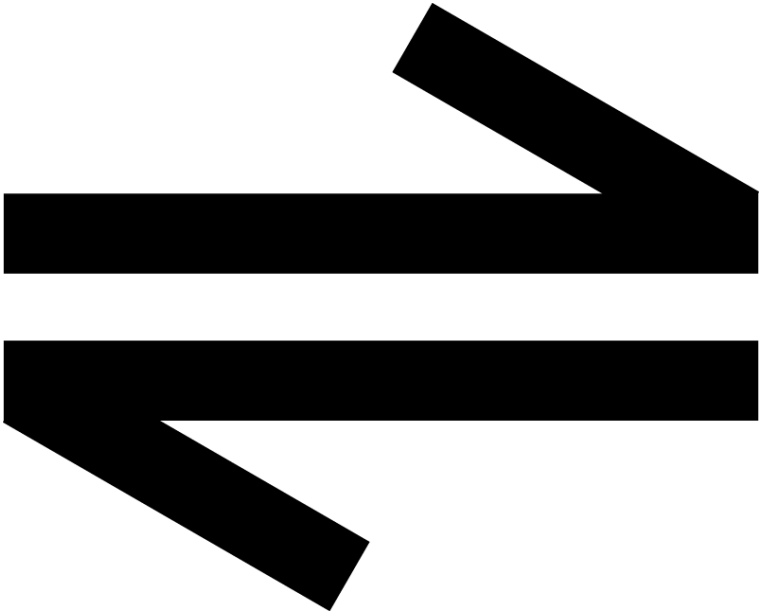
MXD70 Series

Multi-parameter Monitor



Modbus RS485 Interface
Operating Guide

Preface

Product warranty

The MXD70 Series has a warranty against defects in materials and workmanship for three years from the date of shipment. During this period Quadbeam will, at its own discretion, either repair or replace products that prove to be defective. The associated software is provided 'as is' without warranty.

Limitation of warranty

The foregoing warranty does not cover damage caused by accidental misuse, abuse, neglect, misapplication or modification.

No warranty of fitness for a particular purpose is offered. The user assumes the entire risk of using the product. Any liability of Quadbeam Technologies is limited exclusively to the replacement of defective materials or workmanship.

Disclaimer

Quadbeam Technologies Ltd reserves the right to make changes to this manual or the instrument without notice, as part of our policy of continued developments and improvements.

All care has been taken to ensure accuracy of information contained in this manual. However, we cannot accept responsibility for any errors or damages resulting from errors or inaccuracies of information herein.

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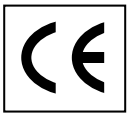
Manufacturing Standards



Electromagnetic compatibility

This instrument has been designed to comply with the standards and regulations set down by the European EMC Directive 2004/108/EC using BS EN 61326-1: 2013

Safety

This instrument has been designed to comply with the standards and regulations set down by the European Low Voltage Directive 2006/95/EC using BS EN 61010-1: 2010

Quality

This instrument has been manufactured under the following quality standard:

ISO 9001:2008. Certificate No: FM 13843

Note: The standards referred to in the design and construction of Quadbeam Technologies products are those prevailing at the time of product launch. As the standards are altered from time to time, we reserve the right to include design modifications that are deemed necessary to comply with the new or revised regulations.

Contents

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Modbus RS485

MODBUS is an open application layer messaging protocol, which is deployed in areas of manufacturing automation, process automation and building automation. It provides client/server communication between devices connected over a RS485 connection.

Modbus RS485 networks consist of two different devices, a Master and a Slave.

Master Device - Master devices determine the data traffic on the network. They can send data without an external request.

Slave Device - Slave devices are peripheral devices. They do not have their own access rights to the data traffic on the network and only send their data due to an external request from a master. The MXD70 Series operates as a slave device on the network.

Modbus Telegram Structure - The data is transferred between the master and slave by means of a telegram. A request telegram from the master contains the following four telegram fields:

- Slave address - The slave address can be in an address range from 1 to 247. The master talks to all the slaves simultaneously by means of the slave address 0 (broadcast message).
- Function code - The function code determines which read, write and test operations should be executed by means of the MODBUS protocol.
- Data - Depending on the function code, the following values are transmitted in this data field: Register start address (from which the data is transmitted), Number of registers, Write/read data, Data length, etc.
- Checksum - The telegram check sum forms the end of the telegram.

The master can send another telegram to the slave as soon as it has received an answer to the previous telegram or once the time-out period set at the master has expired. This time-out period can be specified or modified by the user and depends on the slave response time.
If an error occurs during data transfer or if the slave cannot execute the command from the master, the slave returns an error telegram (exception response) to the master.
The slave response telegram consists of telegram fields which contain the requested data or which confirm that the action requested by the master has been executed. It also contains a check sum.

MXD70 Series Modbus communications is indicated in the top of the screen by the following symbol: ⇆

Supported Modbus Function Codes

Function Code	Type	Function
2	Read Discrete Inputs	Reads one or more discrete inputs of the MXD70 Series 1 to a maximum of 2000 consecutive registers can be read with a telegram. The discrete inputs in the response message are packed as one discrete input per bit of the data field. Status is indicated as 1= ON and 0= OFF. ! Note. If the returned output quantity is not a multiple of eight, the remaining bits in the final data byte will be padded with zeros. Application: For reading the status of the instrument and its error messages.

Function Code	Type	Function
3	Read Holding Register	Reads one or more registers of the MXD70 Series. 1 to a maximum of 125 consecutive registers (1 register = 2 bytes) can be read with a telegram. Application: For reading measurements and the configuration of the instrument's parameters.
5	Write Single Coil	Writes a single output to either ON or OFF in the MXD70 Series. The requested ON/OFF state is specified by the following data field: FF 00 hex = ON. 00 00 hex = OFF. All other values are illegal and will not affect the output. Application: Activates a single function in the MXD70 Series by writing the On state to the coil address once. Note, on completion the function will automatically move to the Off state.
6	Write Single Register	Write a single MXD70 Series register with a new value. Application: For configuring a single parameter in the instrument. ! Note. Registers whose address space consume more than one register i.e. Floats, cannot be set using this function code.
16	Write Multiple Registers	Writes several MXD70 Series registers with a new value. A maximum of 120 consecutive registers can be written with a single telegram. Application: For configuring parameters in the instrument.
23	Read & Write Multiple Registers	Simultaneous reading and writing of registers in the MXD70 Series. 1 to a maximum of 118 registers in a single telegram. Write access is executed before read access. Application: For configuring and then checking the status of the parameters in the instrument.

! Maximum number of writes - If a non-volatile parameter is modified via the MODBUS this change is saved in the EEPROM of the instrument. The number of writes to the EEPROM is technically restricted to a maximum of 1 million. Attention must be paid to this limit since, if exceeded, it results in data loss and instrument failure. For this reason, avoid constantly writing non-volatile instrument parameters via the MODBUS.

Response Times - The time it takes the instrument to respond to a request telegram from the MODBUS master is typically 25 to 50 milliseconds. It may take longer for a command to be executed in the instrument. Thus the data is not updated until the command has been executed. Write commands especially are affected by this.

Data types - the following data types are supported by the instrument:

• **FLOAT** – Floating point numbers IEE 754, Data length 4 bytes (2 registers)

Byte 3	Byte 2	Byte 1	Byte 0
SEEEEEEE	EMMMMMMM	MMMMMMMM	MMMMMMMM

S = Sign, E = Exponent, M = Mantissa

• **INT** – Integer (16 bits), Data length 2 bytes (1 register)

Byte 1	Byte 0
Most Significant Bit (MSB)	Least Significant Bit (LSB)

• **LONG** – Long Integer (32 bits), Data length 4 bytes (2 registers)

Byte 3	Byte 2	Byte 1	Byte 0
Most Significant Bit (MSB)	…	…	Least Significant Bit (LSB)

Byte Transmission Sequence – The bytes are transmitted in the following data order:

Type	Sequence			
	1st	2nd	3rd	4th
FLOAT	Byte 3 (SEEEEEEE)	Byte 2 (EMMMMMMM)	Byte 1 (MMMMMMMM)	Byte 0 (MMMMMMMM)
INT	Byte 1 (MSB)	Byte 0 (LSB)		
LONG	Byte 3 (MSB)	Byte 2	Byte 1	Byte 0 (LSB)

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Modbus RS485 Connection Details

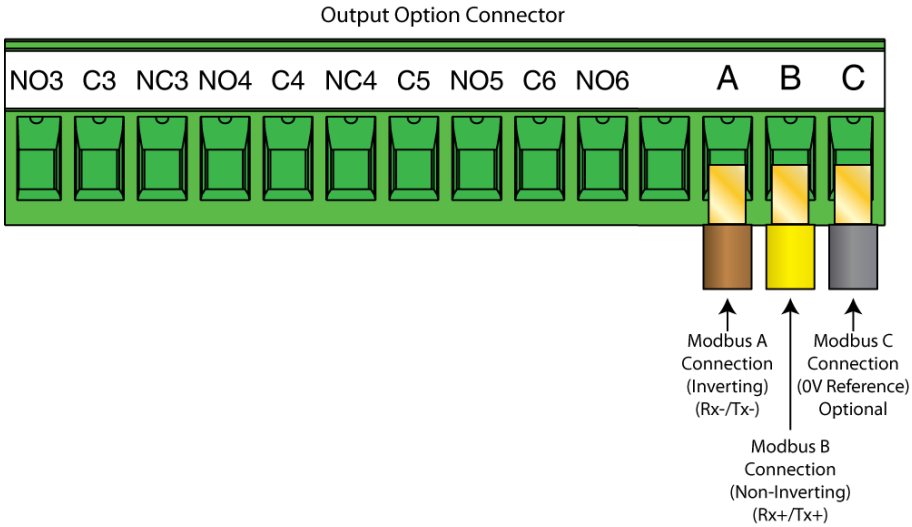
In the EIA/TIA-485 standard, two versions (cable type A and B) are specified for the bus line and can be used for all transmission rates. However, we recommend you use cable type A. The cable specification for cable type A is provided in the following table:

Cable Type A	
Characteristic Impedance	135 to 165Ω at a measuring frequency of 3 to 20Mhz
Cable Capacitance	<30pF/m
Core Cross-section	>AWG22
Cable Type	Twisted Pairs
Loop Resistance	≤100Ω/km
Signal damping	Max 9 dB over the entire cable cross-section
Shielding	Copper braided shielding or braided shielding and foil shielding

Note the following when designing the bus structure:

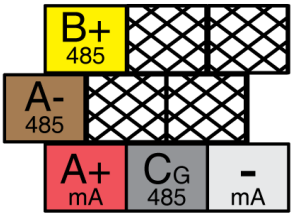
- Using cable type A and with a transmission rate of 9600 Baud, the maximum line length (segment length) of the MODBUS RS485 system is 10000 meters. The total length of the spurs may not exceed a maximum of 6.6 meters.
- A maximum of 32 devices are permitted per segment.
- Each segment is terminated at either end with a 120 Ω terminating resistor (not supplied).
- The bus length or the number of devices can be increased by introducing a repeater.

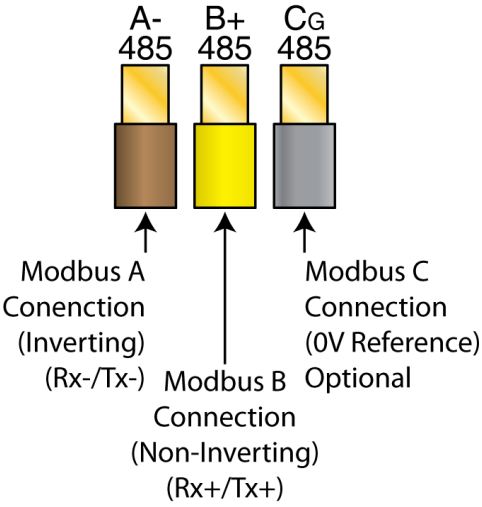
The MXD70 Series provides a Modbus interface via an Optional Output Card



MXD73 Modbus RS485 Output Card Connection Details

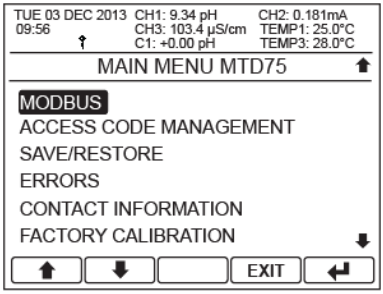
Modbus and Current Output Connector





MXD75 Modbus RS485 Output Card Connection Details

Modbus Setup



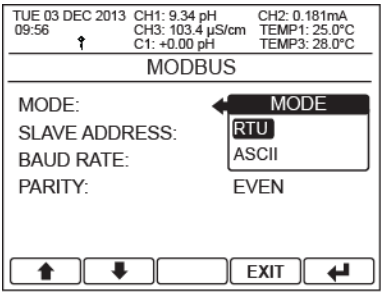
Main Menu

From the front screen press the menu button to show the main menu options and select Configuration.

⬆/⬇ – Select Option

EXIT – Return to Front Screen

↵ – Enter Option



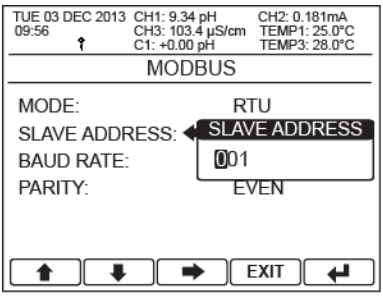
Mode

Set the Modbus communication mode format to either RTU or ASCII.

⬆/⬇ – Select Option

EXIT – Cancel

↵ – Save Selection



Slave Address

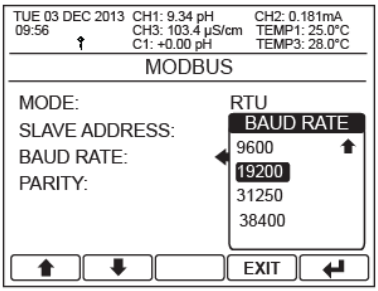
Set the slave address used to address the instrument. Can be set from 1 to 247.

⬆/⬇ – Increase / Decrease Digit

➡ – Select Next Digit

EXIT – Cancel

↵ – Save Value



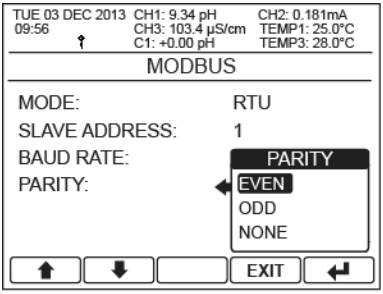
Baud Rate

Set the communication Baud rate.
Available options: 300, 600, 1200, 2400, 4800, 9600, 19200, 31250 and 38400 bits per second.

⬆/⬇ – Select Option

EXIT – Cancel

↵ – Save Selection



Parity

Set the error parity bit.

⬆/⬇ – Select Option

EXIT – Cancel

↵ – Save Selection

Standard Value Tables

Commonly used values throughout the Modbus registers.

Table 1 – Supported ASCII Character Set (for use with labels):

Upper Case	A = 65	B = 66	C = 67	D = 68	E = 69	F = 70
	G = 71	H = 72	I = 73	J = 74	K = 75	L = 76
	M = 77	N = 78	O = 79	P = 80	Q = 81	R = 82
	S = 83	T = 84	U = 85	V = 86	W = 87	X = 88
	Y = 89	Z = 90				
Lower Case	a = 97	b = 98	c = 99	d = 100	e = 101	f = 102
	g = 103	h = 104	i = 105	j = 106	k = 107	l = 108
	m = 109	n = 110	o = 111	p = 112	q = 113	r = 114
	s = 115	t = 116	u = 117	v = 118	w = 119	x = 120
	y = 121	z = 122				
Numbers	0 = 48	1 = 49	2 = 50	3 = 51	4 = 52	5 = 53
	6 = 54	7 = 55	8 = 56	9 = 57		
Symbols	= 32	µ = 181	% = 37	(= 40	) = 41	+ = 43
	- = 45	. = 46	/ = 47	: = 58	= = 61	\ = 92
	^ = 94	Ω = 937	Σ = 8721	∏ = 960	° = 176	± = 177
	^{2} = 178	^{3} = 179	β = 223			

Table 2 – Conventional Conductivity Ranges:

Conductivity	Resistivity	TDS
1014 = 0 - 9.999 µS/cm	1020 = 0- 99.99MΩ/cm	1024 = 0 - 9.999ppm
1015 = 0 - 99.99 µS/cm	1021 = 0- 9.999MΩ/cm	1025 = 0 - 99.99ppm
1016 = 0 - 999.9 µS/cm	1022 = 0- 999.9kΩ/cm	1026 = 0 - 999.9ppm
1017 = 0 - 9.999 ms/cm	1023 = 0- 99.99kΩ/cm	1027 = 0 - 9999ppm
1018 = 0 - 99.99 ms/cm		1028 = 0 - 99.99ppt
1019 = 0 - 999.9 ms/cm		

Table 3 – Electrodeless Conductivity Ranges:

Conductivity	TDS	Solution
1016 = 0 - 999.9 µS/cm	1026 = 0 - 999.9ppm	1029 = %NaOH
1017 = 0 - 9.999 ms/cm	1027 = 0 - 9999ppm	1030 = %NaCL
1018 = 0 - 99.99 ms/cm	1028 = 0 - 99.99ppt	1031 = %H2SO4
1019 = 0 - 999.9 ms/cm		1032 = HCL
		1033 = %H3PO4
		1034 = %HNO
		1035 = Salinity
		1036 = Custom 1
		1037 = Custom 2

Table 4 – Data Logging Live Trend / Calculation Variables:

Sensor/Type	Variable	Value		
		Channel 1	**Channel 2**	**Channel 3**
Auxiliary mA Input	Reading	1591	1629	1667
	Input Current	1592	1630	1668
Conventional Conductivity	Conductivity	1572	1610	1648
	Resistivity	1573	1611	1649
	TDS	1574	1612	1650
Dissolved Oxygen	Saturation (%)	1578	1616	1654
	Mg/l	1579	1617	1655
	Ppm	1580	1618	1656
	pO2	1581	1619	1657
	mmHg	1582	1620	1658
	Current	1583	1621	1659
	Probe (mV)	1584	1622	1660
	Pressure (Atm)	1585	1623	1661
	Pressure (Bar)	1586	1624	1662
	Pressure (kpa)	1587	1625	1663
	Pressure (mH20)	1588	1626	1664
	Pressure(psi)	1589	1627	1665
	Pressure(mmhg)	1590	1628	1666
Electrodeless Conductivity	Conductivity	1575	1613	1651
	TDS	1576	1614	1652
	Solution	1577	1615	1653
pH / Redox	pH	1570	1608	1646
	pH (mV)	1571	1609	1647
Suspended Solids / Turbidity	Suspended Solids	1593	1631	1669
	Ps	1594	1632	1670
Temperature	Temperature	1595	1633	1671
Current Output *	Current Output 1	1596	1634	1672
	Current Output 2	1597	1635	1673
	Current Output 3	1598	1636	1674
	Current Output 4	1599	1637	1675
	Current Output 5	1600	1638	1676
	Current Output 6	1601	1639	1677
Calculation*		**Calculation 1**		**Calculation 2**
	Result	1684		1697
	Current Output 1	1685		1698
	Current Output 2	1686		1699
	Current Output 3	1687		1700
	Current Output 4	1688		1701
	Current Output 5	1689		1702
	Current Output 6	1690		1703

*Not available for use with Calculation function X and Y variables.

