

49iQ and 49iQPS - 118209-00

MODBUS Register Table

Rev Y

V 01.06.14.34444

Register	Type	Default	Min	Max	Units	Precision	Description
501	string		6	9	characters		Formatted Time: HH:MM(:SS)
506	string		9	11	characters		Formatted Date: MM/DD/(YY)YY
512	unsigned16	0			sec		Last Calibration Time (Seconds from 01-Jan-1970)
513	unsigned16	0			sec		Previous Calibration Time (Seconds from 01-Jan-1970)
514	unsigned32	1	0				General Alarm Flag
516	string	empty	0	14	characters		Serial Number
524	string	empty	0	32	characters		Firmware Version
540	string	iQSeries	0	16	characters		HostName
548	unsigned32	1	0				General Warning Flag
550	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	integer16	1	0				Pressure Alarm Status
652	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	unsigned16	0	0	65535			Pressure Calibration Faults 1 (LSB): Bit 0-1: High point sensor 1 Offset is: 00=Ok 01=user input out of range 10=measurement out of range 11=No calBit2-3: Low point sensor 1 Offset is: 00=Ok 01=user input out of range 10=measurement out of range 11=No calBit4-5: High point sensor 2 Offset is: 00=Ok 01=user input out of range 10=measurement out of range 11=No calBit6-7: Low point sensor 2 Offset is: 00=Ok 01=user input out of range 10=measurement out of range 11=No calBit8-9: High point sensor 3 Offset is: 00=Ok 01=user input out of range 10=measurement out of range 11=No calBit10-11: Low point sensor 3 Offset is: 00=Ok 01=user input out of range 10=measurement out of range 11=No calBit12-15=N/A

Register	Type	Default	Min	Max	Units	Precision	Description
655	integer16	0	0	1			Flow/Pressure Communication Alarm Status
656	integer16	0	0	1			Flow/Pressure Power Supply Alarm Status
751	integer16	1	0				PSB Alarms Count
752	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	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	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	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

Register	Type	Default	Min	Max	Units	Precision	Description
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	integer16	0	0	1			PSB Communication Status
761	integer16	0	0	1			PSB Power Supply Status
762	integer16	0	0	1			Channel 1 Error from STEP board
763	integer16	0	0	1			Channel 2 Error from STEP board
764	integer16	0	0	1			Channel 3 Error from STEP board
765	integer16	0	0	1			Channel 4 Error from STEP board
766	integer16	0	0	1			STEP 1 5V Error
767	integer16	0	0	1			STEP 1 24V Error
768	integer16	0	0	1			Channel 1 Error from STEP board
769	integer16	0	0	1			Channel 2 Error from STEP board
770	integer16	0	0	1			Channel 3 Error from STEP board
771	integer16	0	0	1			Channel 4 Error from STEP board
772	integer16	0	0	1			STEP 2 5V Error
773	integer16	0	0	1			STEP 2 24V Error

Register	Type	Default	Min	Max	Units	Precision	Description
774	integer16	0	0	1			Channel 1 Error from STEP board
775	integer16	0	0	1			Channel 2 Error from STEP board
776	integer16	0	0	1			Channel 3 Error from STEP board
777	integer16	0	0	1			Channel 4 Error from STEP board
778	integer16	0	0	1			STEP 3 5V Error
779	integer16	0	0	1			STEP 3 24V Error
780	integer16	0	0	1			Channel 1 Error from STEP board
781	integer16	0	0	1			Channel 2 Error from STEP board
782	integer16	0	0	1			Channel 3 Error from STEP board
783	integer16	0	0	1			Channel 4 Error from STEP board
784	integer16	0	0	1			STEP 4 5V Error
785	integer16	0	0	1			STEP 4 24V Error
801	float	0					Analog Input 1 Reading
803	float	0					Analog Input 2 Reading
805	float	0					Analog Input 3 Reading
807	float	0					Analog Input 4 Reading
809	integer16	1	0				Analog Alarms
810	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	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	unsigned16	0	0	65535			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

