bit0 = X - fail.Bit1 = E - fail.Bit 2 = B -fail.Bit 3 = C - fail.Bit 4 = S - fail.Bit 5 = M- fail.Bit 6 = O2 sensor not detected.Bi7...15 = Unused

1855	Oxygen Sensor Faults 3	unsigned16	0	0	65535			Bit-packed O2 Faults 3:Bit0...6 = UnusedBit7 = Board communication failureBit8 = Information block set defaultBit9 = Information block corruptedBit10 = Calibration block set defaultBit11 = Calibration block corruptedBit12...13 =N/ABit14 =Power Supply FailureBit15 =General in any faults detected
1856		unsigned16	0	0				Calibration Status0 = Calibration IdleAmbient Calibration Steps1 = Cal Ambient offset start2 = Cal Ambient offset stop3 = Cal Ambient offset default4 = Cal Ambient offset doneO2 Calibration Steps5 = Factory Cal1 (Offset) Start6 = Factory Cal1 (Offset) Stop7 = Factory Cal1 (Offset) Done8= Factory Cal2 (Span) Start9= Factory Cal2 (Span) Stop10= Factory Cal2 (Span) Done11 = User Cal (Span) Start12 = User Cal (Span) Stop13 = User Cal (Span) Default14 = User Cal (Span) Done
1857	Oxygen Sensor Cal Faults	unsigned16	0	0				Bit-packed O2 Calibration Faults:Bit 0 = Factory Calibration failure.(verify for 'C' in errors received from Oxygen sensor module.Bit 1 = User Cal (Span) Fail. (Calculated Cal coefficient <0.5 or >2)Bit2-3 = Ambient temperature calibration failure. Offset is: 00=Ok 01=Lo 10=Hi 11=No cal
1859	O,, %	float	0	-10	110	%	3	O2 Concentration [if O2 Sensor installed]
1861	O,, Temperature (Deg. C)	float	0	-10	100	°C	1	O2 Temperature [if O2 Sensor installed]
1863	O,, Conc Alarm	unsigned16	0	0	1			O2 Concentration Alarm Status [if O2 Sensor installed]
1864	O,, Thermistor Open	unsigned16	0	0	1			O2 Thermistor Open Status [if O2 Sensor installed]
1865	O,, Thermistor short	unsigned16	0	0	1			O2 Thermistor short Status [if O2 Sensor installed]
1866	O,, Sensor Malfunction	unsigned16	0	0	1			O2 Sensor Malfunction Status [if O2 Sensor installed]

1867	O,, Outside Operational Spec	unsigned16	0	0	1			O2 Outside Operational Spec Status [if O2 Sensor installed]
1868	O,, fault Sensor Communication	unsigned16	0	0	1			O2 Sensor Communication Fault Status [if O2 Sensor installed]
1869	O,, fault Sensor Calibration	unsigned16	0	0	1			O2 Sensor Calibration Fault Status [if O2 Sensor installed]
1870	O,, fault Photodiode Current Low	unsigned16	0	0	1			O2 Photodiode Current Low Fault Status [if O2 Sensor installed]
1871	O,, fault Sensor not detected	unsigned16	0	0	1			O2 Sensor not detected Fault Status [if O2 Sensor installed]
1872	O,, Board Communication fault	unsigned16	0	0	1			O2 Board Communication Fault Status [if O2 Sensor installed]
1873	O,, fault Power Supply	unsigned16	0	0	1			O2 Power Supply Fault Status [if O2 Sensor installed]
1874	O,, Communication Alarm	unsigned16	0	0	1			O2 Sensor Communication Alarm Status [if O2 Sensor installed]
1875	Oxygen Sensor Module Enable	unsigned16	0	0	1			Enable/disable the module
2251	Zero/Span Enable	unsigned16	0	0	1			Enable/Disable the Zero/Span valve module
2252		unsigned16	0	0	1			Trigger zero check or cal.
2253		unsigned16	0	0	1			Trigger span check or cal.
2254		unsigned16	0	0	1			Trigger purge
2255		unsigned16	0	0	1			Status of Ozonator Level 1 (0=Off; 1=On)
2256		unsigned16	0	0	1			Status of Ozonator Level 2 (0=Off; 1=On)
2257		unsigned16	0	0	1			Status of Ozonator Level 3 (0=Off; 1=On)
2258		unsigned16	0	0	1			Status of Ozonator Level 4 (0=Off; 1=On)
2259		unsigned16	0	0	1			Status of Ozonator Level 5 (0=Off; 1=On)
2260		unsigned16	0	0	1			Status of Ozonator Level 6 (0=Off; 1=On)
2301	I0 Mode	unsigned16	0	0	4			0 = Mode OFF1 = Period Time2 = Dwell Time3 = Purge Time4 = Done
2351		unsigned16	0	0	1			Enable(1)/disable(0) the module
2352	Sample/Zero valve and Reference Mode	unsigned16	0	0	4			i0 Reference Mode [48iQTL only]
2401		float	1	0.5	2		3	Single/Lo Range User Coef for CalculationsUpdate Modbus address 8404 to perform Manual or auto spanFor more details check 8404 description