Table 5 – Units

Sensor/Type	Units	Value
Auxiliary mA Input	Custom Units	1000
	mA	1001
Conventional Conductivity	µS/cm	300
	mS/cm	400
	kΩ/cm	100
	MΩ/cm	200
	ppm	500
	ppt	1028
Dissolved Oxygen	Saturation (%)	1099
	Concentration (ppm)	1100
	pO2	1101
	Mercury (mmHg)	1102
	Concentration (mg/l)	1103
	Pressure (Atm)	1110
	Pressure (Bar)	1111
	Pressure (kpa)	1112
	Pressure (mH20)	1113
	Pressure(psi)	1114
	Pressure(mmhg)	1115
	Probe Current (µA)	750
	Probe Current (nA)	760
Electrodeless Conducitvity	µS/cm	300
	mS/cm	400
	Custom 1 Units	600
	Custom 2 Units	700
	ppm	500
	ppt	1028
	%NaOH	1029
	%NaCl	1030
	%H2SO4	1031
	%HCl	1032
	%H3PO4	1033
	%HNO	1034
	ppt Salinity	1035
pH / Redox	pH	800
	mV	1066
Suspended Solids / Turbidity	NTU	1520
	FTU	1521
	mg/l	1522
	g/l	1523
	ppt	1524
	ppm	1525
	EBC	1526
	OD	1527
	%	1528
	PS	1529
Calculation	Ratio	1583
	%	1600

Table 6 – Menu Header / Front Screen Secondary Reading Options

		Value		
Sensor/Type	**Variable**	**Channel 1**	**Channel 2**	**Channel 3**
	Clear (do not show anything)	1327	1327	1327
	Reading^	1328	1329	1330
	Temperature	1331	1332	1333
	Manual Temperature	1334	1335	1336
Auxiliary mA Input	Current Input	1402	1403	1404
Conventional Conductivity	Conductivity	1340	1341	1342
	Resistivity	1349	1350	1351
	TDS	1352	1353	1354
Dissolved Oxygen	Saturation (%)	1363	1364	1365
	Concentration (ppm)	1366	1367	1368
	Oxygen (pO2)	1369	1370	1371
	Mercury (mmHg)	1372	1373	1374
	mg/l	1375	1376	1377
	Current	1378	1379	1380
	Pressure (Atm)*	1384	1385	1386
	Pressure (Bar)*	1387	1388	1389
	Pressure (kPa)*	1390	1391	1392
	Pressure (mH20)*	1393	1394	1395
	Pressure (psi)*	1396	1397	1398
	Pressure (mmHg)*	1399	1400	1401
Royce Do	Probe (mV)	1381	1382	1383
Electrodeless Conductivity	Conductivity	1340	1341	1342
pH / Redox	Electrode (mV)	1343	1344	1345
	Temperature (°C)*	1408	1409	1410
	Temperature (°F) *	1411	1412	1413
	Temperature (K)*	1414	1415	1416
Suspended Solids / Turbidity	Ps	1405	1406	1407
Current Output	Current Output 1	1357		
	Current Output 2	1358		
	Current Output 3	1359		
	Current Output 4	1360		
	Current Output 5	1361		
	Current Output 6	1362		
Calculation	Calculation 1 Result	1355		
	Calculation 2 Result	1356		

*Only available for Front Screen Secondary Reading Configuration
^ Not available for Front Screen Secondary Reading Configuration

Modbus RS485 Registers

Base instrument configuration

Note. The availability of some of the registers depends upon the configuration of the unit.

Register #	Access Rule	Channel	Name	Data Format	Description of Attribute	Semantics of Values
Instrument Information						
2000	Get	Company		INT	Company Name	
2001	Get Get	Instrument Type		INT	Type Of Instrument	1406 = Panel Mount 1407 = Surface Mount
2002	Get	Serial Number		LONG	Instrument Serial Number	
2004	Get	Software Version		FLOAT	The software version of the base instrument	0.00 to 99.99
Instrument Configuration						
2010	Get/Set	Language		INT	Instrument Language Settings	1000 = English 1001 = French 1002 = Spanish 1003 = Italian
2011	Get/Set	System Clock Hour		INT	System Clock – Hour element (HH:MM)	0 to 23 Hours
2012	Get/Set	System Clock Minute		INT	System Clock – Minute element (HH:MM)	0 to 59 Minutes
2013	Get/Set	System Clock Week Day		INT	System Clock – Day of the week	1 = Monday 2 = Tuesday 3 = Wednesday 4 = Thursday 5 = Friday 6 = Saturday 7 = Sunday
2014	Get/Set	System Clock Date		INT	System Clock – Date Element (DD:MM:YYYY)	1 to 31 Date
2015	Get/Set	System Clock Month		INT	System Clock – Month Element (DD:MM:YYYY)	1 to 12 Month
2016	Get/Set	System Clock Century		INT	System Clock – Century Element (DD:MM:YYYY)	0 to 3000
2017	Get/Set	Daylight Savings		INT	Daylight Savings Status	1076 = Yes 1077 = No
2018	Get/Set	Daylight Savings Start Occurrence		INT	The occurrence on which Daylight Savings should Start (i.e. last Sunday in March)	1 = First 2 = Second 3 = Third 4 = Fourth 5 = Last

Instrument Configuration Continued					
2019	Get/Set	Daylight Savings Start Day	INT	Day on which Daylight Savings should Start	1 = Monday 2 = Tuesday 3 = Wednesday 4 = Thursday 5 = Friday 6 = Saturday 7 = Sunday
2020	Get/Set	Daylight Savings Start Month	INT	Month in which Daylight Savings starts	1 = January 2 = February 3 = March 4 = April 5 = May 6 = June 7 = July 8 = August 9 = September 10 = October 11 = November 12 = December
2021	Get/Set	Daylight Savings Start Time Hours	INT	Hour Element Of Daylight Savings Start Time	0 to 23 Hours
2022	Get/Set	Daylight Savings Start Minutes	INT	Minute Element Of Daylight Savings Start Time	0 to 59 Minutes
2023	Get/Set	Daylight Savings Start Seconds	INT	Second Element Of Daylight Savings Start Time	0 to 59 Seconds
2024	Get/Set	Daylight Savings End Week	INT	Week In which Daylight Savings should End	1 = First Week 2 = Second Week 3 = Third Week 4 = Fourth week 5 = Fifth Week
2025	Get/Set	Daylight Savings End Day	INT	Day In which Daylight Savings should End	1 = Monday 2 = Tuesday 3 = Wednesday 4 = Thursday 5 = Friday 6 = Saturday 7 = Sunday

Instrument Configuration Continued					
2026	Get/Set	Daylight Savings End Month	INT	Month In which Daylight Savings should End	1 = January 2 = February 3 = March 4 = April 5 = May 6 = June 7 = July 8 = August 9 = September 10 = October 11 = November 12 = December
2027	Get/Set	Daylight Savings End Hours	INT	Hour Element Of Daylight Savings End Time	0 to 23 Hours
2028	Get/Set	Daylight Savings End Minutes	INT	Minute Element Of Daylight Savings End Time	0 to 59 Minutes
2029	Get/Set	Daylight Savings End Seconds	INT	Seconds Element Of Daylight Savings End Time	0 to 59 Seconds
2030	Get/Set	Contrast	INT	The currently set display contrast level	1 to 255 (Lighter to Darker)

Channel Sensors						
2040 2041 2042	Get	Channel 1 Channel 2 Channel 3	Sensor	INT	Current sensor installed in channel.	1119 = Sensor Not Set Up 1120 = Sensor Not Present 1121 = Conductivity 1122 = pH 1123 = Electrodeless 1124 = Suspended Solids 1125 = Dissolved Oxygen 1126 = Royce Do 1127 = Auxiliary

Output Card Information					
2050	Get	Output Card	INT	Type of Output Card installed	1409 = Output Card Not Setup 1410 = Output Card Not Present 1411 = 1 Current Output, 2 Relays 1412 = 3 Current Output, 0 Relays 1413 = 3 Current Output, 4 Relays 1414 = 5 Current Output, 2 Relays 1415 = 4 Current Output, 0 Relays 1416 = 0 Current Output, 2 Relays & Modbus
2051	Get	Serial Number	LONG	The Serial Number of the output card	0 to 9999999
2053	Get	Number Of Relays	INT	Number Of Relays on Output Card	0 to 4
2054	Get	Number Of Current Outputs	INT	Number Of Current Outputs on Output Card	0 to 5

DataLogging Information					
2060	Get	Datalogging Function	INT	Status Of DataLogging Function	1710 = Locked 1711 = Unlocked

Sensor Readings

Register #	Access Rule	Channel	Name	Data Format	Description of Attribute	Semantics of Values
Auxiliary mA Input Readings						
2100 2400 2700	Get	Channel 1 Channel 2 Channel 3	Auxiliary Reading	FLOAT	Reading	Value depends upon channel range
2102 2402 2702	Get	Channel 1 Channel 2 Channel 3	First Custom Character	INT	1st Character Of Custom Units	ASCII Character Refer to Table 1 for further information.
2103 2403 2703	Get	Channel 1 Channel 2 Channel 3	Second Custom Character	INT	2nd Character Of Custom Units	
2104 2404 2704	Get	Channel 1 Channel 2 Channel 3	Third Custom Character	INT	3rd Character Of Custom Units	
2105 2405 2705	Get	Channel 1 Channel 2 Channel 3	Fourth Custom Character	INT	4th Character Of Custom Units	
2106 2406 2706	Get	Channel 1 Channel 2 Channel 3	Fifth Custom Character	INT	5th Character Of Custom Units	
2107 2407 2407	Get	Channel 1 Channel 2 Channel 3	Sixth Custom Character	INT	6th Character Of Custom Units	
2108 2408 2408	Get	Channel 1 Channel 2 Channel 3	mA Reading	FLOAT	Current Input Reading (in mA)	0 to 24.00
Conventional Conductivity Readings						
2150 2450 2750	Get	Channel 1 Channel 2 Channel 3	Conductivity Reading	FLOAT	Conductivity Reading	Value depends upon channel range
2152 2452 2752	Get	Channel 1 Channel 2 Channel 3	Conductivity Units	INT	Conductivity Reading Units	300 = µs 400 = mS
2153 2453 2753	Get	Channel 1 Channel 2 Channel 3	Resistivity Reading*	FLOAT	Resistivity Reading *(only available when units set to resistivity)*	Value depends upon channel range
2155 2455 2755	Get	Channel 1 Channel 2 Channel 3	Resistivity Units*	INT	Resistivity Reading Units *(only available when units set to resistivity)*	100 = KΩ 200 = MΩ
2156 2456 2756	Get	Channel 1 Channel 2 Channel 3	TDS Reading*	FLOAT	TDS Reading *(only available when units set to TDS)*	Value depends upon channel range

Conventional Conductivity Readings Continued						
2158 2458 2758	Get	Channel 1 Channel 2 Channel 3	TDS Units*	INT	TDS Reading Units *(only available when units set to TDS)*	500 = ppm 1028 = ppt
2159 2459 2759	Get	Channel 1 Channel 2 Channel 3	Temperature Reading	FLOAT	Temperature Reading	-50°C to +150°C or -58°F to +320°F
2161 2461 2761	Get	Channel 1 Channel 2 Channel 3	Temperature Units	INT	Temperature Reading Units	1040 = °C 1041 = °F

Dissolved Oxygen Readings						
2200 2500 2800	Get	Channel 1 Channel 2 Channel 3	% Sat Reading	FLOAT	Percent Saturation Reading	0 to 199.9%
2202 2502 2802	Get	Channel 1 Channel 2 Channel 3	ppm Reading	FLOAT	Concentration Reading	0 to 30.00 ppm
2204 2504 2804	Get	Channel 1 Channel 2 Channel 3	pO2 Reading	FLOAT	Partial Pressure of Oxygen Reading	0 to 9999 mBar pO2
2206 2506 2806	Get	Channel 1 Channel 2 Channel 3	mmHg Reading	FLOAT	Millimetres of Mercury Reading	0 to 999.9 mmHg
2208 2508 2808	Get	Channel 1 Channel 2 Channel 3	mg/l Reading	FLOAT	Milligrams per Litre Reading	0 to 30.00 mg/l
2210 2510 2810	Get	Channel 1 Channel 2 Channel 3	Probe Current Reading / Probe mV Reading*	FLOAT	Probe Current Reading/ Probe mV Reading* *Royce DO Only*	0 to 4000µA (galvanic) 0 to 500.0nA (polargraphic) 0 to 100.0mV*
2212 2512 2812	Get	Channel 1 Channel 2 Channel 3	Probe Current Reading Units / Probe mV Reading Units****	INT	Probe Current Reading units / Probe mV Reading Units* *Royce DO Only*	750 = Current (µA) 760 = Current (nA) 1105 = mV*
2213 2513 2813	Get	Channel 1 Channel 2 Channel 3	Temperature Reading	FLOAT	Temperature Reading	-50°C to +160°C -58°F to +320°F
2215 2515 2815	Get	Channel 1 Channel 2 Channel 3	Temperature Units	INT	Temperature Reading Units	1040 = °C 1041 = °F
2216 2516 2816	Get	Channel 1 Channel 2 Channel 3	Pressure Reading	FLOAT	Pressure Reading	Atm: 0 to 99.99 Bar: 0 to 99.99 Kpa: 0 to 9999 mH20: 0 to 999.9 psi: 0 to 9999

Dissolved Oxygen Readings Continued						
2218 2518 2818	Get	Channel 1 Channel 2 Channel 3	Pressure Units	INT	Pressure Reading Units	1110 = Atm 1111 = Bar 1112 = Kpa 1113 = mH20 1114 = Psi 1115 = mmHg

Electrodeless Conductivity Readings						
2250 2550 2850	Get	Channel 1 Channel 2 Channel 3	Conductivity Reading	FLOAT	Electrodeless Conductivity Reading	Value depends upon channel range
2252 2552 2852	Get	Channel 1 Channel 2 Channel 3	Conductivity Units	INT	Electrodeless Conductivity Reading Units	300 = µs 400 = mS
2253 2553 2853	Get	Channel 1 Channel 2 Channel 3	TDS Reading*	FLOAT	TDS Reading *(*only available when units set to TDS)*	Value depends upon channel range
2255 2555 2855	Get	Channel 1 Channel 2 Channel 3	TDS Units*	INT	TDS Reading Units *(*only available when units set to TDS)*	500 = ppm 1028 = ppt
2256 2556 2856	Get	Channel 1 Channel 2 Channel 3	Solution Reading*	FLOAT	Solution Reading *(*only available when units set to solution)*	0 to 16.00% NaOH 0 to 30.00% NaCl 0 to 25.00 H2SO4 0 to 15.00% HCl 0 to 25.00% H3PO4 0 to 25.00 %HNO 0 to 41.00 ppt
2258 2558 2858	Get	Channel 1 Channel 2 Channel 3	Solution Units*	INT	Solution Reading Units *(*only available when unit set to solution)*	1029 = %NaOH 1030 = %NaCl 1031 = %H2SO4 1032 = %HCl 1033 = %H3PO4 1034 = %HNO 1035 = ppt 1036 = Custom Units
2259 2559 2859	Get	Channel 1 Channel 2 Channel 3	Custom Curve Units 1st Character	INT	Custom Curve Units 1st Custom Character	Refer To Table1
2260 2560 2860	Get	Channel 1 Channel 2 Channel 3	Custom Curve Units 2nd Character	INT	Custom Curve Units 2nd Custom Character	
2261 2561 2861	Get	Channel 1 Channel 2 Channel 3	Custom Curve Units 3rd Character	INT	Custom Curve Units 3rd Custom Character	
2262 2562 2862	Get	Channel 1 Channel 2 Channel 3	Custom Curve Units 4th Character	INT	Custom Curve Units 4th Custom Character	

Electrodeless Conducitvity Readings Continued						
2263 2563 2863	Get	Channel 1 Channel 2 Channel 3	Custom Curve Units 5th Character	INT	Custom Curve Units 5th Custom Character	Refer To Table1
2264 2564 2864	Get	Channel 1 Channel 2 Channel 3	Custom Curve Units 6th Character	INT	Custom Curve Units 6th Custom Character	
2265 2565 2865	Get	Channel 1 Channel 2 Channel 3	Temperature Reading	FLOAT	Temperature Reading	-50°C to +160°C -58°F to +320°F
2267 2567 2867	Get	Channel 1 Channel 2 Channel 3	Temperature Units	INT	Temperature Reading Units	1040 = °C 1041 = °F

pH / Redox Readings						
2300 2600 2900	Get	Channel 1 Channel 2 Channel 3	pH Reading*	FLOAT	pH Reading *(only available when units set to pH)	0.00 to 14.00 pH
2302 2602 2902	Get	Channel 1 Channel 2 Channel 3	mV Reading	FLOAT	mV Reading	-1999 to +1999 mV
2304 2604 2904	Get	Channel 1 Channel 2 Channel 3	Temperature Reading	FLOAT	Temperature Reading	50.0°C to 160.0 °C or -58.0°F to 320.0 °F or 223.1K to 433.1K
2306 2606 2906	Get	Channel 1 Channel 2 Channel 3	Temperature Units	INT	Temperature Reading Units	1040 = °C 1041 = °F 1042 = K