Register	Type	Default	Min	Max	Units	Precision	Description
813	unsigned16	0	0	65535			Analog IO Calibration Status: 0 = Calibration Idle Voltage Input Calibration 1 = Calculate voltage input start 2 = Calculate voltage input stop 3 = Calculate voltage input default 4 = Calibration voltage input done Voltage Output Calibration 5 = Calculate voltage output start 6 = Calculate voltage output stop 7 = Calculate voltage output default 8 = Calibration voltage output done Current Output Calibration 9 = Calculate current output start 10 = Calculate current output stop 11 = Calculate current output default 12 = Calibration voltage output done
814	unsigned16	0	0	65535			Analog IO Cal Faults 1: Bit-packed faults for voltage input calibration: Bit0-1 = Channel 1 voltage input calibration failure Offset is: 00 = Ok 01 = Low 10 = High 11 = No cal Bit2-3 = Channel 2 voltage input calibration failure Offset is: 00 = Ok 01 = Low 10 = High 11 = No cal Bit4-5 = Channel 3 voltage input calibration failure Offset is: 00 = Ok 01 = Low 10 = High 11 = No cal Bit6-7 = Channel 4 voltage input calibration failure Offset is: 00 = Ok 01 = Low 10 = High 11 = No cal Bit8..15 = N/A
815	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 failure Offset is: 00 = Ok 01 = Low 10 = High 11 = No cal Bit2-3 = Channel 2 voltage output calibration failure Offset is: 00 = Ok 01 = Low 10 = High 11 = No cal Bit4-5 = Channel 3 voltage output calibration failure Offset is: 00 = Ok 01 = Low 10 = High 11 = No cal Bit6-7 = Channel 4 voltage output calibration failure Offset is: 00 = Ok 01 = Low 10 = High 11 = No cal Bit8-9 = Channel 5 voltage output calibration failure Offset is: 00 = Ok 01 = Low 10 = High 11 = No cal Bit10-11 = Channel 6 voltage output calibration failure Offset is: 00 = Ok 01 = Low 10 = High 11 = No cal Bit12..15=N/A
816	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 failure Offset is: 00 = Ok 01 = Low 10 = High 11 = No cal Bit2-3 = Channel 2 voltage output calibration failure Offset is: 00 = Ok 01 = Low 10 = High 11 = No cal Bit4-5 = Channel 3 voltage output calibration failure Offset is: 00 = Ok 01 = Low 10 = High 11 = No cal Bit6-7 = Channel 4 voltage output calibration failure Offset is: 00 = Ok 01 = Low 10 = High 11 = No cal Bit8-9 = Channel 5 voltage output calibration failure Offset is: 00 = Ok 01 = Low 10 = High 11 = No cal Bit10-11 = Channel 6 voltage output calibration failure Offset is: 00 = Ok 01 = Low 10 = High 11 = No cal Bit12..15=N/A

Register	Type	Default	Min	Max	Units	Precision	Description
817	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	integer16	0	0	1			Analog IO Voltage Output Channel 1 Alarm Status
819	integer16	0	0	1			Analog IO Voltage Output Channel 2 Alarm Status
820	integer16	0	0	1			Analog IO Voltage Output Channel 3 Alarm Status
821	integer16	0	0	1			Analog IO Voltage Output Channel 4 Alarm Status
822	integer16	0	0	1			Analog IO Voltage Output Channel 5 Alarm Status
823	integer16	0	0	1			Analog IO Voltage Output Channel 6 Alarm Status
824	integer16	0	0	1			Analog IO Current Output Channel 1 Alarm Status
825	integer16	0	0	1			Analog IO Current Output Channel 2 Alarm Status
826	integer16	0	0	1			Analog IO Current Output Channel 3 Alarm Status
827	integer16	0	0	1			Analog IO Current Output Channel 4 Alarm Status
828	integer16	0	0	1			Analog IO Current Output Channel 5 Alarm Status
829	integer16	0	0	1			Analog IO Current Output Channel 6 Alarm Status
830	integer16	0	0	1			Analog IO Chip Temperatures Alarm Status
831	integer16	0	0	1			Analog IO Chip 1 Communication Alarm Status
832	integer16	0	0	1			Analog IO Chip 2 Communication Alarm Status
833	integer16	0	0	1			Analog IO Chip 3 Communication Alarm Status
834	integer16	0	0	1			Analog IO Communication Alarm Status
835	integer16	0	0	1			Analog IO Power Supply Alarm Status
951	integer16	1	0				Digital IO Alarms