2403		float	1	0.5	2		3	High Range User Coef for CalculationsUpdate Modbus address 8404 to perform Manual or auto spanFor more details check 8404 description
2405		float	1				3	Single/Lo Range User Coef for UI
2407		float	1				3	Hi Range User Coef for UI
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	0:00:00:00	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
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+8PDT MST+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
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
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
6000	Purge Mode	unsigned16	0	0	1			Purge Mode
6001	Zero Mode	unsigned16	0	0	1			Zero Mode
6002	Span Mode	unsigned16	0	0	1			Span Mode
6003	Sample Mode	unsigned16	1	0	1			Sample Mode
6004	Ext Span Mode	unsigned16	0	0	1			Ext Span Mode (Optional)
6005		unsigned16	0	0	1			i0 Reference Mode [48iQTL only]
6006	Gas Mode	unsigned16	0	0	9			Gas Mode:SAMPLE=0; ZERO=1; SPAN=2; PURGE=3; AUTO ZERO=4; AUTO SPAN=5; AUTO PURGE=6; EXTSPAN=7; i0 REFERENCE=8; WARMUP=9;NOTE:Scheduled calibrations should not be set via Modbus (AUTO ZERO;AUTO SPAN ;AUTO PURGE)
6100	Dilution Module Enable	unsigned16	1	0	1			Enable/disable the Dilution module
6101		float	1	1	500			Dilution ratio
6300	Gas Units	string	ppm	0	6			Gas Units user selectable: ppb ppm % ug/m3 mg/m3 g/m3
6305		unsigned16	1	0	1			Single Range Mode Request
6306		unsigned16	0	0	1			Dual Range Mode Request
6307		unsigned16	0	0	1			Auto Range Mode Request
6308	Averaging Time (sec)	unsigned16	300	1	300	sec		Single/Low range concentration averaging time (sec)
6309	High Averaging Time (sec)	unsigned16	300	1	300	sec		High range concentration averaging time (sec)
6311		unsigned16	0	0	1			Set to 1 to compute and save new user calibration values
6312		float	0					Background Setpoint Value(User defined)
6314		unsigned16	0	0	7			Single/Low Range Multipoint Calibration Counter
6315		unsigned16	0	0	7			High Range Multipoint Calibration Counter
6316	Single/Low Range Multipoint Calibration Coefficient 1	float	1				6	Single/Low Range Multipoint Calibration Coefficient 1
6318	High Range Multipoint Calibration Coefficient 1	float	1				6	High Range Multipoint Calibration Coefficient 1