Suspended Solids / Turbidity Readings						
2350 2650 2950	Get	Channel 1 Channel 2 Channel 3	Suspended Solids/Turbidity Reading	FLOAT	Suspended Solids / Turbidity Reading	Value depends upon channel range
2352 2652 2952	Get	Channel 1 Channel 2 Channel 3	Suspended Solids/Turbidity Units	INT	Suspended Solids / Turbidity Reading Units	1520 = NTU 1521 = FTU 1522 = mg/l 1523 = g/l 1524 = Ppt 1525 = Ppm 1526 = EBC 1527 = OD 1528 = % 1529 = PS
2353 2653 2953	Get	Channel 1 Channel 2 Channel 3	PS Reading	FLOAT	Suspended Solids / Turbidity Probe Signal Reading	0 to 16000 or 0 to 32000

Calculation Readings						
3000 3005	Get	Calc 1 Calc 2	Calculation Result	FLOAT	Calculation Result	Depending upon Calculation Function
3002 3007	Get	Calc 1 Calc 2	Calculation Units	INT	Calculation Result Units	Refer to table 5

Setpoint / Relay Status

Register #	Access Rule	Channel	Name	Data Format	Description of Attribute	Semantics of Values
Setpoint Status						
3100 3150 3200 3250 3300 3350	Get	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Setpoint State	INT	Current State Of Setpoint	0 = Setpoint Not Active 1 = Setpoint Active 2 = Setpoint Initial Charge Active 3 = Setpoint Dose Alarm
3101 3151 3201 3251 3301 3351	Get	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Setpoint Cleaning Position	INT	Current Cleaning Position When setpoint source set to Cleaning	0 = Not Cleaning 1 = Clean Delay 2 = Cleaning 3 = Recovery
3102 3152 3202 3252 3302 3352	Get	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Setpoint Cleaning Type	INT	Current Type Of cleaning When setpoint source set to Cleaning	0 = Regular Cleaning 2 = Digital Input Cleaning 3 = Manual Cleaning
3103 3153 3203 3253 3303 3353	Get	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Setpoint Pulse Proportion Percentage	INT	Setpoint Pulse Proportion Percentage	0 to 100%
3104 3154 3204 3254 3304 3354	Get	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Setpoint Cleaning Hours	INT	Time remaining for the Setpoint Cleaning Interval, (Hours)	0 to 12
3105 3155 3205 3255 3305 3355	Get	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Setpoint Cleaning Minutes	INT	Time remaining for the Setpoint Cleaning Interval, (Minutes)	0 to 59
3106 3156 3206 3256 3306 3356	Get	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Setpoint Cleaning Seconds	INT	Time remaining for the Setpoint Cleaning Interval, (Seconds)	0 to 59

Setpoint Status Continued						
3107 3157 3207 3257 3307 3357	Get	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Setpoint Initial Charge Minutes	INT	Minutes remaining for the Setpoint Initial Charge	0 to 59
3108 3158 3208 3258 3308 3358	Get	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Setpoint Initial Charge Seconds	INT	Seconds remaining for the Setpoint Initial Charge	0 to 59

Current Output Readings

Register #	Access Rule	Channel	Name	Data Format	Description of Attribute	Semantics of Values
Current Output Readings						
4000	Get	Current 1	Current Output	FLOAT	Current Output Reading (in mA)	0 to 20.00ma
4002		Current 2				
4004		Current 3				
4006		Current 4				
4008		Current 5				
4010		Current 6				

Sensor Input Configuration

Register #	Access Rule	Channel	Name	Data Format	Description of Attribute	Semantics of Values
Input Card Serial Number						
4500 5090 5680	Get	Card 1 Card 2 Card 3	Serial Number	LONG	The Serial Number of the input card	0 to 9999999

Auxiliary mA Input Configuration

Auxiliary mA Input Configuration						
4510 5100 5690	Get/Set	Channel 1 Channel 2 Channel 3	Mode	INT	Input Mode Setting	1080 = Online 1081 = Offline
4511 5101 5691	Get/Set	Channel 1 Channel 2 Channel 3	First Units	INT	1st Character Of Units	Refer To Table 1
4512 5102 5692	Get/Set	Channel 1 Channel 2 Channel 3	Second Units	INT	2nd Character Of Units	
4513 5103 5693	Get/Set	Channel 1 Channel 2 Channel 3	Third Units	INT	3rd Character Of Units	
4514 5104 5694	Get/Set	Channel 1 Channel 2 Channel 3	Fourth Units	INT	4th Character Of Units	
4515 5105 5695	Get/Set	Channel 1 Channel 2 Channel 3	Fifth Units	INT	5th Character Of Units	
4516 5106 5696	Get	Channel 1 Channel 2 Channel 3	Sixth Units	INT	6th Character Of Units	
4517 5107 5697	Get/Set	Channel 1 Channel 2 Channel 3	Range	INT	Input Range	1501 = 9.999 1502 = 99.99 1503 = 999.9 1504 = 9999
4518 5108 5698	Get/Set	Channel 1 Channel 2 Channel 3	Loop Mode	INT	Input Loop Mode	1308 = Normal (mA Input) 1309 = Loop (24v Loop)
4519 5109 5699	Get/Set	Channel 1 Channel 2 Channel 3	Input Mode	INT	mA Input Mode	1134 = 4-20mA Output 1135 = 0-20mA Output
4520 5110 5700	Get/Set	Channel 1 Channel 2 Channel 3	0mA Input	FLOAT	0mA Input Value	Value depends upon channel range
4522 5112 5702	Get/Set	Channel 1 Channel 2 Channel 3	4mA Input	FLOAT	4mA Input Value	

Auxiliary mA Input Configuration Continued						
4524 5114 5704	Get/Set	Channel 1 Channel 2 Channel 3	20mA Input	FLOAT	20mA Input Value	Value depends upon channel range
4526 5116 5706	Get/Set	Channel 1 Channel 2 Channel 3	Input Filter	INT	Input Filter	1050 = Filter Out 1051 = 10 Seconds 1052 = 20 Seconds 1053 = 40 Seconds 1054 = 1 Minutes 1055 = 3 Minutes 1056 = 5 Minutes
4527 5117 5707	Get/Set	Channel 1 Channel 2 Channel 3	First Label	INT	1st Character of Channel Description Label	Refer To Table 1
4528 5118 5708	Get/Set	Channel 1 Channel 2 Channel 3	Second Label	INT	2nd Character of Channel Description Label	
4529 5119 5709	Get/Set	Channel 1 Channel 2 Channel 3	Third Label	INT	3rd Character of Channel Description Label	
4530 5120 5710	Get/Set	Channel 1 Channel 2 Channel 3	Fourth Label	INT	4th Character of Channel Description Label	
4531 5121 5711	Get/Set	Channel 1 Channel 2 Channel 3	Fifth Label	INT	5th Character of Description Label	
4532 5122 5712	Get/Set	Channel 1 Channel 2 Channel 3	Sixth Label	INT	6th Character of Description Label	
4533 5123 5713	Get/Set	Channel 1 Channel 2 Channel 3	Seventh Label	INT	7th Character of Description Label	
4534 5124 5714	Get/Set	Channel 1 Channel 2 Channel 3	Eighth Label	INT	8th Character of Description Label	
4535 5125 5715	Get/Set	Channel 1 Channel 2 Channel 3	Ninth Label	INT	9th Character of Description Label	
4536 5126 5716	Get/Set	Channel 1 Channel 2 Channel 3	Tenth Label	INT	10th Character of Description Label	
4537 5127 5717	Get/Set	Channel 1 Channel 2 Channel 3	Eleventh Label	INT	11th Character of Description Label	
4538 5128 5718	Get/Set	Channel 1 Channel 2 Channel 3	Twelfth Label	INT	12th Character of Description Label	
4539 5129 5719	Get/Set	Channel 1 Channel 2 Channel 3	Thirteenth Label	INT	13th Character of Description Label	

Auxiliary mA Input Configuration Continued						
4540 5130 5720	Get/Set	Channel 1 Channel 2 Channel 3	Fourteenth Label	INT	14th Character of Description Label	Refer To Table 1
4541 5131 5721	Get/Set	Channel 1 Channel 2 Channel 3	Fifteenth Label	INT	15th Character of Description Label	
7700 7790 7880	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve A points	INT	Number of Custom Curve A points *(Not Available when input mode set to 4-20mA or 0-20mA)*	2 to 10
7701 7791 7881	Get/Set	Channel 1 Channel 2 Channel 3	Curve A mA Input Point 1	FLOAT	Curve A mA Input Value Point 1 *(Not Available when input mode set to 4-20mA or 0-20mA)*	0 to 20.00ma
7703 7793 7883	Get/Set	Channel 1 Channel 2 Channel 3	Curve A Auxiliary mA Input Point 1	FLOAT	Curve A Auxiliary mA Input Value Point 1 *(Not Available when input mode set to 4-20mA or 0-20mA)*	Value depends upon channel range
7705 7795 7885	Get/Set	Channel 1 Channel 2 Channel 3	Curve A mA Input Value Point 2	FLOAT	Curve A mA Input Value Point 2 *(Not Available when input mode set to 4-20mA or 0-20mA)*	0 to 20.00ma
7707 7797 7887	Get/Set	Channel 1 Channel 2 Channel 3	Curve A Auxiliary mA Input Point 2	FLOAT	Curve A Auxiliary mA Input Value Point 2 *(Not Available when input mode set to 4-20mA or 0-20mA)*	Value depends upon channel range
7709 7799 7889	Get/Set	Channel 1 Channel 2 Channel 3	Curve A mA Input Point 3	FLOAT	Curve A mA Input Value Point 3 *(Not Available when input mode set to 4-20mA or 0-20mA)*	0 to 20.00ma
7711 7801 7891	Get/Set	Channel 1 Channel 2 Channel 3	Curve A Auxiliary mA Input Value Point 3	FLOAT	Curve A Auxiliary mA Input Value Point 3 *(Not Available when input mode set to 4-20mA or 0-20mA)*	Value depends upon channel range
7713 7803 7893	Get/Set	Channel 1 Channel 2 Channel 3	Curve A mA Input Value Point 4	FLOAT	Curve A mA Input Value Point 4 *(Not Available when input mode set to 4-20mA or 0-20mA)*	0 to 20.00ma
7715 7805 7895	Get/Set	Channel 1 Channel 2 Channel 3	Curve A Auxiliary mA Input Value Point 4	FLOAT	Curve A Auxiliary mA Input Value Point 4 *(Not Available when input mode set to 4-20mA or 0-20mA)*	Value depends upon channel range

Auxiliary mA Input Configuration Continued						
7717 7807 7897	Get/Set	Channel 1 Channel 2 Channel 3	Curve A mA Input Value Point 5	FLOAT	Curve A mA Input Value Point 5 *(Not Available when input mode set to 4-20mA or 0-20mA)*	0 to 20.00ma
7719 7809 7899	Get/Set	Channel 1 Channel 2 Channel 3	Curve A Auxiliary Point 5	FLOAT	Curve A Auxiliary mA Input Value Point 5 *(Not Available when input mode set to 4-20mA or 0-20mA)*	Value depends upon channel range
7721 7811 7901	Get/Set	Channel 1 Channel 2 Channel 3	Curve A mA Input Point 6	FLOAT	Curve A mA Input Value Point 6 *(Not Available when input mode set to 4-20mA or 0-20mA)*	0 to 20.00ma
7723 7813 7903	Get/Set	Channel 1 Channel 2 Channel 3	Curve A Auxiliary Point 6	FLOAT	Curve A Auxiliary mA Input Value Point 6 *(Not Available when input mode set to 4-20mA or 0-20mA)*	Value depends upon channel range
7725 7815 7905	Get/Set	Channel 1 Channel 2 Channel 3	Curve A mA Input Point 7	FLOAT	Curve A mA Input Value Point 7 *(Not Available when input mode set to 4-20mA or 0-20mA)*	0 to 20.00ma
7727 7817 7907	Get/Set	Channel 1 Channel 2 Channel 3	Curve A Auxiliary Point 7	FLOAT	Curve A Auxiliary mA Input Value Point 7 *(Not Available when input mode set to 4-20mA or 0-20mA)*	Value depends upon channel range
7729 7819 7909	Get/Set	Channel 1 Channel 2 Channel 3	Curve A mA Input Point 8	FLOAT	Curve A mA Input Value Point 8 *(Not Available when input mode set to 4-20mA or 0-20mA)*	0 to 20.00ma
7731 7821 7911	Get/Set	Channel 1 Channel 2 Channel 3	Curve A Auxiliary Point 8	FLOAT	Curve A Auxiliary mA Input Value Point 8 *(Not Available when input mode set to 4-20mA or 0-20mA)*	Value depends upon channel range
7733 7823 7913	Get/Set	Channel 1 Channel 2 Channel 3	Curve A mA Input Point 9	FLOAT	Curve A mA Input Value Point 9 *(Not Available when input mode set to 4-20mA or 0-20mA)*	0 to 20.00ma
7735 7825 7915	Get/Set	Channel 1 Channel 2 Channel 3	Curve A Auxiliary Point 9	FLOAT	Curve A Auxiliary mA Input Value Point 9 *(Not Available when input mode set to 4-20mA or 0-20mA)*	Value depends upon channel range

Auxiliary mA Input Configuration Continued						
7737 7827 7917	Get/Set	Channel 1 Channel 2 Channel 3	Curve A mA Input Point 10	FLOAT	Curve A mA Input Value Point 10 *(Not Available when input mode set to 4-20mA or 0-20mA)*	0 to 20.00ma
7739 7829 7919	Get/Set	Channel 1 Channel 2 Channel 3	Curve A Auxiliary Point 10	FLOAT	Curve A Auxiliary mA Input Value Point 10 *(Not Available when input mode set to 4-20mA or 0-20mA)*	Value depends upon channel range
7741 7831 7921	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve B points	INT	Number of Custom Curve B points *(Not Available when input mode set to 4-20mA or 0-20mA)*	2 to 10
7742 7832 7922	Get/Set	Channel 1 Channel 2 Channel 3	Curve B mA Input Point 1	FLOAT	Curve B mA Input Value Point 1 *(Not Available when input mode set to 4-20mA or 0-20mA)*	0 to 20.00ma
7744 7834 7924	Get/Set	Channel 1 Channel 2 Channel 3	Curve B Auxiliary Point 1	FLOAT	Curve B Auxiliary mA Input Value Point 1 *(Not Available when input mode set to 4-20mA or 0-20mA)*	Value depends upon channel range
7746 7836 7926	Get/Set	Channel 1 Channel 2 Channel 3	Curve B mA Input Point 2	FLOAT	Curve B mA Input Value Point 2 *(Not Available when input mode set to 4-20mA or 0-20mA)*	0 to 20.00ma
7748 7838 7928	Get/Set	Channel 1 Channel 2 Channel 3	Curve B Auxiliary Point 2	FLOAT	Curve B Auxiliary mA Input Value Point 2 *(Not Available when input mode set to 4-20mA or 0-20mA)*	Value depends upon channel range
7750 7840 7930	Get/Set	Channel 1 Channel 2 Channel 3	Curve B mA Input Point 3	FLOAT	Curve B mA Input Value Point 3 *(Not Available when input mode set to 4-20mA or 0-20mA)*	0 to 20.00ma
7752 7842 7932	Get/Set	Channel 1 Channel 2 Channel 3	Curve B Auxiliary Point 3	FLOAT	Curve B Auxiliary mA Input Value Point 3 *(Not Available when input mode set to 4-20mA or 0-20mA)*	Value depends upon channel range
7754 7844 7934	Get/Set	Channel 1 Channel 2 Channel 3	Curve B mA Input Point 4	FLOAT	Curve B mA Input Value Point 4 *(Not Available when input mode set to 4-20mA or 0-20mA)*	0 to 20.00ma

Auxiliary mA Input Configuration Continued						
7756 7846 7936	Get/Set	Channel 1 Channel 2 Channel 3	Curve B Auxiliary mA Input Point 4	FLOAT	Curve B Auxiliary mA Input Value Point 4 *(Not Available when input mode set to 4-20mA or 0-20mA)*	Value depends upon channel range
7758 7848 7938	Get/Set	Channel 1 Channel 2 Channel 3	Curve B mA Input Point 5	FLOAT	Curve B mA Input Value Point 5 *(Not Available when input mode set to 4-20mA or 0-20mA)*	0 to 20.00ma
7760 7850 7940	Get/Set	Channel 1 Channel 2 Channel 3	Curve B Auxiliary mA Input Point 5	FLOAT	Curve B Auxiliary mA Input Value Point 5 *(Not Available when input mode set to 4-20mA or 0-20mA)*	Value depends upon channel range
7762 7852 7942	Get/Set	Channel 1 Channel 2 Channel 3	Curve B mA Input Point 6	FLOAT	Curve B mA Input Value Point 6 *(Not Available when input mode set to 4-20mA or 0-20mA)*	0 to 20.00ma
7764 7854 7944	Get/Set	Channel 1 Channel 2 Channel 3	Curve B Auxiliary mA Input Point 6	FLOAT	Curve B Auxiliary mA Input Value Point 6 *(Not Available when input mode set to 4-20mA or 0-20mA)*	Value depends upon channel range
7766 7856 7946	Get/Set	Channel 1 Channel 2 Channel 3	Curve B mA Input Point 7	FLOAT	Curve B mA Input Value Point 7 *(Not Available when input mode set to 4-20mA or 0-20mA)*	0 to 20.00ma
7768 7858 7948	Get/Set	Channel 1 Channel 2 Channel 3	Curve B Auxiliary mA Input Point 7	FLOAT	Curve B Auxiliary mA Input Value Point 7 *(Not Available when input mode set to 4-20mA or 0-20mA)*	Value depends upon channel range
7770 7860 7950	Get/Set	Channel 1 Channel 2 Channel 3	Curve B mA Input Point 8	FLOAT	Curve B mA Input Value Point 8 *(Not Available when input mode set to 4-20mA or 0-20mA)*	0 to 20.00ma
7772 7862 7952	Get/Set	Channel 1 Channel 2 Channel 3	Curve B Auxiliary mA Input Point 8	FLOAT	Curve B Auxiliary mA Input Value Point 8 *(Not Available when input mode set to 4-20mA or 0-20mA)*	Value depends upon channel range
7774 7864 7954	Get/Set	Channel 1 Channel 2 Channel 3	Curve B mA Input Point 9	FLOAT	Curve B mA Input Value Point 9 *(Not Available when input mode set to 4-20mA or 0-20mA)*	0 to 20.00ma