Register	Type	Default	Min	Max	Units	Precision	Description
952	unsigned16	0	0	65535			Digital IO Board fault register 1 least significant word Bit 0 = Solenoid1 above 500mA shut down and alarm Bit 1 = Solenoid1 below 10mA and output is on Bit 2 = Solenoid2 above 500mA shut down and alarm Bit 3 = Solenoid2 below 10mA and output is on Bit 4 = Solenoid3 above 500mA shut down and alarm Bit 5 = Solenoid3 below 10mA and output is on Bit 6 = Solenoid4 above 500mA shut down and alarm Bit 7 = Solenoid4 below 10mA and output is on Bit 8 = Solenoid5 above 500mA shut down and alarm Bit 9 = Solenoid5 below 10mA and output is on Bit 10 = Solenoid6 above 500mA shut down and alarm Bit 11 = Solenoid6 below 10mA and output is on Bit 12 = Solenoid7 above 500mA shut down and alarm Bit 13 = Solenoid7 below 10mA and output is on Bit 14 = Solenoid8 above 500mA shut down and alarm Bit 15 = Solenoid8 below 10mA and output is on
953	unsigned16	0	0	65535			Digital IO Board fault register 2
954	unsigned16	0	0	65535			Digital IO Board fault register 4 most significant word Bit 0..9= N/A Bit 7 = Board Communication Failure Bit 14 = Power Supply Bit 15 = General when any faults detected
955	unsigned16	0	0	1			Digital IO External Alarm 1
956	unsigned16	0	0	1			Digital IO External Alarm 2
957	unsigned16	0	0	1			Digital IO External Alarm 3
958	unsigned16	0	0	255			Reset the solenoid faults Bit 0 = 24V Switchable Output 0 Bit 1 = 24V Switchable Output 1 Bit 2 = 24V Switchable Output 2 Bit 3 = 24V Switchable Output 3 Bit 4 = 24V Switchable Output 4 Bit 5 = 24V Switchable Output 5 Bit 6 = 24V Switchable Output 6 Bit 7 = 24V Switchable Output 7 Bit 8..15 = N/A
959	integer16		0	1			Digital I/O solenoid1 above 500mA alarm
960	integer16		0	1			Digital I/O solenoid1 below 10mA alarm
961	integer16		0	1			Digital I/O solenoid2 above 500mA alarm
962	integer16		0	1			Digital I/O solenoid2 below 10mA alarm
963	integer16		0	1			Digital I/O solenoid3 above 500mA alarm
964	integer16		0	1			Digital I/O solenoid3 below 10mA alarm
965	integer16		0	1			Digital I/O solenoid4 above 500mA alarm
966	integer16		0	1			Digital I/O solenoid4 below 10mA alarm
967	integer16		0	1			Digital I/O solenoid5 above 500mA alarm
968	integer16		0	1			Digital I/O solenoid5 below 10mA alarm
969	integer16		0	1			Digital I/O solenoid6 above 500mA alarm
970	integer16		0	1			Digital I/O solenoid6 below 10mA alarm
971	integer16		0	1			Digital I/O solenoid7 above 500mA alarm
972	integer16		0	1			Digital I/O solenoid7 below 10mA alarm
973	integer16		0	1			Digital I/O solenoid8 above 500mA alarm
974	integer16		0	1			Digital I/O solenoid8 below 10mA alarm
975	integer16		0	1			Digital I/O power supply alarm
976	integer16	0	0	1			Digital IO Communication Alarm

Register	Type	Default	Min	Max	Units	Precision	Description
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 A
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
1011	integer16	0	-99	60			Maintenance History Calculated Months Left Ozone Scrubber
1012	integer16	0	-99	60			Maintenance History Calculated Months Left DC Power Supply
1013	integer16	0	-99	60			Maintenance History Calculated Months Left Foam Fan Filter
1014	integer16	0	-99	60			Maintenance History Calculated Months Left System Components
1015	integer16	0	-99	60			Maintenance History Calculated Months Left Purafil
1016	integer16	0	-99	60			Maintenance History Calculated Months Left Charcoal
1017	integer16	0	-99	60			Maintenance History Calculated Months Left Dri-Rite
1018	integer16	0	-99	60			Maintenance History Calculated Months Left Detector B
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