6320	Single/Low Range Multipoint Calibration Coefficient 2	float	0				6	Single/Low Range Multipoint Calibration Coefficient 2
6322	High Range Multipoint Calibration Coefficient 2	float	0				6	High Range Multipoint Calibration Coefficient 2
6324	Single/Low Range Multipoint Calibration Coefficient 3	float	0				6	Single/Low Range Multipoint Calibration Coefficient 3
6326	High Range Multipoint Calibration Coefficient 3	float	0				6	High Range Multipoint Calibration Coefficient 3
6328		float	0					Single/Low Range User Calibration Span Concentration (User defined units)
6330		float	0					High Range User Calibration Span Concentration (User defined units)
6336	Single/Low Range Limit	float				Basic Units		Single/Low Range range limit(Basic Units ppb or ug/m3 for Logging and Protocols)
6338	High Range Limit	float				Basic Units		High Range range limit(Basic Units ppb or ug/m3 for Logging and Protocols)
6340	Single/Low Range Multipoint Cal Span Concentration 1	float				PPB		Single/Low Range Multipoint Cal Span Concentration 1(Basic Units ppb or ug/m3 for Logging and Protocols)
6342	High Range Multipoint Cal Span Concentration 1	float				PPB		High Range Multipoint Cal Span Concentration 1(Basic Units ppb or ug/m3 for Logging and Protocols)
6344	Single/Low Range Multipoint Cal Span Concentration 2	float				PPB		Single/Low Range Multipoint Cal Span Concentration 2(Basic Units ppb or ug/m3 for Logging and Protocols)
6346	High Range Multipoint Cal Span Concentration 2	float				PPB		High Range Multipoint Cal Span Concentration 2(Basic Units ppb or ug/m3 for Logging and Protocols)
6348	Single/Low Range Multipoint Cal Span Concentration 3	float				PPB		Single/Low Range Multipoint Cal Span Concentration 3(Basic Units ppb or ug/m3 for Logging and Protocols)
6350	High Range Multipoint Cal Span Concentration 3	float				PPB		High Range Multipoint Cal Span Concentration 3(Basic Units ppb or ug/m3 for Logging and Protocols)
6352	Single/Low Range Multipoint Cal Point 1 Coefficient	float	1	0.5	2		6	Single/Low Range Multipoint Cal Point 1 Coefficient

6354	High Range Multipoint Cal Point 1 Coefficient	float	1	0.5	2		6	High Range Multipoint Cal Point 1 Coefficient
6356	Single/Low Range Multipoint Cal Point 2 Coefficient	float	1	0.5	2		6	Single/Low Range Multipoint Cal Point 2 Coefficient
6358	High Range Multipoint Cal Point 2 Coefficient	float	1	0.5	2		6	High Range Multipoint Cal Point 2 Coefficient
6360	Single/Low Range Multipoint Cal Point 3 Coefficient	float	1	0.5	2		6	Single/Low Range Multipoint Cal Point 3 Coefficient
6362	High Range Multipoint Cal Point 3 Coefficient	float	1	0.5	2		6	High Range Multipoint Cal Point 3 Coefficient
6364	Single/Low Range Multipoint Cal Point 1 VarX	float						Single/Low Range Multipoint Cal Point 1 VarX
6366	High Range Multipoint Cal Point 1 VarX	float						High Range Multipoint Cal Point 1 VarX
6368	Single/Low Range Multipoint Cal Point 2 VarX	float						Single/Low Range Multipoint Cal Point 2 VarX
6370	High Range Multipoint Cal Point 2 VarX	float						High Range Multipoint Cal Point 2 VarX
6372	Single/Low Range Multipoint Cal Point 3 VarX	float						Single/Low Range Multipoint Cal Point 3 VarX
6374	High Range Multipoint Cal Point 3 VarX	float						High Range Multipoint Cal Point 3 VarX
6376	Concentration Alarm Minimum	float	0			Basic Units		Concentration Alarm Minimum(Basic Units ppb or ug/m3 for Protocols)
6378	Concentration Alarm Maximum	float	0			Basic Units		Concentration Alarm Maximum(Basic Units ppb or ug/m3 for Protocols)
6380	Pressure Alarm Minimum	float	600	250	1000	mmHg	1	Pressure Alarm Minimum
6382	Pressure Alarm Maximum	float	800	250	1000	mmHg	1	Pressure Alarm Maximum
6384	Flow Alarm Minimum	float	0.35	0	2	L/min	3	Flow Alarm Minimum
6386	Flow Alarm Maximum	float	1.5	0	2	L/min	3	Flow Alarm Maximum
6388	Instrument Temperature Alarm Minimum	float	8	8	47	°C	1	Instrument Temperature Alarm Minimum
6390	Instrument Temperature Alarm Maximum	float	47	8	47	°C	1	Instrument Temperature Alarm Maximum
6392		float	0			Basic Units		Background Offset Alarm Maximum(Basic Units ppb or ug/m3 for Protocols)
6394		float	0			Basic Units		Span Offset Alarm Maximum(Basic Units ppb or ug/m3 for Protocols)