Auxiliary mA Input Configuration Continued						
7776 7866 7956	Get/Set	Channel 1 Channel 2 Channel 3	Curve B Auxiliary mA Input Point 9	FLOAT	Curve B Auxiliary mA Input Value Point 9 *(Not Available when input mode set to 4-20mA or 0-20mA)*	Value depends upon channel range
7778 7868 7958	Get/Set	Channel 1 Channel 2 Channel 3	Curve B mA Input Point 10	FLOAT	Curve B mA Input Value Point 10 *(Not Available when input mode set to 4-20mA or 0-20mA)*	0 to 20.00ma
7780 7870 7960	Get/Set	Channel 1 Channel 2 Channel 3	Curve B Auxiliary mA Input Point 10	FLOAT	Curve B Auxiliary mA Input Value Point 10 *(Not Available when input mode set to 4-20mA or 0-20mA)*	Value depends upon channel range

Conventional Conductivity Input Configuration

Conventional Conductivity Configuration						
4580 5170 5770	Get/Set	Channel 1 Channel 2 Channel 3	Mode	INT	Input Mode Setting	1080 = Online 1081 = Offline
4581 5171 5771	Get/Set	Channel 1 Channel 2 Channel 3	Units	INT	Units	1005 = Siemens (S/cm) 1006 = Resistivity (Ω/cm) 1007 = TDS (ppm)
4582 5172 5772	Get/Set	Channel 1 Channel 2 Channel 3	Cell Constant	FLOAT	Cell Constant Value	Siemens (0.00500 to 15.00000) Resistivity (0.00500 to 1.50000) TDS (0.00500 to 15.00000)
4584 5174 5774	Get/Set	Channel 1 Channel 2 Channel 3	Range*	INT	Input Range *(Valid ranges depend upon Units and Cell Constant see Conductivity Manual for more information.)*	1013 = Auto 1014 = 0 - 9.999 µS/cm 1015 = 0 -99.99 µS/cm 1016 = 0 - 999.9 µS/cm 1017 = 0 - 9.999 mS/cm 1018 = 0 - 99.99 mS/cm 1019 = 0 - 999.9 mS/cm 1020 = 0-99.99MΩ/cm 1021 = 0-9.999MΩ/cm 1022 = 0-999.9KΩ/cm 1023 = 0-99.99KΩ/cm 1024 = 0 - 9.999 ppm 1025 = 0 -99.99 ppm 1026 = 0 - 999.9 ppm 1027 = 0 -9999 ppm 1028 = 0 - 99.99 ppt
4585 5175 5775	Get/Set	Channel 1 Channel 2 Channel 3	TDS Factor*	FLOAT	TDS Factor Value *(only available when units set to TDS)*	0.50 to 0.90
4587 5177 5777	Get/Set	Channel 1 Channel 2 Channel 3	Temperature Sensor Type	INT	Temperature Sensor Type	1069 = PT1000 1070 = PT100 1075 = Disabled
4588 5178 5778	Get/Set	Channel 1 Channel 2 Channel 3	Temperature Units	INT	Temperature Units	1040 = °C 1041 = °F
4589 5179 5779	Get/Set	Channel 1 Channel 2 Channel 3	Compensation	INT	Temperature Compensation Mode	1042 = In 1043 = Out
4590 5180 5780	Get/Set	Channel 1 Channel 2 Channel 3	Compensation Base*	INT	Temperature Compensation Base *(only available when temperature compensation set to in)*	1044 = +20°C 1045 = +25°C

Conductivity Configuration Continued						
4591 5181 5781	Get/Set	Channel 1 Channel 2 Channel 3	Compensation Slope*	FLOAT	Temperature Compensation Slope Value *(only available when temperature compensation set to in)*	0 to 9.99%°C
4593 5183 5783	Get/Set	Channel 1 Channel 2 Channel 3	Temperature Mode*	INT	Manual Temperature Mode *(only available when temperature compensation set to in and temperature sensor type not set to disabled)*	1046 = Auto 1047 = Manual
4594 5184 5784	Get/Set	Channel 1 Channel 2 Channel 3	Compensation Input*	FLOAT	Manual Temperature Compensation Input Value *(only available when temperature compensation mode set to manual)*	-20.0 °C to 150.0 °C -4.0°F to 302.0°F
4596 5186 5786	Get/Set	Channel 1 Channel 2 Channel 3	Cable Compensation	FLOAT	Cable Length Compensation Value	0 to 999 Meters
4598 5188 5788	Get/Set	Channel 1 Channel 2 Channel 3	Input Filter	INT	Input Filter (Averaging)	1050 = Filter Out 1051 = 10 Seconds 1052 = 20 Seconds 1053 = 40 Seconds 1054 = 1 Minutes 1055 = 3 Minutes 1056 = 5 Minutes

Dissolved Oxygen Input Configuration

Dissolved Oxygen Configuration						
4650 5240 5840	Get/Set	Channel 1 Channel 2 Channel 3	Mode	INT	Input Mode Setting	1080 = Online 1081 = Offline
4651 5241 5841	Get/Set	Channel 1 Channel 2 Channel 3	Units	INT	Units	1099 = Saturation (%) 1100 = Concentration (ppm) 1101 = pO2 1102 = Mercury (mmHg) 1103 = Concentration (mg/l) 1104 = Current (A)
4652 5242 5842	Get/Set	Channel 1 Channel 2 Channel 3	Probe	INT	Probe Type	1431 = LTH OE15 1432 = BJC Process Probe 1433 = Hamilton 1434 = Royce Do *(Only available when using a Royce DO input Card)* 1435 = Custom Probe
4653 5243 5843	Get/Set	Channel 1 Channel 2 Channel 3	Sensor Type*	INT	Sensor Type **(Only available when Probe Type set to Custom Probe)*	1229 = Galvanic 1230 = Polargraphic
4654 5244 5844	Get/Set	Channel 1 Channel 2 Channel 3	Bias Voltage*	FLOAT	Bias Voltage Value **(Only available when using a Polargraphic sensor)*	-1.000 to 1.000
4656 5246 5846	Get/Set	Channel 1 Channel 2 Channel 3	Membrane Correction Factor	FLOAT	Probe Membrane Correction Factor Value	0 to 9999
4658 5248 5848	Get/Set	Channel 1 Channel 2 Channel 3	Temperature Sensor Type	INT	Temperature Input Sensor	1069 = Pt1000 1070 = Pt100 1072 = LTH 1K 1073 = BJ22K 1074 = Royce 2K252 *(Only available when using a Royce DO input Card)* 1075 = Disabled
4659 5249 5849	Get/Set	Channel 1 Channel 2 Channel 3	Temperature Units	INT	Temperature Units	1040 = °C 1041 = °F

Dissolved Oxygen Configuration Continued						
4660 5250 5850	Get/Set	Channel 1 Channel 2 Channel 3	Temperature Compensation Mode	INT	Temperature Compensation	1046 = Auto 1047 = Manual
4661 5251 5851	Get/Set	Channel 1 Channel 2 Channel 3	Manual Temperature Input*	FLOAT	Manual Temperature Compensation Input Value *(Only available when Temperature Compensation set to manual)*	-20.0 °C to 150.0 °C -4.0°F to 302.0°F
4663 5253 5853	Get/Set	Channel 1 Channel 2 Channel 3	Input Salinity	FLOAT	Input Salinity Compensation Value	0 to 40.00
4665 5255 5855	Get/Set	Channel 1 Channel 2 Channel 3	Pressure Compensation Mode	INT	Pressure Compensation Mode	1107 = Manual 1108 = Auto
4666 5256 5856	Get/Set	Channel 1 Channel 2 Channel 3	Pressure Mode*	INT	Pressure Mode *(Only available when Pressure Compensation Mode set to auto)*	1308 = mA Input 1309 = 24v Loop
4667 5257 5857	Get/Set	Channel 1 Channel 2 Channel 3	Pressure Units	INT	Pressure Units	1110 = Atm 1111 = Bar 1112 = Kpa 1113 = mH20 1114 = Psi 1115 = mmHg
4668 5258 5858	Get/Set	Channel 1 Channel 2 Channel 3	4ma Pressure Setting*	FLOAT	Pressure 4ma Input Value *(Only available when pressure compensation mode set to auto)*	Atm: 0 to 99.99 Bar: 0 to 99.99 Kpa: 0 to 9999 mH20: 0 to 999.9 Psi: 0 to 999.9 mmHg: 0 to 9999
4670 5260 5860	Get/Set	Channel 1 Channel 2 Channel 3	20ma Pressure Setting*	FLOAT	Pressure 20ma Input Value *(Only available when pressure compensation mode set to auto)*	
4672 5262 5862	Get/Set	Channel 1 Channel 2 Channel 3	Pressure Damping*	INT	Pressure Damping *(Only available when pressure compensation mode set to auto)*	1429 = Disabled 1430 = Enabled
4673 5263 5863	Get/Set	Channel 1 Channel 2 Channel 3	Pressure Damping Limit A*	FLOAT	Pressure Damping Limit A Value *(Only available when pressure damping set to enable)*	Atm: 0 to 99.99 Bar: 0 to 99.99 Kpa: 0 to 9999 mH20: 0 to 999.9 Psi: 0 to 999.9 mmHg: 0 to 9999

Dissolved Oxygen Configuration Continued						
4675 5265 5865	Get/Set	Channel 1 Channel 2 Channel 3	Pressure Damping Limit B*	FLOAT	Pressure Damping Limit B Value *(Only available when pressure damping set to enable)*	Atm: 0 to 99.99 Bar: 0 to 99.99 Kpa: 0 to 9999 mH20: 0 to 999.9 Psi: 0 to 999.9 mmHg: 0 to 9999
4677 5267 5867	Get/Set	Channel 1 Channel 2 Channel 3	Input Pressure*	FLOAT	Fixed Input Pressure Value *(Only available when pressure compensation mode set to manual)*	Atm: 0 to 99.99 Bar: 0 to 99.99 Kpa: 0 to 9999 mH20: 0 to 999.9 Psi: 0 to 999.9 mmHg: 0 to 9999
4679 5269 5869	Get/Set	Channel 1 Channel 2 Channel 3	Input Filter	INT	Dissolved Oxygen Input Filter	1050 = Filter Out 1051 = 10 Seconds 1052 = 20 Seconds 1053 = 40 Seconds 1054 = 1 Minutes 1055 = 3 Minutes 1056 = 5 Minutes

Electrodeless Conductivity Input Configuration

Electrodeless Conductivity Configuration						
4730 5320 5920	Get/Set	Channel 1 Channel 2 Channel 3	Mode	INT	Input Mode Setting	1080 = Online 1081 = Offline
4731 5321 5921	Get/Set	Channel 1 Channel 2 Channel 3	Units	INT	Units	1005 = Siemens 1007 = TDS (ppm) 1008 = Solution
4732 5322 5922	Get/Set	Channel 1 Channel 2 Channel 3	Sensor Type	INT	Electrodeless Sensor Type	1180 = ECS20 1181 = ECS40 1182 = ECS48 1183 = Custom
4733 5323 5923	Get/Set	Channel 1 Channel 2 Channel 3	Cell Constant*	FLOAT	Electrodeless Cell Constant Value *(only available when Electrodeless Cell set Custom)*	1.00 to 15.00
4735 5325 5925	Get/Set	Channel 1 Channel 2 Channel 3	Range	INT	Range *(Valid ranges depend upon selected units, see Electrodeless Conductivity manual for more information)*	1013 = Auto 1016 = 0-999.9 µs/cm 1017 = 0-9.999 ms/cm 1018 = 0-99.99 ms/cm 1019 = 0-999.9 ms/cm 1026 = 0-999.9 ppm 1027 = 0-9999 ppm 1028 = 0-99.99 ppt 1029 = %NaOH 1030 = %NaCL 1031 = %H2SO4 1032 = %HCL 1033 = %H3PO4 1034 = %HNO 1035 = Salinity 1036 = Custom 1 1037 = Custom 2
4736 5326 5926	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 1 Conductivity Range	INT	Custom Solution Curve 1 Conductivity Operating Range	1567 = 0-9.999 µS/cm 1568 = 0-99.99 ms/cm 1569 = 0-999.9 ms/cm 1570 = 0-9999 ms/cm
4737 5327 5927	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 1 Points	INT	Number of Points for Custom Solution Curve 1	1 to 9
4738 5328 5928	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 1 First Units	INT	1st Character of Custom Curve 1 Units	Refer To Table 1
4739 5329 5929	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 1 Second Units	INT	2nd Character of Custom Curve 1 Units	

Electrodeless Conductivity Configuration Continued						
4740 5330 5930	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 1 Third Units	INT	3rd Character of Custom Curve 1 Units	Refer To Table 1
4741 5331 5931	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 1 Fourth Units	INT	4th Character of Custom Curve 1 Units	
4742 5332 5932	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 1 Fifth Units	INT	5th Character of Custom Curve 1 Units	
4743 5333 5933	Get	Channel 1 Channel 2 Channel 3	Custom Curve 1 Sixth Units	INT	6th Character of Custom Curve 1 Units	
4744 5334 5934	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 1 Solution Range	INT	Custom Solution Curve 1 Solution Operating Range	1567 = 0-9.999 1568 = 0-99.99 1569 = 0-999.9 1570 = 0-9999
4745 5335 5935	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 1 Conductivity Point 1	FLOAT	Custom Curve 1 Conductivity Point 1 Value	Value Dependant on Custom Curve 1 Conductivity Range
4747 5337 5937	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 1 Solution Point 1	FLOAT	Electrodeless Custom Input 1 Solution Point 1 Value	Value Dependant on Custom Curve 1 Solution Range
4749 5339 5939	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 1 Conductivity Point 2	FLOAT	Custom Curve 1 Conductivity Point 2 Value	Value Dependant on Custom Curve 1 Conductivity Range
4751 5341 5941	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 1 Solution Point 2	FLOAT	Electrodeless Custom Curve 1 Solution Point 2 Value	Value Dependant on Custom Curve 1 Solution Range
4753 5343 5943	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 1 Conductivity Point 3	FLOAT	Custom Curve 1 Conductivity Point 3 Value	Value Dependant on Custom Curve 1 Conductivity Range
4755 5345 5945	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 1 Solution Point 3	FLOAT	Electrodeless Custom Curve 1 Solution Point 3 Value	Value Dependant on Custom Curve 1 Solution Range
4757 5347 5947	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 1 Conductivity Point 4	FLOAT	Custom Curve 1 Conductivity Point 4 Value	Value Dependant on Custom Curve 1 Conductivity Range
4759 5349 5949	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 1 Solution Point 4	FLOAT	Electrodeless Custom Curve 1 Solution Point 4 Value	Value Dependant on Custom Curve 1 Solution Range
4761 5351 5951	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 1 Conductivity Point 5	FLOAT	Custom Curve 1 Conductivity Point 5 Value	Value Dependant on Custom Curve 1 Conductivity Range
4763 5353 5953	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 1 Solution Point 5	FLOAT	Electrodeless Custom Curve 1 Solution Point 5 Value	Value Dependant on Custom Curve 1 Solution Range

Electrodeless Conductivity Configuration Continued						
4765 5355 5955	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 1 Conductivity Point 6	FLOAT	Custom Curve 1 Conductivity Point 6 Value	Value Dependant on Custom Curve 1 Conductivity Range
4767 5357 5957	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 1 Solution Point 6	FLOAT	Electrodeless Custom Curve 1 Solution Point 6 Value	Value Dependant on Custom Curve 1 Solution Range
4769 5359 5959	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 1 Conductivity Point 7	FLOAT	Custom Curve 1 Conductivity Point 7 Value	Value Dependant on Custom Curve 1 Conductivity Range
4771 5361 5961	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 1 Solution Point 7	FLOAT	Electrodeless Custom Curve 1 Solution Point 7 Value	Value Dependant on Custom Curve 1 Solution Range
4773 5363 5963	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 1 Conductivity Point 8	FLOAT	Custom Curve 1 Conductivity Point 8 Value	Value Dependant on Custom Curve 1 Conductivity Range
4775 5365 5965	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 1 Solution Point 8	FLOAT	Electrodeless Custom Curve 1 Solution Point 8 Value	Value Dependant on Custom Curve 1 Solution Range
4777 5367 5967	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 1 Conductivity Point 9	FLOAT	Custom Curve 1 Conductivity Point 9 Value	Value Dependant on Custom Curve 1 Conductivity Range
4779 5369 5969	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 1 Solution Point 9	FLOAT	Electrodeless Custom Curve 1 Solution Point 9 Value	Value Dependant on Custom Curve 1 Solution Range
4781 5371 5971	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 2 Conductivity Range	INT	Custom Solution Curve 2 Conductivity Operating Range	1567 = 0-9.999 µS/cm 1568 = 0-99.99 ms/cm 1569 = 0-999.9 ms/cm 1570 = 0-9999 ms/cm
4782 5372 5972	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 2 Points	INT	Number of Points for Custom Solution Curve 2	1 to 9
4783 5373 5973	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 2 First Units	INT	1st Character of Custom Curve 2 Units	Refer To Table 1
4784 5374 5974	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 2 Second Units	INT	2nd Character of Custom Curve 2 Units	
4785 5375 5975	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 2 Third Units	INT	3rd Character of Custom Curve 2 Units	
4786 5376 5976	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 2 Fourth Units	INT	4th Character of Custom Curve 2 Units	
4787 5377 5977	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 2 Fifth Units	INT	5th Character of Custom Curve 2 Units	
4788 5378 5978	Get	Channel 1 Channel 2 Channel 3	Custom Curve 2 Sixth Units	INT	6th Character of Custom Curve 2 Units	