Register	Type	Default	Min	Max	Units	Precision	Description
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	unsigned16	0	0	1			Maintenance History Alert
1101	string		0	300			Predictive Diagnostics Alerts List
1301	integer16	0	0	1			Predictive Diagnostic Alert Sample Pump
1302	integer16	0	0	1			Predictive Diagnostic Alert Capillary
1303	integer16	0	0	1			Predictive Diagnostic Alert Flow Path
1304	integer16	0	0	1			Predictive Diagnostic Alert Sample Valve
1305	integer16	0	0	1			Predictive Diagnostic Alert Zero Valve
1306	integer16	0	0	1			Predictive Diagnostic Alert Span Valve
1307	integer16	0	0	1			Predictive Diagnostic Alert 7
1308	integer16	0	0	1			Predictive Diagnostic Alert 8
1309	integer16	0	0	1			Predictive Diagnostic Alert 9
1310	integer16	0	0	1			Predictive Diagnostic Alert 10
1311	integer16	0	0	1			Predictive Diagnostic Alert 11
1312	integer16	0	0	1			Predictive Diagnostic Alert 12
1313	integer16	0	0	1			Predictive Diagnostic Alert 13
1314	integer16	0	0	1			Predictive Diagnostic Alert 14
1315	integer16	0	0	1			Predictive Diagnostic Alert 15
1316	integer16	0	0	1			Predictive Diagnostic Alert 16
1317	integer16	0	0	1			Predictive Diagnostic Alert 17
1318	integer16	0	0	1			Predictive Diagnostic Alert 18
1319	integer16	0	0	1			Predictive Diagnostic Alert 19
1320	integer16	0	0	1			Predictive Diagnostic Alert 20
1321	unsigned16	0	0	1			Predictive Diagnostic Alerts
1401	integer16	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]

Register	Type	Default	Min	Max	Units	Precision	Description
1414	float	0			L/Min		Calculated Flow A (L/Min)
1416	integer16	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	integer16	0	0	1			Zero Check Alarm Status [not in 146iQ]
1420	float	0					Span Check Concentration value in user units [not in 146iQ]
1422	integer16	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	integer16	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]
1428	integer16	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	integer16	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	integer16	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	integer16	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	integer16	0	0	1			Ozonator Level 6 Check Alarm Status [not in 146iQ]
1441	integer16	0	0	1			Flow A Alarm Status [not in 146iQ]
1442	float	0	0	1000	mmHg	1	Photometer Pressure A (mmHg)
1444	integer16	0	0	1			Photometer Pressure Alarm Status [not in 146iQ]
1445	float	0	0	1000		1	Pump Pressure (mmHg)
1447	integer16	0	0	1			Module Alarm Count: non-zero if any alarms in this module active: Conc/AutoZero/AutoSpan
1448	float	0	0	1000	mmHg	1	Photometer Pressure B (mmHg)
1451	integer16	1	0				Number of active Photometer alarms
1452	float	0	0.01	1.4	A	2	Lamp Heater current (mA)
1454	float	0	5	200000	Hz	0	Channel A Frequency
1456	float	0	5	200000	Hz	0	Channel B Frequency
1458	integer16	0	0	1			Cell A frequency Max Alarm Status
1459	integer16	0	0	1			Cell B frequency Max Alarm Status
1460	integer16	0	0	1			Lamp Temp Sensor Short Alarm Status
1461	integer16	0	0	1			Lamp Temp Sensor Open Alarm Status
1462	integer16	0	0	1			Bench Temp Sensor Short Alarm Status
1463	integer16	0	0	1			Bench Temp Sensor Open Alarm Status
1464	integer16	0	0	1			Lamp Connection Alarm Status
1465	integer16	0	0	1			Lamp Short Alarm Status