6396		float	0			Basic Units		Max Reference Offset Alarm (Basic Units ppb or ug/m3 for Protocols)
6400	Initial S/R	float	0				1	Initial S/R
6402	Gain Setting	unsigned16	0	0	255			Gain Setting
6403		float	0.5					Initial S/R Ratio Minimum Allowed Value
6405		float	2					Initial S/R Ratio Maximum Allowed Value
6900		unsigned16	0	0	1			Enable/disable the Communication module
7000		unsigned16	0	0	1			Enable/Disable the Predictive Diagnostics module
7600	O2 Calibration Coefficient	float	1	0.5	2		3	O2 Calibration Coefficient [if O2 Sensor installed]
7602	Minimum Conc Alarm	float	-0.5	-5	100	%	1	Min Conc Alarm limit [if O2 Sensor Installed]
7604	Maximum Conc Alarm	float	25	0	100	%	1	Max Conc Alarm limit [if O2 Sensor Installed]
7606		float	1	0.5	2		3	O2 Span user coef
7608		float	0	0	100	%	2	O2 Span user concentration
7610	Edit O2 Cal-1 Factory Offset	float	0			%		Edit O2 Cal-1 Factory Offset
7612	Edit O2 Cal-2 Factory Span	float	20.9			%		Edit O2 Cal-2 Factory Span
7614		unsigned16	0	0	5			Directions to perform O2 Calibrations using Modbus:Manual Span: set modbus register 7606 to desired O2 span coefficient value; after that set modbus register 7614 to 1Auto Span: set modbus register 7608 to desired O2 span concentration value; after that set modbus register 7614 to 2Reset Defaults: set modbus register 7614 to 3o2 point 1: set modbus register 7610 to desired o2 concentration; after that set modbus register 7614 to 4o2 point 2: set modbus register 7612 to desired o2 concentration; after that set modbus register 7614 to 5
8400	User Span Conc	float	0	0	5E+09			User Span Conc.
8402	Hi User Span Conc	float	0	0	5E+09			Hi User Span Conc.

8404		unsigned16	0	0	65535			Directions to perform Calibrations using Modbus:Manual Bkg: set modbus register 8405 to the desired background value in Base Gas Units (PPB or ug/m3); after that set modbus register 8404 to 1Auto Bkg: set modbus register 8404 to 2Manual Span or Manual Span Low: set modbus register 8405 to desired span coefficient value; after that set modbus register 8404 to 3Manual Span High: set modbus register 8405 to desired span coefficient value; after that set modbus register 8404 to 4Auto Span or Auto Span Low: set modbus register 8405 to desired span concentration value in Base Gas Units (PPB or ug/m3); after that set modbus register 8404 to 5Auto Span High: set modbus register 8405 to desired high span concentration value in Base Gas Units (PPB or ug/m3); after that set modbus register to 8404 to 6Reset Defaults: set modbus register 8404 to 7To see the new concentration value in Base Gas Units (PPB or ug/m3) use modbus register 3 for low range or modbus register 5 for high range
8405		float	0					see comments above
8500	Enable I0 Module	unsigned16	1	0	1			Enable(1)/disable(0) the Intelligent Zero Start
10000		string		0	50	characters		SMTP Server address for emails
10025		unsigned16	25	0				SMPT 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
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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