Electrodeless Conductivity Configuration Continued						
4789 5379 5979	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 2 Solution Range	INT	Custom Solution Curve 2 Solution Operating Range	1567 = 0-9.999 1568 = 0-99.99 1569 = 0-999.9 1570 = 0-9999
4790 5380 5980	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 2 Conductivity Point 1	FLOAT	Custom Curve 2 Conductivity Point 1 Value	Value Dependant on Custom Curve 2 Conductivity Range
4792 5382 5982	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 2 Solution Point 1	FLOAT	Electrodeless Custom Curve 2 Solution Point 1 Value	Value Dependant on Custom Curve 2 Solution Range
4794 5384 5984	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 2 Conductivity Point 2	FLOAT	Custom Curve 2 Conductivity Point 2 Value	Value Dependant on Custom Curve 2 Conductivity Range
4796 5386 5986	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 2 Solution Point 2	FLOAT	Electrodeless Custom Curve 2 Solution Point 2 Value	Value Dependant on Custom Curve 2 Solution Range
4798 5388 5988	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 2 Conductivity Point 3	FLOAT	Custom Curve 2 Conductivity Point 3 Value	Value Dependant on Custom Curve 2 Conductivity Range
4800 5390 5990	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 2 Solution Point 3	FLOAT	Electrodeless Custom Curve 2 Solution Point 3 Value	Value Dependant on Custom Curve 2 Solution Range
4802 5392 5992	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 2 Conductivity Point 4	FLOAT	Custom Curve 2 Conductivity Point 4 Value	Value Dependant on Custom Curve 2 Conductivity Range
4804 5394 5994	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 2 Solution Point 4	FLOAT	Electrodeless Custom Curve 2 Solution Point 4 Value	Value Dependant on Custom Curve 2 Solution Range
4806 5396 5996	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 2 Conductivity Point 5	FLOAT	Custom Curve 2 Conductivity Point 5 Value	Value Dependant on Custom Curve 2 Conductivity Range
4808 5398 5998	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 2 Solution Point 5	FLOAT	Electrodeless Custom Curve 2 Solution Point 5 Value	Value Dependant on Custom Curve 2 Solution Range
4810 5400 6000	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 2 Conductivity Point 6	FLOAT	Custom Curve 2 Conductivity Point 6 Value	Value Dependant on Custom Curve 2 Conductivity Range
4812 5402 6002	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 2 Solution Point 6	FLOAT	Electrodeless Custom Curve 2 Solution Point 6 Value	Value Dependant on Custom Curve 2 Solution Range
4814 5404 6004	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 2 Conductivity Point 7	FLOAT	Custom Curve 2 Conductivity Point 7 Value	Value Dependant on Custom Curve 2 Conductivity Range
4816 5406 6006	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 2 Solution Point 7	FLOAT	Electrodeless Custom Curve 2 Solution Point 7 Value	Value Dependant on Custom Curve 2 Solution Range

Electrodeless Configuration Continued						
4818 5408 6008	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 2 Conductivity Point 8	FLOAT	Custom Curve 2 Conductivity Point 8 Value	Value Dependant on Custom Curve 2 Conductivity Range
4820 5410 6010	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 2 Solution Point 8	FLOAT	Electrodeless Custom Curve 2 Solution Point 8 Value	Value Dependant on Custom Curve 2 Solution Range
4822 5412 6012	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 2 Conductivity Point 9	FLOAT	Custom Curve 2 Conductivity Point 9 Value	Value Dependant on Custom Curve 2 Conductivity Range
4824 5414 6014	Get/Set	Channel 1 Channel 2 Channel 3	Custom Curve 2 Solution Point 9	FLOAT	Electrodeless Custom Curve 2 Solution Point 9 Value	Value Dependant on Custom Curve 2 Solution Range
4826 5416 6016	Get/Set	Channel 1 Channel 2 Channel 3	TDS Factor	FLOAT	TDS Factor Value ** (Only available when Units set to TDS)*	0.50 to 0.90
4828 5418 6018	Get/Set	Channel 1 Channel 2 Channel 3	Temperature Input Sensor	INT	Temperature Input Sensor	1069 = PT1000 1075 = Sensor Disabled
4829 5419 6019	Get/Set	Channel 1 Channel 2 Channel 3	Temperature Units	INT	Temperature Units	1040 = °C 1041 = °F
4830 5420 6020	Get/Set	Channel 1 Channel 2 Channel 3	Temperature Compensation	INT	Temperature Compensation	1042 = In 1043 = Out
4831 5421 6021	Get/Set	Channel 1 Channel 2 Channel 3	Temperature Compensation Base*	INT	Temperature Compensation Base **(Only available when Temperature Compensation set to In)*	1044 = +20°C 1045 = +25°C
4832 5422 6022	Get/Set	Channel 1 Channel 2 Channel 3	Temperature Compensation Slope	FLOAT	Temperature Compensation Slope Value **(Only available when Temperature Compensation set to In)*	0 to 9.99%°C
4834 5424 6024	Get/Set	Channel 1 Channel 2 Channel 3	Temperature Compensation Mode	INT	Temperature Compensation Mode **(only available when temperature compensation set to in and temperature sensor type not set to disabled)*	1046 = Auto 1047 = Manual
4835 5425 6025	Get/Set	Channel 1 Channel 2 Channel 3	Manual Temperature Input*	FLOAT	-4.0°F to 302.0°F **(only available when Temperature Compensation set to In and Temperature Compensation Mode set to Manual)*	-20.0 °C to 150.0 °C

Electrodeless Conductivity Configuration Continued						
4837 5427 6027	Get/Set	Channel 1 Channel 2 Channel 3	Input Filter	INT	Electrodeless Input Filter	1050 = Filter Out 1051 = 10 Seconds 1052 = 20 Seconds 1053 = 40 Seconds 1054 = 1 Minutes 1055 = 3 Minutes 1056 = 5 Minutes

pH / Redox Input Configuration

pH / Redox Configuration						
4890 5480 6080	Get/Set	Channel 1 Channel 2 Channel 3	Mode	INT	Input Mode Setting	1080 = Online 1081 = Offline
4891 5481 6081	Get/Set	Channel 1 Channel 2 Channel 3	Units	INT	Units	1065 = pH (XX.XX) 1066 = Redox(mV) 1067 = Temperature 1068 = pH (XX.XXX)
4892 5482 6082	Get/Set	Channel 1 Channel 2 Channel 3	Probe Type*	INT	Probe Type *(Only available if Units set to pH)*	1067 = Glass 1068 = Antimony
4893 5483 6083	Get/Set	Channel 1 Channel 2 Channel 3	Temperature Sensor	INT	Temperature Input Sensor	1069 = Pt1000 1070 = Pt100 1075 = Disabled *(Unavailable when Units set to Temperature)*
4894 5484 6084	Get/Set	Channel 1 Channel 2 Channel 3	Temperature Units	INT	Temperature Units	1040 = °C 1041 = °F 1042 = K *(Unavailable when Units not set to Temperature)*
4895 5485 6085	Get/Set	Channel 1 Channel 2 Channel 3	Temperature Compensation Mode*	INT	Temperature Compensation Mode *(Only available when pH units chosen)*	1046 = Auto 1047 = Manual
4896 5486 6086	Get/Set	Channel 1 Channel 2 Channel 3	Manual Temperature Input*	FLOAT	Manual Temperature Input Value *(Only Available when Units set to pH and Temperature Compensation Mode is set to Manual)*	-20.0°C to 150.0°C -4.0°F to 302.0°F
4898 5488 6088	Get/Set	Channel 1 Channel 2 Channel 3	Input Filter	INT	Input Filter (Averaging)	1050 = Filter Out 1051 = 10 Seconds 1052 = 20 Seconds 1053 = 40 Seconds 1054 = 1 Minute 1055 = 3 Minute 1056 = 5 Minute

Suspended Solids / Turbidity Input Configuration

Suspended Solids / Turbidity Configuration						
4950 5540 6140	Get/Set	Channel 1 Channel 2 Channel 3	Mode	INT	Input Mode Setting	1080 = Online 1081 = Offline
4951 5541 6141	Get/Set	Channel 1 Channel 2 Channel 3	Units	INT	Units	1520 = NTU 1521 = FTU 1522 = mg/l 1523 = g/l 1524 = ppt 1525 = ppm 1526 = EBC 1527 = OD 1528 = % 1529 = PS
4952 5542 6142	Get/Set	Channel 1 Channel 2 Channel 3	Range	INT	Range *(Not Available when Units Set to PS)*	1536 = 0-9.999 1537 = 0-99.99 1538 = 0-999.9 1539 = 0-9999 1539 = 0-10.00 * 1540 = 0-100.0* **Only available for units %*
4953 5543 6143	Get/Set	Channel 1 Channel 2 Channel 3	Linearisation Source*	INT	Linearisation Curve Source **(Not Available when Units Set to PS)*	1550 = Curve A 1551 = Curve B
4954 5544 6144	Get/Set	Channel 1 Channel 2 Channel 3	Curve A points*	INT	Curve A Number of Points **(Not Available when Units Set to PS)*	2 to 10
4955 5545 6145	Get/Set	Channel 1 Channel 2 Channel 3	Curve A Point 1*	FLOAT	Curve A Point 1 Value **(Not Available when Units Set to PS)*	Value Dependant On Range
4957 5547 6147	Get/Set	Channel 1 Channel 2 Channel 3	Curve A Sensor Point 1*	FLOAT	Curve A Sensor Point 1 Value **(Not Available when Units Set to PS)*	0 to 16000 0 to 32000 (turbidity)
4959 5549 6149	Get/Set	Channel 1 Channel 2 Channel 3	Curve A Point 2*	FLOAT	Curve A Point 2 Value **(Not Available when Units Set to PS)*	Value Dependant On Range
4961 5551 6151	Get/Set	Channel 1 Channel 2 Channel 3	Curve A Sensor Point 2*	FLOAT	Curve A Sensor Point 2 Value **(Not Available when Units Set to PS)*	0 to 16000 0 to 32000 (turbidity)

Suspended Solids / Turbidity Configuration Continued						
4963 5553 6153	Get/Set	Channel 1 Channel 2 Channel 3	Curve A Point 3*	FLOAT	Curve A Point 3 Value *(Not Available when Units Set to PS)*	Value Dependant On Range
4965 5555 6155	Get/Set	Channel 1 Channel 2 Channel 3	Curve A Sensor Point 3*	FLOAT	Curve A Sensor Point 3 Value *(Not Available when Units Set to PS)*	0 to 16000 0 to 32000 (turbidity)
4967 5557 6157	Get/Set	Channel 1 Channel 2 Channel 3	Curve A Point 4*	FLOAT	Curve A Point 4 Value *(Not Available when Units Set to PS)*	Value Dependant On Range
4969 5559 6159	Get/Set	Channel 1 Channel 2 Channel 3	Curve A Sensor Point 4*	FLOAT	Curve A Sensor Point 4 Value *(Not Available when Units Set to PS)*	0 to 16000 0 to 32000 (turbidity)
4971 5561 6161	Get/Set	Channel 1 Channel 2 Channel 3	Curve A Point 5*	FLOAT	Curve A Point 5 Value *(Not Available when Units Set to PS)*	Value Dependant On Range
4973 5563 6163	Get/Set	Channel 1 Channel 2 Channel 3	Curve A Sensor Point 5*	FLOAT	Curve A Sensor Point 5 Value *(Not Available when Units Set to PS)*	0 to 16000 0 to 32000 (turbidity)
4975 5565 6165	Get/Set	Channel 1 Channel 2 Channel 3	Curve A Point 6*	FLOAT	Curve A Point 6 Value *(Not Available when Units Set to PS)*	Value Dependant On Range
4977 5567 6167	Get/Set	Channel 1 Channel 2 Channel 3	Curve A Sensor Point 6*	FLOAT	Curve A Sensor Point 6 Value *(Not Available when Units Set to PS)*	0 to 16000 0 to 32000 (turbidity)
4979 5569 6169	Get/Set	Channel 1 Channel 2 Channel 3	Curve A Point 7*	FLOAT	Curve A Point 7 Value *(Not Available when Units Set to PS)*	Value Dependant On Range
4981 5571 6171	Get/Set	Channel 1 Channel 2 Channel 3	Curve A Sensor Point 7*	FLOAT	Curve A Sensor Point 7 Value *(Not Available when Units Set to PS)*	0 to 16000 0 to 32000 (turbidity)
4983 5573 6173	Get/Set	Channel 1 Channel 2 Channel 3	Curve A Point 8*	FLOAT	Curve A Point 8 Value *(Not Available when Units Set to PS)*	Value Dependant On Range
4985 5575 6175	Get/Set	Channel 1 Channel 2 Channel 3	Curve A Sensor Point 8*	FLOAT	Curve A Sensor Point 8 Value *(Not Available when Units Set to PS)*	0 to 16000 0 to 32000 (turbidity)

Suspended Solids / Turbidity Configuration Continued						
4987 5577 6177	Get/Set	Channel 1 Channel 2 Channel 3	Curve A Point 9*	FLOAT	Curve A Point 9 Value *(Not Available when Units Set to PS)*	Value Dependant On Range
4989 5579 6179	Get/Set	Channel 1 Channel 2 Channel 3	Curve A Sensor Point 9*	FLOAT	Curve A Sensor Point 9 Value *(Not Available when Units Set to PS)*	0 to 16000 0 to 32000 (turbidity)
4991 5581 6181	Get/Set	Channel 1 Channel 2 Channel 3	Curve A Point 10*	FLOAT	Curve A Point 10 Value *(Not Available when Units Set to PS)*	Value Dependant On Range
4993 5583 6183	Get/Set	Channel 1 Channel 2 Channel 3	Curve A Sensor Point 10*	FLOAT	Curve A Sensor Point 10 Value *(Not Available when Units Set to PS)*	0 to 16000 0 to 32000 (turbidity)
4995 5585 6185	Get/Set	Channel 1 Channel 2 Channel 3	Curve B points*	INT	Curve B Number of Points *(Not Available when Units Set to PS)*	2 to 10
4996 5586 6186	Get/Set	Channel 1 Channel 2 Channel 3	Curve B Point 1*	FLOAT	Curve B Point 1 Value *(Not Available when Units Set to PS)*	Value Dependant On Range
4998 5588 6188	Get/Set	Channel 1 Channel 2 Channel 3	Curve B Sensor Point 1*	FLOAT	Curve B Sensor Point 1 Value *(Not Available when Units Set to PS)*	0 to 16000 0 to 32000 (turbidity)
5000 5590 6190	Get/Set	Channel 1 Channel 2 Channel 3	Curve B Point 2*	FLOAT	Curve B Point 2 Value *(Not Available when Units Set to PS)*	Value Dependant On Range
5002 5592 6192	Get/Set	Channel 1 Channel 2 Channel 3	Curve B Sensor Point 2*	FLOAT	Curve B Sensor Point 2 Value *(Not Available when Units Set to PS)*	0 to 16000 0 to 32000 (turbidity)
5004 5594 6194	Get/Set	Channel 1 Channel 2 Channel 3	Curve B Point 3*	FLOAT	Curve B Point 3 Value *(Not Available when Units Set to PS)*	Value Dependant On Range
5006 5596 6196	Get/Set	Channel 1 Channel 2 Channel 3	Curve B Sensor Point 3*	FLOAT	Curve B Sensor Point 3 Value *(Not Available when Units Set to PS)*	0 to 16000 0 to 32000 (turbidity)
5008 5598 6198	Get/Set	Channel 1 Channel 2 Channel 3	Curve B Point 4*	FLOAT	Curve B Point 4 Value *(Not Available when Units Set to PS)*	Value Dependant On Range
5010 5600 6200	Get/Set	Channel 1 Channel 2 Channel 3	Curve B Sensor Point 4*	FLOAT	Curve B Sensor Point 4 Value *(Not Available when Units Set to PS)*	0 to 16000 0 to 32000 (turbidity)

Suspended Solids / Turbidity Configuration Continued						
5012 5602 6202	Get/Set	Channel 1 Channel 2 Channel 3	Curve B Point 5*	FLOAT	Curve B Point 5 Value *(Not Available when Units Set to PS)*	Value Dependant On Range
5014 5604 6204	Get/Set	Channel 1 Channel 2 Channel 3	Curve B Sensor Point 5*	FLOAT	Curve B Sensor Point 5 Value *(Not Available when Units Set to PS)*	0 to 16000 0 to 32000 (turbidity)
5016 5606 6206	Get/Set	Channel 1 Channel 2 Channel 3	Curve B Point 6*	FLOAT	Curve B Point 6 Value *(Not Available when Units Set to PS)*	Value Dependant On Range
5018 5608 6208	Get/Set	Channel 1 Channel 2 Channel 3	Curve B Sensor Point 6*	FLOAT	Curve B Sensor Point 6 Value *(Not Available when Units Set to PS)*	0 to 16000 0 to 32000 (turbidity)
5020 5610 6210	Get/Set	Channel 1 Channel 2 Channel 3	Curve B Point 7*	FLOAT	Curve B Point 7 Value *(Not Available when Units Set to PS)*	Value Dependant On Range
5022 5612 6212	Get/Set	Channel 1 Channel 2 Channel 3	Curve B Sensor Point 7*	FLOAT	Curve B Sensor Point 7 Value *(Not Available when Units Set to PS)*	0 to 16000 0 to 32000 (turbidity)
5024 5614 6214	Get/Set	Channel 1 Channel 2 Channel 3	Curve B Point 8*	FLOAT	Curve B Point 8 Value *(Not Available when Units Set to PS)*	Value Dependant On Range
5026 5616 6216	Get/Set	Channel 1 Channel 2 Channel 3	Curve B Sensor Point 8*	FLOAT	Curve B Sensor Point 8 Value *(Not Available when Units Set to PS)*	0 to 16000 0 to 32000 (turbidity)
5028 5618 6218	Get/Set	Channel 1 Channel 2 Channel 3	Curve B Point 9*	FLOAT	Curve B Point 9 Value *(Not Available when Units Set to PS)*	Value Dependant On Range
5030 5620 6220	Get/Set	Channel 1 Channel 2 Channel 3	Curve B Sensor Point 9*	FLOAT	Curve B Sensor Point 9 Value *(Not Available when Units Set to PS)*	0 to 16000 0 to 32000 (turbidity)
5032 5622 6222	Get/Set	Channel 1 Channel 2 Channel 3	Curve B Point 10*	FLOAT	Curve B Point 10 Value *(Not Available when Units Set to PS)*	Value Dependant On Range
5034 5624 6224	Get/Set	Channel 1 Channel 2 Channel 3	Curve B Sensor Point 10*	FLOAT	Curve B Sensor Point 10 Value *(Not Available when Units Set to PS)*	0 to 16000 0 to 32000 (turbidity)
5036 5626 6226	Get/Set	Channel 1 Channel 2 Channel 3	Input Filter	INT	Suspended Solids Input Filter	1555 = Filter Out 1556 = 1 Second 1557 = 2 Seconds 1558 = 4 Seconds 1559 = 8 Seconds 1560 = 16 Seconds 1561 = 32 Seconds