Register	Type	Default	Min	Max	Units	Precision	Description
1466	integer16	0	0	1			Communication Alarm Status
1467	integer16	0	0	1			Power Supply Alarm Status
1468	integer16	0	0	1			Lamp Current Alarm Status
1469	integer16	0	0	1			Lamp Temperature Alarm Status
1470	integer16	0	0	1			Bench Temp Alarm Status
1471	float	0	0	60	degC	1	Bench temperature (deg C)
1473	float	0	0	85	degC	1	Lamp temperature (deg C)
1475	float	0	2	17.5	mA	2	Lamp Current
1477	unsigned16	0	0	1			Enable/disable the module
1501	integer16	1	0				Number of active Ozonator Alarms
1502	float	0	0.01	1.4	A	2	Lamp Heater current (mA)
1504	float	0	0	60	°C	1	Bench temperature (deg C)
1506	float	0	5	200000	Hz	0	Channel A frequency
1508	unsigned16	0	0	1			Enable/disable the module
1510	integer16	0	0	1			Lamp Temp Sensor Short Alarm Status
1511	integer16	0	0	1			Lamp Temp Sensor Open Alarm Status
1512	integer16	0	0	1			Lamp Connection Alarm Status
1513	integer16	0	0	1			Lamp Short Alarm Status
1514	integer16	0	0	1			Communication Alarm Status
1515	integer16	0	0	1			Power Supply Alarm Status
1516	integer16	0	0	1			Lamp Temperature Alarm Status
1517	float	0	0	65	°C	1	Lamp temperature (deg C)
1519	float	0	2	17.5	mA	2	Lamp current (mA) UNUSED IN THE CODE!!!
2051	unsigned16	0	0	1			User Digital Out 1
2052	unsigned16	0	0	1			User Digital Out 2
2053	unsigned16	0	0	1			User Digital Out 3
2054	unsigned16	0	0	1			User Digital Out 4
2055	unsigned16	0	0	1			User Digital Out 5
2056	unsigned16	0	0	1			User Digital Out 6
2057	unsigned16	0	0	1			User Digital Out 7
2058	unsigned16	0	0	1			User Digital Out 8
2059	unsigned16	0	0	1			User Digital Out 9
2060	unsigned16	0	0	1			User Digital Out 10
2061	unsigned16	0	0	1			User Digital Out 11
2062	unsigned16	0	0	1			User Digital Out 12
2063	unsigned16	0	0	1			User Digital Out 13
2064	unsigned16	0	0	1			User Digital Out 14
2065	unsigned16	0	0	1			User Digital Out 15
2066	unsigned16	0	0	1			User Digital Out 16
2101	float	0					Concentration for current range in base units (ppb or ug/m3) (user defined units)
2103	float	0			basic units		Single/Low Range Concentration in Basic Units (ppb or ug/m3)
2105	float	0			basic units		High Range Concentration in Basic Units (ppb or ug/m3) [not in 146iQ]
2107	unsigned16	0	0	1			Auto Range selection 0=low range 1=high range [not in 146iQ]
2109	float	0	0	1000000	Hz	6	Cell A Noise

Register	Type	Default	Min	Max	Units	Precision	Description
2111	float	0	0	1000000	Hz	6	Cell B Noise [not in 146iQ]
2113	float	0	-1000	500000	basic units		Cell A concentration in ppb units for range low
2115	float	0	-1000	500000	basic units		Cell A concentration in ppb units for range high
2117	float	0	-1000	500000	basic units		Cell B concentration in ppb units for range low [not in 146iQ]
2119	float	0	-1000	500000	basic units		Cell B concentration in ppb units for range high [not in 146iQ]
2121	unsigned16	0	0	2			0=49 [not in 146iQ]1=49PS old plumbing2=49PS new plumbing
2123	float	0	-25	25		2	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	float	0			L/Min		Calculated Flow B (L/Min)
2137	integer16	0	0	1			Flow B Alarm Status [not in 146iQ]
2251	unsigned16	0	0	1			Enable/Disable the Zero/Span valve module
2252	integer16	0	0	1			Trigger zero check or cal.
2253	integer16	0	0	1			Trigger span check or cal.
2254	integer16	0	0	1			Trigger purge
2255	integer16	0	0	1			Trigger Ozonator Level 1
2256	integer16	0	0	1			Trigger Ozonator Level 2
2257	integer16	0	0	1			Trigger Ozonator Level 3
2258	integer16	0	0	1			Trigger Ozonator Level 4
2259	integer16	0	0	1			Trigger Ozonator Level 5
2260	integer16	0	0	1			Trigger Ozonator Level 6
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	00:00:00:0	17	17	characters		Wired MAC Address
2484	unsigned16	0	0	1			Ethernet Configuration Alarm Flag
2485	unsigned16	0	0	1			Ethernet IP Address Configuration Alarm Flag
2486	unsigned16	0	0	1			Flag
2487	unsigned16	0	0	1			Ethernet Gateway Configuration Alarm Flag
2488	unsigned16	0	0	1			Ethernet DNS Configuration Alarm Flag
2489	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	unsigned16	0	0	1			Ethernet Configuration commit
5182	integer16	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