Calculation Configuration

Calculation Configuration						
6280 6300	Get/Set	Calc 1 Calc 2	Mode	INT	Calculation On or Off	1305 = Off 1306 = On
6281 6301	Get/Set	Calc 1 Calc 2	Variable X	INT	Calculation Variable X	Refer To Table 4 * *Available options depends on Sensors installed in Instrument*
6282 6302	Get/Set	Calc 1 Calc 2	Variable Y	INT	Calculation Variable Y	
6283 6303	Get/Set	Calc 1 Calc 2	Function	INT	Calculation Function	1580 = Difference (X-Y) 1581 = Difference (Y-X) 1582 = Average 1583 = Ratio 1584 = Passage 1585 = Rejection

Sensor Calibration

Register #	Access Rule	Channel	Name	Data Format	Description of Attribute	Semantics of Values

Auxiliary mA Input Calibration

Auxiliary mA Input Calibration						
6500 6880 7260	Get/Set	Channel 1 Channel 2 Channel 3	Calibration Access	INT	Front screen Calibration Access	1076 = Yes 1077 = No
6501 6881 7261	Get/Set	Channel 1 Channel 2 Channel 3	Calibration Reminder	INT	Calibration Reminder	1076 = Yes 1077 = No
6502 6882 7262	Get/Set	Channel 1 Channel 2 Channel 3	Calibration Interval*	FLOAT	Calibration Interval Value *(Only available when Calibration Reminder set to yes)*	0 to 999 Days
6504 6884 7264	Get/Set	Channel 1 Channel 2 Channel 3	Calibration Alarm Date*	INT	Calibration Alarm Date Value *(Only available when Calibration Reminder set to yes)*	1 to 31 Day
6505 6885 7265	Get/Set	Channel 1 Channel 2 Channel 3	Calibration Alarm Month*	INT	Calibration Alarm Month Value *(Only available when Calibration Reminder set to yes)*	1 to 12 Month
6506 6886 7266	Get/Set	Channel 1 Channel 2 Channel 3	Calibration Alarm Year*	INT	Calibration Alarm Year Value *(Only available when Calibration Reminder set to yes)*	0 to 2099 Year
6507 6887 7267	Get	Channel 1 Channel 2 Channel 3	Solution Offset	FLOAT	Sensor Solution Offset Value	Value Dependant On Auxiliary mA Input Range

Conventional Conductivity Input Calibration

Conventional Conductivity Input Calibration						
6550 6930 7310	Get/Set	Channel 1 Channel 2 Channel 3	Cal Access	INT	Front Screen Calibration Access	1076 = Yes 1077 = No
6551 6931 7311	Get/Set	Channel 1 Channel 2 Channel 3	Cal Manual Temperature Input*	FLOAT	Calibration Manual Temperature Input *(Only available when Temperature compensation Mode is set to Manual)*	-20.0°C to 150.0°C -4.0°F to 302.0°F
6553 6933 7313	Get	Channel 1 Channel 2 Channel 3	Reading Slope	FLOAT	Sensor Slope Value	90 to 110%
6555 6935 7315	Get	Channel 1 Channel 2 Channel 3	Temperature Offset*	FLOAT	Temperature Offset Value *(Not available when Temperature Sensor is set to Disabled)*	-25°C to +25°C -13.0°F to 77.0°F
6557 6937 7317	Get/Set	Channel 1 Channel 2 Channel 3	Calibration reminder	INT	Calibration Reminder	1076 = Yes 1077 = No
6558 6938 7318	Get/Set	Channel 1 Channel 2 Channel 3	Calibration Interval*	FLOAT	Calibration Interval Value *(Only available when Calibration Reminder set to yes)*	0 to 999 Days
6560 6940 7320	Get/Set	Channel 1 Channel 2 Channel 3	Calibration Alarm Date*	INT	Calibration Alarm Date Value *(Only available when Calibration Reminder set to yes)*	1 to 31 Day
6561 6941 7321	Get/Set	Channel 1 Channel 2 Channel 3	Calibration Alarm Month*	INT	Calibration Alarm Month Value *(Only available when Calibration Reminder set to yes)*	1 to 12 Month
6562 6942 7322	Get/Set	Channel 1 Channel 2 Channel 3	Calibration Alarm Year*	INT	Conductivity Calibration Alarm Year Value *(Only available when Calibration Reminder set to yes)*	Max 2099 Year

Dissolved Oxygen Input Calibration

Dissolved Oxygen Input Calibration						
6600 6980 7360	Get/Set	Channel 1 Channel 2 Channel 3	Cal Manual Temperature Input*	FLOAT	Calibration Manual Temperature Input *(Only available when Temp Compensation Mode is set to Manual)*	-20.0°C to 150.0°C -4.0°F to 302.0°F
6602 6982 7362	Get/Set	Channel 1 Channel 2 Channel 3	Cal Units	INT	Calibration Units	1099 = %sat 1100 = Ppm 1101 = pO2 1102 = Mmhg 1103 = Mg/litre
6603 6983 7363	Get/Set	Channel 1 Channel 2 Channel 3	Manual Pressure Input*	FLOAT	Manual Pressure Input *(Only available when Pressure Compensation is set to Manual)*	Atm: 0 to 99.99 Bar: 0 to 99.99 Kpa: 0 to 9999 mH20: 0 to 999.9 Psi: 0 to 999.9 mmHg: 0 to 9999
6605 6985 7365	Get/Set	Channel 1 Channel 2 Channel 3	Span Level	FLOAT	Span Calibration Point	%sat: 0 to 999.99 Ppm: 0 to 20 pO2 : 0 to 999.99 Mmhg : 0 to 999.99 Mg/litre : 0 to 20
6607 6987 7367	Get/Set	Channel 1 Channel 2 Channel 3	Auto Span	INT	Enable Auto span Calibration	1076 = Yes 1077 = No
6608 6988 7368	Get	Channel 1 Channel 2 Channel 3	Temperature Offset*	FLOAT	Temperature Offset Value *(Not available when Temperature Sensor is set to Disabled)*	-25°C to +25°C -13.0°F to 77.0°F
6610 6990 7370	Get	Channel 1 Channel 2 Channel 3	Sensor Condition	INT	Sensor Condition	0 = Good 1 = Fault 2 = Span High 3 = Refill
6611 6991 7371	Get/Set	Channel 1 Channel 2 Channel 3	Calibration Access	INT	Front screen Calibration Access	1076 = Yes 1077 = No
6612 6992 7372	Get/Set	Channel 1 Channel 2 Channel 3	Calibration reminder	INT	Calibration Reminder	1076 = Yes 1077 = No
6613 6993 7373	Get/Set	Channel 1 Channel 2 Channel 3	Calibration Interval*	FLOAT	Calibration Interval *(Only available when Calibration Reminder set to yes)*	0 to 999 Days
6615 6995 7375	Get/Set	Channel 1 Channel 2 Channel 3	Calibration Alarm Date*	INT	Calibration Alarm Date Value *(Only available when Calibration Reminder set to yes)*	1 to 31 Day

Dissolved Oxygen Input Calibration Continued						
6616 6996 7376	Get/Set	Channel 1 Channel 2 Channel 3	Calibration Alarm Month*	INT	Calibration Alarm Month Value *(Only available when Calibration Reminder set to yes)*	1 to 12 Month
6617 6997 7377	Get/Set	Channel 1 Channel 2 Channel 3	Calibration Alarm Year*	INT	Dissolved Oxygen Calibration Alarm Year Value *(Only available when Calibration Reminder set to yes)*	Max 2099 Year

Electrodeless Conductivity Input Calibration

Electrodeless Conductivity Input Calibration						
6650 7030 7410	Get/Set	Channel 1 Channel 2 Channel 3	Cal Manual Temperature Input*	FLOAT	Calibration Manual Temperature Input *(Only available when Temperature compensation Mode is set to Manual)*	-20.0°C to 150.0°C -4.0°F to 302.0°F
6652 7032 7412	Get	Channel 1 Channel 2 Channel 3	Reading Slope	FLOAT	Sensor Slope Value	80% to 120%
6654 7034 7414	Get	Channel 1 Channel 2 Channel 3	Temperature Offset*	FLOAT	Temperature Offset Value *(Not available when Temperature Sensor is set to Disabled)*	25°C to +25°C -13.0°F to 77.0°F
6656 7036 7416	Get/Set	Channel 1 Channel 2 Channel 3	Calibration Access	INT	Front screen Calibration Access	1076 = Yes 1077 = No
6657 7037 7417	Get/Set	Channel 1 Channel 2 Channel 3	Calibration reminder	INT	Calibration Reminder	1076 = Yes 1077 = No
6658 7038 7418	Get/Set	Channel 1 Channel 2 Channel 3	Calibration Interval*	FLOAT	Calibration Interval Value *(Only available when Calibration Reminder set to yes)*	0 to 999 Days
6660 7040 7420	Get/Set	Channel 1 Channel 2 Channel 3	Calibration Alarm Date*	INT	Calibration Alarm Date Value *(Only available when Calibration Reminder set to yes)*	1 to 31 Day
6661 7041 7421	Get/Set	Channel 1 Channel 2 Channel 3	Calibration Alarm Month*	INT	Calibration Alarm Month Value *(Only available when Calibration Reminder set to yes)*	1 to 12 Month
6662 7042 7422	Get/Set	Channel 1 Channel 2 Channel 3	Calibration Alarm Year*	INT	Calibration Alarm Year Value *(Only available when Calibration Reminder set to yes)*	Max 2099 Year

pH / Redox Input Calibration

pH / Redox Input Calibration						
6700 7080 7460	Get/Set	Channel 1 Channel 2 Channel 3	Calibration Mode	INT	Calibration Principle	1438 = Auto 1439 = Manual
6701 7081 7461	Get/Set	Channel 1 Channel 2 Channel 3	Manual Temperature Input*	FLOAT	Manual Temperature Input *(Only available when Temperature compensation Mode is set to Manual)*	-20.0°C to 150.0°C -4.0°F to 302.0°F
6703 7083 7463	Get	Channel 1 Channel 2 Channel 3	pH Offset*	FLOAT	pH Reading Offset Value *(Only available when Units is set to pH)*	3 to 11 pH -4 to +4 pH for Antimony
6705 7085 7465	Get	Channel 1 Channel 2 Channel 3	pH Slope*	FLOAT	pH Slope Value *(Only available when Units is set to pH)*	60 to 120%
6707 7087 7467	Get	Channel 1 Channel 2 Channel 3	Redox Offset*	FLOAT	Redox Offset Value *(Only available when Units is set to Redox)*	-400mV to +400mV
6709 7089 7469	Get	Channel 1 Channel 2 Channel 3	Temperature Offset	FLOAT	Temperature Offset Value *(Not available when Temperature Sensor is set to Disabled)*	-25°C to +25°C -13.0°F to 77.0°F
6711 7091 7471	Get	Channel 1 Channel 2 Channel 3	Sensor condition	INT	Sensor Condition	0 = Good 1 = Fault 2 = Span High 3 = Refill
6712 7092 7472	Get/Set	Channel 1 Channel 2 Channel 3	Calibration Access	INT	Front Screen Calibration access	1076 = Yes 1077 = No
6713 7093 7473	Get/Set	Channel 1 Channel 2 Channel 3	Calibration reminder	INT	Calibration Reminder	1076 = Yes 1077 = No
6714 7094 7474	Get/Set	Channel 1 Channel 2 Channel 3	Calibration Interval*	FLOAT	Calibration Interval Value *(Only available when Calibration Reminder set to yes)*	0 to 999 Days
6716 7096 7476	Get/Set	Channel 1 Channel 2 Channel 3	Calibration Alarm Date*	INT	Calibration Alarm Date Value *(Only available when Calibration Reminder set to yes)*	1 to 31 Day
6717 7097 7477	Get/Set	Channel 1 Channel 2 Channel 3	Calibration Alarm Month*	INT	Calibration Alarm Month Value *(Only available when Calibration Reminder set to yes)*	1 to 12 Month

pH / Redox Input Calibration Continued						
6718 7098 7478	Get/Set	Channel 1 Channel 2 Channel 3	Calibration Alarm Year*	INT	Calibration Alarm Year *(Only available when Calibration Reminder set to yes)*	Max 2099 Year
6719 7099 7479	Get/Set	Channel 1 Channel 2 Channel 3	Custom Input Points*	INT	Number of Custom Input Buffer Points *(Only available when Units is set to pH)*	1 to 13 buffer points
6720 7100 7480	Get/Set	Channel 1 Channel 2 Channel 3	Buffer A point 1*	FLOAT	Custom Buffer A Point 1 *(Only available when Units is set to pH)*	0 to 14.00 pH
6722 7102 7482	Get/Set	Channel 1 Channel 2 Channel 3	Buffer B point 1*	FLOAT	Custom Buffer B Point 1 *(Only available when Units is set to pH)*	0 to 14.00 pH
6724 7104 7484	Get/Set	Channel 1 Channel 2 Channel 3	Temperature point 1*	FLOAT	Custom Buffer Point 1 Temperature *(Only available when Units is set to pH)*	-20.0°C to 150.0°C -4.0°F to 302.0°F
6726 7106 7486	Get/Set	Channel 1 Channel 2 Channel 3	Buffer A point 2*	FLOAT	Custom Buffer A Point 2 *(Only available when Units is set to pH)*	0 to 14.00 pH
6728 7108 7488	Get/Set	Channel 1 Channel 2 Channel 3	Buffer B point 2*	FLOAT	Custom Buffer B Point 2 *(Only available when Units is set to pH)*	0 to 14.00 pH
6730 7110 7490	Get/Set	Channel 1 Channel 2 Channel 3	Temperature point 2*	FLOAT	Custom Buffer Point 2 Temperature *(Only available when Units is set to pH)*	-20.0°C to 150.0°C -4.0°F to 302.0°F
6732 7112 7492	Get/Set	Channel 1 Channel 2 Channel 3	Buffer A point 3*	FLOAT	Custom Buffer A Point 3 *(Only available when Units is set to pH)*	0 to 14.00 pH
6734 7114 7494	Get/Set	Channel 1 Channel 2 Channel 3	Buffer B point 3*	FLOAT	Custom Buffer B Point 3 *(Only available when Units is set to pH)*	0 to 14.00 pH
6736 7116 7496	Get/Set	Channel 1 Channel 2 Channel 3	Temperature point 3*	FLOAT	Custom Buffer Point 3 Temperature *(Only available when Units is set to pH)*	-20.0°C to 150.0°C -4.0°F to 302.0°F
6738 7118 7498	Get/Set	Channel 1 Channel 2 Channel 3	Buffer A point 4*	FLOAT	Custom Buffer A Point 4 *(Only available when Units is set to pH)*	0 to 14.00 pH
6740 7120 7500	Get/Set	Channel 1 Channel 2 Channel 3	Buffer B point 4*	FLOAT	Custom Buffer B Point 4 *(Only available when Units is set to pH)*	0 to 14.00 pH
6742 7122 7502	Get/Set	Channel 1 Channel 2 Channel 3	Temperature point 4*	FLOAT	Custom Buffer Point 4 Temperature *(Only available when Units is set to pH)*	-20.0°C to 150.0°C -4.0°F to 302.0°F

pH / Redox Input Calibration Continued						
6744 7124 7504	Get/Set	Channel 1 Channel 2 Channel 3	Buffer A point 5*	FLOAT	Custom Buffer A Point 5 *(Only available when Units is set to pH)*	0 to 14.00 pH
6746 7126 7506	Get/Set	Channel 1 Channel 2 Channel 3	Buffer B point 5*	FLOAT	Custom Buffer B Point 5 *(Only available when Units is set to pH)*	0 to 14.00 pH
6748 7128 7508	Get/Set	Channel 1 Channel 2 Channel 3	Temperature point 5*	FLOAT	Custom Buffer Point 5 Temperature *(Only available when Units is set to pH)*	-20.0°C to 150.0°C -4.0°F to 302.0°F
6750 7130 7510	Get/Set	Channel 1 Channel 2 Channel 3	Buffer A point 6*	FLOAT	Custom Buffer A Point 6 *(Only available when Units is set to pH)*	0 to 14.00 pH
6752 7132 7512	Get/Set	Channel 1 Channel 2 Channel 3	Buffer B point 6*	FLOAT	Custom Buffer B Point 6 *(Only available when Units is set to pH)*	0 to 14.00 pH
6754 7134 7514	Get/Set	Channel 1 Channel 2 Channel 3	Temperature point 6*	FLOAT	Custom Buffer Point 6 Temperature *(Only available when Units is set to pH)*	-20.0°C to 150.0°C -4.0°F to 302.0°F
6756 7136 7516	Get/Set	Channel 1 Channel 2 Channel 3	Buffer A point 7*	FLOAT	Custom Buffer A Point 7 *(Only available when Units is set to pH)*	0 to 14.00 pH
6758 7138 7518	Get/Set	Channel 1 Channel 2 Channel 3	Buffer B point 7*	FLOAT	Custom Buffer B Point 7 *(Only available when Units is set to pH)*	0 to 14.00 pH
6760 7140 7520	Get/Set	Channel 1 Channel 2 Channel 3	Temperature point 7*	FLOAT	Custom Buffer Point 7 Temperature *(Only available when Units is set to pH)*	-20.0°C to 150.0°C -4.0°F to 302.0°F
6762 7142 7522	Get/Set	Channel 1 Channel 2 Channel 3	Buffer A point 8*	FLOAT	Custom Buffer A Point 8 *(Only available when Units is set to pH)*	0 to 14.00 pH
6764 7144 7524	Get/Set	Channel 1 Channel 2 Channel 3	Buffer B point 8*	FLOAT	Custom Buffer B Point 8 *(Only available when Units is set to pH)*	0 to 14.00 pH
6766 7146 7526	Get/Set	Channel 1 Channel 2 Channel 3	Temperature point 8*	FLOAT	Custom Buffer Point 8 Temperature *(Only available when Units is set to pH)*	-20.0°C to 150.0°C -4.0°F to 302.0°F
6768 7148 7528	Get/Set	Channel 1 Channel 2 Channel 3	Buffer A point 9*	FLOAT	Custom Buffer A Point 9 *(Only available when Units is set to pH)*	0 to 14.00 pH
6770 7150 7530	Get/Set	Channel 1 Channel 2 Channel 3	Buffer B point 9*	FLOAT	Custom Buffer B Point 9 *(Only available when Units is set to pH)*	0 to 14.00 pH
6772 7152 7532	Get/Set	Channel 1 Channel 2 Channel 3	Temperature point 9*	FLOAT	Custom Buffer Point 9 Temperature *(Only available when Units is set to pH)*	-20.0°C to 150.0°C -4.0°F to 302.0°F

pH / Redox Input Calibration Continued						
6774 7154 7534	Get/Set	Channel 1 Channel 2 Channel 3	Buffer A point 10*	FLOAT	Custom Buffer A Point 10 *(Only available when Units is set to pH)*	0 to 14.00 pH
6776 7156 7536	Get/Set	Channel 1 Channel 2 Channel 3	Buffer B point 10*	FLOAT	Custom Buffer B Point 10 *(Only available when Units is set to pH)*	0 to 14.00 pH
6778 7158 7538	Get/Set	Channel 1 Channel 2 Channel 3	Temperature point 10*	FLOAT	Custom Buffer Point 10 Temperature *(Only available when Units is set to pH)*	-20.0°C to 150.0°C -4.0°F to 302.0°F
6780 7160 7540	Get/Set	Channel 1 Channel 2 Channel 3	Buffer A point 11*	FLOAT	Custom Buffer A Point 11 *(Only available when Units is set to pH)*	0 to 14.00 pH
6782 7162 7542	Get/Set	Channel 1 Channel 2 Channel 3	Buffer B point 11*	FLOAT	Custom Buffer B Point 11 *(Only available when Units is set to pH)*	0 to 14.00 pH
6784 7164 7544	Get/Set	Channel 1 Channel 2 Channel 3	Temperature point 11*	FLOAT	Custom Buffer Point 11 Temperature *(Only available when Units is set to pH)*	-20.0°C to 150.0°C -4.0°F to 302.0°F
6786 7166 7546	Get/Set	Channel 1 Channel 2 Channel 3	Buffer A point 12*	FLOAT	Custom Buffer A Point 12 *(Only available when Units is set to pH)*	0 to 14.00 pH
6788 7168 7548	Get/Set	Channel 1 Channel 2 Channel 3	Buffer B point 12*	FLOAT	Custom Buffer B Point 12 *(Only available when Units is set to pH)*	0 to 14.00 pH
6790 7170 7550	Get/Set	Channel 1 Channel 2 Channel 3	Temperature point 12*	FLOAT	Custom Buffer Point 12 Temperature *(Only available when Units is set to pH)*	-20.0°C to 150.0°C -4.0°F to 302.0°F
6792 7172 7552	Get/Set	Channel 1 Channel 2 Channel 3	Buffer A point 13*	FLOAT	Custom Buffer A Point 13 *(Only available when Units is set to pH)*	0 to 14.00 pH
6794 7174 7554	Get/Set	Channel 1 Channel 2 Channel 3	Buffer B point 13*	FLOAT	Custom Buffer B Point 13 *(Only available when Units is set to pH)*	0 to 14.00 pH
6796 7176 7556	Get/Set	Channel 1 Channel 2 Channel 3	Temperature point 13*	FLOAT	Custom Buffer Point 13 Temperature *(Only available when Units is set to pH)*	-20.0°C to 150.0°C -4.0°F to 302.0°F

pH / Redox Input Calibration Continued						
6798 7178 7558	Get/Set	Channel 1 Channel 2 Channel 3	Nominal pH Buffer 1	FLOAT	Custom Nominal pH Buffer 1	0.00 to 14.00 pH
6800 7180 7560	Get/Set	Channel 1 Channel 2 Channel 3	Nominal pH Buffer 2	FLOAT	Custom Nominal pH Buffer 2	0.00 to 14.00 pH

Suspended Solids / Turbidity Input Calibration

Suspended Solids / Turbidity Input Calibration						
6830 7210 7590	Get	Channel 1 Channel 2 Channel 3	Offset Zero	FLOAT	Zero Offset Value	
6832 7212 7592	Get	Channel 1 Channel 2 Channel 3	Offset Span	FLOAT	Span Offset Value	
6834 7214 7594	Get/Set	Channel 1 Channel 2 Channel 3	Calibration Access	INT	Front screen Calibration Access	1076 = Yes 1077 = No
6835 7215 7595	Get/Set	Channel 1 Channel 2 Channel 3	Calibration reminder	INT	Calibration Reminder	1076 = Yes 1077 = No
6836 7216 7596	Get/Set	Channel 1 Channel 2 Channel 3	Calibration Interval*	FLOAT	Calibration Interval Value *(Only available when Calibration Reminder set to yes)*	0 to 999 Days
6838 7218 7598	Get/Set	Channel 1 Channel 2 Channel 3	Calibration Alarm Date*	INT	Calibration Alarm Date Value *(Only available when Calibration Reminder set to yes)*	1 to 31 Day
6839 7219 7599	Get/Set	Channel 1 Channel 2 Channel 3	Calibration Alarm Month*	INT	Calibration Alarm Month Value *(Only available when Calibration Reminder set to yes)*	1 to 12 Month
6840 7220 7600	Get/Set	Channel 1 Channel 2 Channel 3	Calibration Alarm Year*	INT	Calibration Alarm Year Value *(Only available when Calibration Reminder set to yes)*	Max 2099 Year

Setpoint Configuration

Register #	Access Rule	Setpoint	Name	Data Format	Description of Attribute	Semantics of Values
Setpoint Configuration						
8000 8080 8160 8240 8320 8410	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Channel	INT	Assigned Input Channel	1159 = Disabled 1160 = Channel 1 1161 = Channel 2 1162 = Channel 3 1163 = Unit Alarm 1164 = Calculation 1 1165 = Calculation 2
8001 8081 8161 8241 8321 8411	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Source	INT	Input Source	1166 = Sensor 1167 = Temperature 1168 = Pressure 1169 = Alarm 1170 = Cleaning
8002 8082 8162 8242 8322 8412	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Range*	INT	Range **(Only available when the range of Assigned Input Channel is set to Auto)*	Refer To Tables 2 and 3 and Sensor Configuration Manuals
8003 8083 8163 8243 8323 8413	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Trigger	INT	Trigger	1173 = High 1174 = Low 1175 = Band 1176 = Latch High 1177 = Latch Low 1178 = USP* 1179 = USP Pre-Trigger* **(only available for Conductivity)*
8004 8084 8164 8244 8324 8414	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Usp Pre-Trigger*	FLOAT	USP Pre-Trigger Value **(Only available for Conductivity)*	0.000µS/cm to 9.999µS/cm
8006 8086 8166 8246 8326 8416	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	High Value*	FLOAT	Trigger High Value **(Not available when Trigger is set to Low)*	Value depends on input channel assigned to

Setpoint Configuration Continued						
8008 8088 8168 8248 8328 8418	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Low Value*	FLOAT	Trigger Low Value *(Not available when Trigger is set to High)*	Value depends on input channel assigned to
8010 8090 8170 8250 8330 8420	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Units	INT	Trigger Value Units	Refer to Table 5
8011 8091 8171 8251 8331 8421	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Mode*	INT	Mode *(Only available when Trigger is set to High or Low)*	1156 = On/Off 1157 = Pulse Proportional 1158 = Time Proportional
8012 8092 8172 8252 8332 8422	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Cycle Time*	INT	Minutes element for Setpoint Cycle Time *(Only available when Mode is set to Time Proportional)*	0 to 59 Minutes
8013 8093 8173 8253 8333 8423	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Cycle Time*	INT	Seconds element for Setpoint Cycle Time *(Only available when Mode is set to Time Proportional)*	0 to 59 Seconds
8014 8094 8174 8254 8334 8424	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Prop Band*	FLOAT	Proportion Band Size Value *(Not available when Mode is set to On/Off)*	Value depends on input channel assigned to
8016 8096 8176 8256 8336 8426	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Delay Time Minutes*	INT	Minutes element for Setpoint Delay Time *(Only available when Mode is set to On/Off)*	0 to 59 Minutes
8017 8097 8177 8257 8337 8427	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Delay Time Seconds*	INT	Seconds element for Setpoint Delay Time *(Only available when Mode is set to On/Off)*	0 to 59 Seconds

Setpoint Configuration Continued						
8018 8098 8178 8258 8338 8428	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Hysteresis*	FLOAT	Setpoint Hysteresis Value *(Only available when Mode is set to On/Off)*	0 to 99.99%
8025 8105 8185 8265 8345 8435	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Dose Alarm	INT	Dose Alarm	1076 = Yes 1077 = No
8026 8106 8186 8266 8346 8436	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Alarm Time – Minutes*	INT	Minutes element for Dose Alarm Time *(Only available when Dose Alarm set to yes)*	0 to 59 Minutes
8027 8107 8187 8267 8347 8437	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Dose Alarm Time – Seconds*	INT	Seconds element for Dose Alarm Time *(Only available when Dose Alarm set to yes)*	0 to 59 Seconds
8028 8108 8188 8268 8348 8438	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Initial Charge*	INT	Initial Charge *(Only available when Dose Alarm set to yes)*	1076 = Yes 1077 = No
8029 8109 8189 8269 8349 8439	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Charge Time – Minutes*	INT	Minutes element for Initial Charge Time *(Only available when Initial Charge set to yes)*	0 to 59 Minutes
8030 8110 8190 8270 8350 8440	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Charge Time – Seconds*	INT	Seconds element for Initial Charge Time *(Only available when Initial Charge set to yes)*	0 to 59 Seconds
8031 8111 8191 8271 8351 8441	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Charge Access	INT	Initial Charge Front Screen Access *(Only available when Initial Charge set to yes)*	1076 = Yes 1077 = No

Setpoint Configuration Continued						
8035 8115 8195 8275 8355 8445	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Channel Alarm Condition*	INT	Alarm mode *(Only Available when Input Source is set to Alarm)*	1137 = Disabled 1138 = Sensor Error 1139 = Dose Alarm 1140 = Calibration 1141 = Offline 1142 = Any Error 1143 = Cleaning 1144 = Calibration Due 1145 = Gain Error
8040 8120 8200 8280 8360 8450	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Cleaning Duration – Minutes*	INT	Minutes element for Cleaning Duration *(Only Available when Input Source is set to Cleaning)*	0 to 10 Minutes
8041 8121 8201 8281 8361 8451	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Cleaning Duration – Seconds*	INT	Seconds element for Setpoint Cleaning Duration *(Only Available when Input Source is set to Cleaning)*	0 to 59 Seconds (Min 5 Seconds when minutes is 0)
8042 8122 8202 8282 8362 8452	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Cleaning Interval – Hours*	INT	Hours element for Cleaning Interval Time *(Only Available when Input Source is set to Cleaning)*	0 to 23 hours
8043 8123 8203 8283 8363 8453	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Cleaning Interval – Minutes*	INT	Minutes element for Cleaning Interval Time *(Only Available when Input Source is set to Cleaning)*	0 to 59 minutes (Min 1 Minutes when hours is 0)
8044 8124 8204 8284 8364 8454	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Cleaning Mode*	INT	Setpoint Cleaning Mode *(Only Available when Input Source is set to Cleaning)*	1080 = Online 1081 = Offline
8045 8125 8205 8285 8365 8455	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Cleaning Recovery – Minutes*	INT	Minutes element for Setpoint Cleaning Recovery Time *(Only available when Cleaning Mode set to Offline)*	0 to 10 minutes

Setpoint Configuration Continued						
8046 8126 8206 8286 8366 8456	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Cleaning Recovery – Seconds	INT	Seconds element for Cleaning Recovery Time *(Only available when Cleaning Mode set to Offline)*	0 to 59 minutes
8047 8127 8207 8287 8367 8457	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Cleaning Delay	INT	Cleaning Delay	1076 = Yes 1077 = No
8050 8130 8210 8290 8370 8460	Get/Set	Setpoint 1 Setpoint 2 Setpoint 3 Setpoint 4 Setpoint 5 Setpoint 6	Unit Alarm Condition*	INT	Alarm Mode *(Only Available when Channel is set to Unit Alarm)*	1137 = Disabled 1138 = Sensor Error 1139 = Dose Alarm 1140 = Calibration 1141 = Offline 1142 = Any Error 1143 = Cleaning 1144 = Calibration Due 1145 = Gain error 1146 = Power Failure

Current Output Configuration

Register #	Access Rule	Current Output	Name	Data Format	Description of Attribute	Semantics of Values
Current Output Configuration						
9100 9150 9200 9250 9300 9350	Get/Set	Output A Output B Output C Output D Output E Output F	Channel	INT	Assigned Input Channel	1159 = Disabled 1160 = Channel 1 1161 = Channel 2 1162 = Channel 3 1163 = Unit Alarm 1164 = Calculation 1 1165 = Calculation 2
9101 9151 9201 9251 9301 9351	Get/Set	Output A Output B Output C Output D Output E Output F	Source	INT	Input Source	1166 = Sensor 1167 = Temperature 1168 = Pressure
9102 9152 9202 9252 9302 9352	Get/Set	Output A Output B Output C Output D Output E Output F	Output	INT	Output Mode	1134 = 4-20mA 1135 = 0-20mA
9103 9153 9203 9253 9303 9353	Get/Set	Output A Output B Output C Output D Output E Output F	Range*	INT	Range **(Only available when the range of Assigned Input Channel is set to Auto)*	Refer To Tables 2 and 3 and Sensor Configuration Manuals
9104 9154 9204 9254 9304 9354	Get/Set	Output A Output B Output C Output D Output E Output F	On Error Action	INT	On Error Action	1130 = No Action 1131 = Drive To 0mA 1132 = Drive To 22mA 1133 = Hold Level 1134 = Drive to 4mA
9105 9155 9205 9255 9305 9355	Get/Set	Output A Output B Output C Output D Output E Output F	Output Zero	FLOAT	Zero Equivalent Value	Value depends on input channel assigned to
9107 9157 9207 9257 9307 9357	Get/Set	Output A Output B Output C Output D Output E Output F	Output Span	FLOAT	Current Output Span Equivalent Value	Value depends on input channel assigned to

Current Output Configuration Continued						
9109 9159 9209 9259 9309 9359	Get	Output A Output B Output C Output D Output E Output F	Units	INT	Current Output Value Units	Refer to Table 5

Digital Input Configuration

Register #	Access Rule	Current Output	Name	Data Format	Description of Attribute	Semantics of Values
Digital Input Configuration						
9500 9520 9540 9560 9580 9600 9620 9640	Get/Set	Digital IP 1 Digital IP 2 Digital IP 3 Digital IP 4 Digital IP 5 Digital IP 6 Digital IP 7 Digital IP 8	Channel	INT	Assigned Input Channel	1159 = Disabled 1160 = Channel 1 1161 = Channel 2 1162 = Channel 3 1163 = Whole Unit
9501 9521 9541 9561 9581 9601 9621 9641	Get/Set	Digital IP 1 Digital IP 2 Digital IP 3 Digital IP 4 Digital IP 5 Digital IP 6 Digital IP 7 Digital IP 8	Function	INT	Function	1280 = Offline 1281 = Cleaning 1282 = Range Changing 1283 = Switch Setup 1284 = Interlock 1285 = Flow Switch Input 1286 = Tank Level Switch 1287 = Calibration 1288 = Initial Charge 1289 = CIP
9502 9522 9542 9562 9582 9602 9622 9642	Get/Set	Digital IP 1 Digital IP 2 Digital IP 3 Digital IP 4 Digital IP 5 Digital IP 6 Digital IP 7 Digital IP 8	Store*	INT	Switch Setup Store **(Only available when Function is set to Switch Setup)*	1300 = Store A 1301 = Store B
9503 9523 9543 9563 9583 9603 9623 9643	Get/Set	Digital IP 1 Digital IP 2 Digital IP 3 Digital IP 4 Digital IP 5 Digital IP 6 Digital IP 7 Digital IP 8	Polarity	INT	Digital Input Operating Polarity	1298 = Normally Open 1299 = Normally Closed
9504 9524 9544 9564 9584 9604 9624 9644	Get/Set	Digital IP 1 Digital IP 2 Digital IP 3 Digital IP 4 Digital IP 5 Digital IP 6 Digital IP 7 Digital IP 8	Range*	INT	Digital Input Switched Range **(Only available when Function is set to Range Changing)*	Refer To Tables 2 and 3 and Sensor Configuration Manuals

Digital Input Configuration Continued						
9505 9525 9545 9565 9585 9605 9625 9645	Get/Set	Digital IP 1 Digital IP 2 Digital IP 3 Digital IP 4 Digital IP 5 Digital IP 6 Digital IP 7 Digital IP 8	Current Output Level	INT	Digital Input Offline Current Output Drive Level *(Not available when Function is set to Switch Setup or Range Changing)*	1130 = No Action 1131 = Drive To 0mA 1132 = Drive To 22mA 1133 = Hold Level 1134 = Drive to 4mA
9506 9526 9546 9566 9586 9606 9626 9646	Get/Set	Digital IP 1 Digital IP 2 Digital IP 3 Digital IP 4 Digital IP 5 Digital IP 6 Digital IP 7 Digital IP 8	Setpoint*	INT	Digital Input Setpoint *(Only available when Function is set to Cleaning or Initial Charge)*	1147 = Setpoint None 1148 = Setpoint 1 1149 = Setpoint 2 1150 = Setpoint 3 1151 = Setpoint 4 1152 = Setpoint 5 1153 = Setpoint 6