Register	Type	Default	Min	Max	Units	Precision	Description
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	1970	1970	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+8PDTMST+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	unsigned16	0	0	1			Low Dynamic Filtering Enable (On/Off)
5232	unsigned16	0	0	1			High Dynamic Filtering Enable (On/Off)
5233	unsigned16	0	0	1			Digital IO for Auto Background Calibration
5234	unsigned16	0	0	1			Digital IO for Low Range Auto Span Calibration
5235	unsigned16	0	0	1			Digital IO for High Range Auto Span Calibration
5236	integer16	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	integer16	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	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	unsigned16	0	0	1			Enable/Disable the Analog IO module
5602	float	0					Voltage Output Minimum 1

Register	Type	Default	Min	Max	Units	Precision	Description
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
5700	unsigned16	1	0	1			Enable/Disable the Flow/Pressure module
6900	unsigned16	0	0	1			Enable/disable the Communication module
7000	unsigned16	0	0	1			Enable/Disable the Predictive Diagnostics module
7500	float	1	0.5	2		2	Span Coefficient for Single/Low Range
7502	integer16	300	1	300	sec		Single/Low range concentration averaging time
7503	integer16	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	float	0			basic units	2	Background in base units (ppb or ug/m3)
7510	integer16	0	0	1			Reset Span and Background cal to their defaults.
7511	float	1	0.5	2		2	Span Coefficient for High Range [not in 146iQ]
7513	unsigned16	1	0	1			Set Sample Gas Mode [not in 146iQ]
7514	unsigned16	0	0	1			Set Zero Gas Mode [not in 146iQ]
7515	unsigned16	0	0	1			Set Span Gas Mode [not in 146iQ]
7516	unsigned16	0	0	1			Set Level1 Gas Mode [not in 146iQ]
7517	unsigned16	0	0	1			Set Level2 Gas Mode [not in 146iQ]
7518	unsigned16	0	0	1			Set Level3 Gas Mode [not in 146iQ]
7519	unsigned16	0	0	1			Set Level4 Gas Mode [not in 146iQ]
7520	unsigned16	0	0	1			Set Level5 Gas Mode [not in 146iQ]
7521	unsigned16	0	0	1			Set Level6 Gas Mode [not in 146iQ]

Register	Type	Default	Min	Max	Units	Precision	Description
7522	unsigned16	0	0	65535			Gui signal to module for calibration. See description for tmoPhotometerO3SWCalManagerRW.0 for value table.
7523	integer16	0	0	1			GUI command used to accept current background calibration value.
7524	integer16	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	float	0					user settable alarm [not in 146iQ]
7530	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]
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					user settable alarm [not in 146iQ]
7561	float	0					user settable alarm [not in 146iQ]
7563	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	float	15	5	50	C		Bench Temperature Alarm Min
7706	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

Register	Type	Default	Min	Max	Units	Precision	Description
7800	float	60	60	80	degC	1	Min Lamp Temperature Alarm
7802	float	80	60	80	degC	1	Max Lamp Temperature Alarm
							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); 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.
7805	unsigned16	0	0	65535			
7806	integer16	1	0	32767			Pump Control:0 = Off 1 = 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
7817	float	0			basic units		Custom O3 level 1 in basic units
7819	float	0			basic units		Custom O3 level 2 in basic units
7821	float	0			basic units		Custom O3 level 3 in basic units
7823	float	0			basic units		Custom O3 level 4 in basic units
7825	float	0			basic units		Custom O3 level 5 in basic units
7827	float	0			basic units		Custom O3 level 6 in basic units
							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=Purge10=Auto Zero11=Auto Span12=Auto Level 113=Auto Level 214=Auto Level 315=Auto Level 416=Auto Level 517=Auto Level 618=Auto Purge19=Warm UpNOTE:Scheduled calibrations should not be set via Modbus (AUTO ZERO;AUTO SPAN ;AUTO PURGE)
7829	unsigned16	0	0	19			
10000	string		0	50	characters		SMTP Server address for emails
10025	unsigned16	25	0				SMTP port for sending emails

Register	Type	Default	Min	Max	Units	Precision	Description
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

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