Display Configuration

Register #	Access Rule	Channel	Name	Data Format	Description of Attribute	Semantics of Values
Front Screen Configuration						
9700 9850 10000	Get/Set	Channel 1 Channel 2 Channel 3	Channel Shown	INT	Channel Shown	1402 = Channel 1 Yes 1405 = Channel 1 No 1403 = Channel 2 Yes 1405 = Channel 2 No 1404 = Channel 3 Yes 1405 = Channel 3 No
9701 9851 10001	Get/Set	Channel 1 Channel 2 Channel 3	Character 1	INT	Label 1st Character	Refer To Table 1 (excluding symbols)
9702 9852 10002	Get/Set	Channel 1 Channel 2 Channel 3	Character 2	INT	Label 2nd Character	
9703 9853 10003	Get/Set	Channel 1 Channel 2 Channel 3	Character 3	INT	Label 3rd Character	
9704 9854 10004	Get/Set	Channel 1 Channel 2 Channel 3	Character 4	INT	Label 4th Character	
9705 9855 10005	Get/Set	Channel 1 Channel 2 Channel 3	Character 5	INT	Label 5th Character	
9706 9856 10006	Get/Set	Channel 1 Channel 2 Channel 3	Character 6	INT	Label 6th Character	
9707 9857 10007	Get/Set	Channel 1 Channel 2 Channel 3	Character 7	INT	Label 7th Character	
9708 9858 10008	Get	Channel 1 Channel 2 Channel 3	Character 8	INT	Label 8th Character	
Auxiliary mA Inout Front Screen Secondary Reading Configuration						
9720 9870 10020	Get/Set	Channel 1 Channel 2 Channel 3	Secondary reading 1	INT	Secondary reading 1	Refer To Table 6
9721 9871 10021	Get/Set	Channel 1 Channel 2 Channel 3	Secondary reading 2	INT	Secondary reading 2	

Conventional Conductivity Front Screen Secondary Reading Configuration						
9730 9880 10030	Get/Set	Channel 1 Channel 2 Channel 3	Secondary reading 1	INT	Secondary reading 1	Refer To Table 6
9731 9881 10031	Get/Set	Channel 1 Channel 2 Channel 3	Secondary reading 2	INT	Secondary reading 2	

Dissolved Oxygen Front Screen Secondary Reading Configuration						
9740 9890 10040	Get/Set	Channel 1 Channel 2 Channel 3	Secondary reading 1	INT	Secondary reading 1	Refer To Table 6
9741 9891 10041	Get/Set	Channel 1 Channel 2 Channel 3	Secondary reading 2	INT	Secondary reading 2	Refer To Table 6

Electrodeless Front Screen Secondary Reading Configuration						
9750 9900 10050	Get/Set	Channel 1 Channel 2 Channel 3	Secondary reading 1	INT	Secondary reading 1	Refer To Table 6
9751 9901 10051	Get/Set	Channel 1 Channel 2 Channel 3	Secondary reading 2	INT	Secondary reading 2	

pH Front Screen Secondary Reading Configuration						
9760 9910 10060	Get/Set	Channel 1 Channel 2 Channel 3	Secondary reading 1	INT	Secondary reading 1	Refer To Table 6
9761 9911 10061	Get/Set	Channel 1 Channel 2 Channel 3	Secondary reading 2	INT	Secondary reading 2	

Suspended Solids Front Screen Secondary Reading Configuration						
9770 9920 10070	Get/Set	Channel 1 Channel 2 Channel 3	Secondary reading 1	INT	Secondary reading 1	Refer To Table 6
9771 9921 10071	Get/Set	Channel 1 Channel 2 Channel 3	Secondary reading 2	INT	Secondary reading 2	

Front Screen Calculation Configuration						
10150 10220	Get/Set	Calc 1 Calc 2	Calculation Shown	INT	Calculation Shown	1076 = Yes 1077 = No
10151 10221	Get/Set	Calc 1 Calc 2	Character 1	INT	Label First Character	Refer To Table1 (excluding symbols)
10152 10222	Get/Set	Calc 1 Calc 2	Character 2	INT	Label Second Character	
10153 10223	Get/Set	Calc 1 Calc 2	Character 3	INT	Label Third Character	
10154 10224	Get/Set	Calc 1 Calc 2	Character 4	INT	Label Fourth Character	
10155 10225	Get/Set	Calc 1 Calc 2	Character 5	INT	Label Fifth Character	
10156 10226	Get/Set	Calc 1 Calc 2	Character 6	INT	Label Sixth Character	Refer To Table1 (excluding symbols)
10157 10227	Get/Set	Calc 1 Calc 2	Character 7	INT	Label Seventh Character	
10158 10228	Get	Calc 1 Calc 2	Character 8	INT	Label Eighth Character	

Calculation Front Screen Secondary Reading Configuration						
10170 10240	Get/Set	Calc 1 Calc 2	Secondary reading 1	INT	Front Screen Secondary reading 1	1356 = Clear 1357 = Current Output A
10171 10241	Get/Set	Calc 1 Calc 2	Secondary reading 2	INT	Front Screen Secondary reading 2	1358 = Current Output B 1359 = Current Output C 1360 = Current Output D 1361 = Current Output E 1362 = Current Output F

Current Output Front Screen Configuration						
10300 10301	Get/Set	Trend 1 Trend 2	Current Output Front Screen	INT	Current Output Front Screen Configuration **(Not available when more than one channel or calculation is currently being shown)*	1213 = Disabled 1214 = Current Output A 1215 = Current Output B 1216 = Current Output C 1217 = Current Output D 1218 = Current Output E 1219 = Current Output F

Menu Header Configuration						
10400	Get/Set	Header 1	Menu Header	INT	Menu Header configuration	Refer To Table 6
10401		Header 2				
10402		Header 3				
10403		Header 4				
10404		Header 5				
10405		Header 6				

Data Logging Configuration

Register #	Access Rule	Name	Data Format	Description of Attribute	Semantics of Values
SD Card Data logging Configuration					
10500	Get	Status	INT	Data logging Status	1076 = Logging Data 1077 = Not Logging Data
10501	Get/Set	Interval Hours	INT	Data logging Interval (Hours)	0 to 23 Hours
10502	Get/Set	Interval Minutes	INT	Data logging Interval (Minutes)	0 to 59 Minutes
10503	Get/Set	Interval Seconds	INT	Data logging Interval (Seconds)	0 to 59 Seconds
10504	Get/Set	Data log Channel 1	INT	Channel 1 Log	1695 = Enabled 1696 = Disabled
10505	Get/Set	Data log Range 1*	INT	Channel 1 Range **(Only available when the range of the Input Channel is set to Auto)*	Refer To Tables 2 and 3 and Sensor Configuration Manuals
10506	Get/Set	Data log Channel 2	INT	Channel 2 Log	1695 = Enabled 1696 = Disabled
10507	Get/Set	Data log Range 2*	INT	Channel 2 Range **(Only available when the range of the Input Channel is set to Auto)*	Refer To Tables 2 and 3 and Sensor Configuration Manuals
10508	Get/Set	Data log Channel 3	INT	Channel 3 Log	1695 = Enabled 1696 = Disabled
10509	Get/Set	Data log Range 3	INT	Channel 3 Range **(Only available when the range of the Input Channel is set to Auto)*	Refer To Tables 2 and 3 and Sensor Configuration Manuals
10510	Get/Set	Data logging Calculation 1	INT	Calculation 1 Log	1695 = Enabled 1696 = Disabled
10511	Get/Set	Calculation 1 Range*	INT	Calculation 1 Range **(Only available when the channels associated with the calculation been set to Auto Range)*	Refer To Tables 2 and 3 and Sensor Configuration Manuals
10512	Get/Set	Data logging Calculation 1	INT	Calculation 2 Log	1695 = Enabled 1696 = Disabled
10513	Get/Set	Calculation 2 Range*	INT	Calculation 2 Range **(Only available when the channels associated with the calculation been set to Auto Range)*	Refer To Tables 2 and 3 and Sensor Configuration Manuals
10514	Get/Set	Loop Recording	INT	Loop recording	1076 = Enabled 1077 = Disabled

Data logging Live Trend Configuration						
10520 10545 10570	Get/Set	Trend 1 Trend 2 Trend 3	Traces	INT	Traces Configuration	1690 = None 1691 = 1 Trace 1692 = 2 Traces
10521 10546 10571	Get/Set	Trend 1 Trend 2 Trend 3	Interval Hours	INT	Trend Interval Minutes	0 to 23 Hours
10522 10547 10572	Get/Set	Trend 1 Trend 2 Trend 3	Interval Minutes	INT	Trend Interval Minutes	0 to 59 Minutes
10523 10548 10573	Get/Set	Trend 1 Trend 2 Trend 3	Interval Seconds	INT	Trend Interval Seconds	0 to 59 Seconds
10524 10549 10574	Get/Set	Trend 1 Trend 2 Trend 3	Primary Variable	INT	Trace 1 (Left hand axis)	Refer to Table 4
10525 10550 10575	Get/Set	Trend 1 Trend 2 Trend 3	Primary Range	INT	Trace 1 Range **(Only available when the associated variable has been set to Auto Range)*	Refer To Tables 2 and 3 and Sensor Configuration Manuals
10526 10551 10576	Get/Set	Trend 1 Trend 2 Trend 3	Primary Start Number	FLOAT	Trace 1 Minimum Value	Value Dependant on Primary Variable
10528 10553 10578	Get/Set	Trend 1 Trend 2 Trend 3	Primary End Number	FLOAT	Trace 1 Maximum Value	
10530 10555 10580	Get/Set	Trend 1 Trend 2 Trend 3	Secondary Variable	INT	Trace 2 (Right hand axis)	Refer to Table 4
10531 10556 10581	Get/Set	Trend 1 Trend 2 Trend 3	Secondary Range	INT	Trace 2 Range **(Only available when the associated variable has been set to Auto Range)*	Refer To Tables 2 and 3 and Sensor Configuration Manuals
10532 10557 10583	Get/Set	Trend 1 Trend 2 Trend 3	Secondary Start Number	FLOAT	Trace 2 Minimum Value	Value Dependant on Secondary Variable
10534 10559 10585	Get/Set	Trend 1 Trend 2 Trend 3	Secondary End Number	FLOAT	Trace 2 Maximum Value	

Service Configuration

Register #	Access Rule	Channel	Name	Data Format	Description of Attribute	Semantics of Values
Service Reminder						
10700 10701 10702	Get	Channel 1 Channel 2 Channel 3	Service reminder	INT	Service Reminder	1076 = Yes 1077 = No
Auxiliary mA Input Service Alarm Configuration						
10710 10780 10850	Get	Channel 1 Channel 2 Channel 3	Service Interval*	FLOAT	Service Interval Value **(Only available when* Service *Reminder set to yes)*	0 to 999 Days
10712 10782 10852	Get	Channel 1 Channel 2 Channel 3	Service Alarm Date*	INT	Service Alarm Date Value **(Only available when* Service *Reminder set to yes)*	1 to 31 Day
10713 10783 10853	Get	Channel 1 Channel 2 Channel 3	Service Alarm Month*	INT	Service Alarm Month Value **(Only available when* Service *Reminder set to yes)*	1 to 12 Month
10714 10784 10854	Get	Channel 1 Channel 2 Channel 3	Service Alarm Year*	INT	Service Alarm Year Value **(Only available when* Service *Reminder set to yes)*	0 to 2099 Year
Conventional Conductivity Service Alarm Configuration						
10720 10790 10860	Get	Channel 1 Channel 2 Channel 3	Service Interval*	FLOAT	Service Interval Value **(Only available when* Service *Reminder set to yes)*	0 to 999 Days
10722 10792 10862	Get	Channel 1 Channel 2 Channel 3	Service Alarm Date*	INT	Service Alarm Date Value **(Only available when* Service *Reminder set to yes)*	1 to 31 Day
10723 10793 10863	Get	Channel 1 Channel 2 Channel 3	Service Alarm Month*	INT	Service Alarm Month Value **(Only available when* Service *Reminder set to yes)*	1 to 12 Month
10724 10794 10864	Get	Channel 1 Channel 2 Channel 3	Service Alarm Year*	INT	Service Alarm Year Value **(Only available when* Service *Reminder set to yes)*	Max 2099 Year

Dissolved Oxygen Service Alarm Configuration						
10730 10800 10870	Get	Channel 1 Channel 2 Channel 3	Service Interval*	FLOAT	Service Interval Value *(Only available when Service Reminder set to yes)*	0 to 999 Days
10732 10802 10872	Get	Channel 1 Channel 2 Channel 3	Service Alarm Date*	INT	Service Alarm Date Value *(Only available when Service Reminder set to yes)*	1 to 31 Day
10733 10803 10873	Get	Channel 1 Channel 2 Channel 3	Service Alarm Month*	INT	Service Alarm Month Value *(Only available when Service Reminder set to yes)*	1 to 12 Month
10734 10804 10874	Get	Channel 1 Channel 2 Channel 3	Service Alarm Year*	INT	Service Alarm Year Value *(Only available when Service Reminder set to yes)*	Max 2099 Year

Electrodeless Conductivity Service Alarm Configuration						
10740 10810 10880	Get	Channel 1 Channel 2 Channel 3	Service Interval*	FLOAT	Service Interval Value *(Only available when Service Reminder set to yes)*	0 to 999 Days
10742 10812 10882	Get	Channel 1 Channel 2 Channel 3	Service Alarm Date*	INT	Service Alarm Date Value *(Only available when Service Reminder set to yes)*	1 to 31 Day
10743 10813 10883	Get	Channel 1 Channel 2 Channel 3	Service Alarm Month*	INT	Service Alarm Month Value *(Only available when Service Reminder set to yes)*	1 to 12 Month
10744 10814 10884	Get	Channel 1 Channel 2 Channel 3	Service Alarm Year*	INT	Service Alarm Year Value *(Only available when Service Reminder set to yes)*	Max 2099 Year

pH / Redox Input Service Alarm Configuration						
10750 10820 10890	Get	Channel 1 Channel 2 Channel 3	Service Interval*	FLOAT	Service Interval Value *(Only available when Service Reminder set to yes)*	0 to 999 Days
10752 10822 10892	Get	Channel 1 Channel 2 Channel 3	Service Alarm Date*	INT	Service Alarm Date Value *(Only available when Service Reminder set to yes)*	1 to 31 Day
10753 10823 10893	Get	Channel 1 Channel 2 Channel 3	Service Alarm Month*	INT	Service Alarm Month Value *(Only available when Service Reminder set to yes)*	1 to 12 Month
10754 10824 10894	Get	Channel 1 Channel 2 Channel 3	Service Alarm Year*	INT	Service Alarm Year Value *(Only available when Service Reminder set to yes)*	Max 2099 Year

Suspended Solids / Turbidity Service Alarm Configuration						
10760 10830 10900	Get	Channel 1 Channel 2 Channel 3	Service Interval*	FLOAT	Service Interval Value *(Only available when Service Reminder set to yes)*	0 to 999 Days
10762 10831 10902	Get	Channel 1 Channel 2 Channel 3	Service Alarm Date*	INT	Service Alarm Date Value *(Only available when Service Reminder set to yes)*	1 to 31 Day
10763 10833 10903	Get	Channel 1 Channel 2 Channel 3	Service Alarm Month*	INT	Service Alarm Month Value *(Only available when Service Reminder set to yes)*	1 to 12 Month
10764 10834 10904	Get	Channel 1 Channel 2 Channel 3	Service Alarm Year*	INT	Service Alarm Year Value *(Only available when Service Reminder set to yes)*	Max 2099 Year

Modbus RS485 Coils

Note. The availability of some of the coils depends upon the configuration of the instrument.

Type#	Function	Channel#	Coil#	Write Value#
Calibration Resets				
Auxiliary mA Input	Reset Sensor Calibration	Channel 1 Channel 2 Channel 3	100 165 230	0 = N/A 1 = Activate
	Reset Solution Calibration	Channel 1 Channel 2 Channel 3	101 166 231	
	Reset Entire Calibration	Channel 1 Channel 2 Channel 3	102 167 232	
Conventional Conductivity	Reset Sensor Calibration	Channel 1 Channel 2 Channel 3	110 175 240	
	Reset Temperature Calibration	Channel 1 Channel 2 Channel 3	111 176 241	
	Reset Entire calibration	Channel 1 Channel 2 Channel 3	112 177 242	
Dissolved Oxygen	Reset Sensor Calibration	Channel 1 Channel 2 Channel 3	120 185 250	
	Reset Temperature Calibration	Channel 1 Channel 2 Channel 3	121 186 251	
	Reset Pressure Calibration	Channel 1 Channel 2 Channel 3	122 187 252	
	Reset Entire Calibration	Channel 1 Channel 2 Channel 3	123 188 253	
Electrodeless Conductivity	Reset Sensor Calibration	Channel 1 Channel 2 Channel 3	130 195 260	
	Reset Solution Calibration	Channel 1 Channel 2 Channel 3	131 196 261	
	Reset Temperature Calibration	Channel 1 Channel 2 Channel 3	132 197 262	
	Reset Entire Calibration	Channel 1 Channel 2 Channel 3	133 198 263	

Calibration Resets Continued				
pH / Redox	Reset Sensor Calibration	Channel 1	140	0 = N/A
		Channel 2	205	1 = Activate
		Channel 3	270	
	Reset Temperature Calibration	Channel 1	141	
		Channel 2	206	
		Channel 3	271	
	Reset Entire Calibration	Channel 1	142	
		Channel 2	207	
		Channel 3	272	
	Reset pH Custom Buffer	Channel 1	143	
		Channel 2	208	
		Channel 3	273	
Suspended Solids / Turbidity	Reset Entire Calibration	Channel 1	150	
		Channel 2	215	
		Channel 3	280	

Unit Calibration Reset				
Unit	Reset Entire Unit Calibration		295	0 = N/A
				1 = Activate

Current Output Resets				
Current Output	Reset 4-20mA Output	Output A	310	0 = N/A
		Output B	311	1 = Activate
		Output C	312	
		Output D	313	
		Output E	314	
		Output F	315	
	Reset All 4-20mA Outputs		316	

Save Setup				
Channel	Save Setup To Slot A	Channel 1	325	0 = N/A
		Channel 2	330	1 = Activate
		Channel 3	335	
	Save Setup To Slot B	Channel 1	326	
		Channel 2	331	
		Channel 3	336	
Unit	Save Entire Unit To Slot A		340	
	Save Entire Unit To Slot B		341	

Restore Setup				
Channel	Restore Setup From Slot A	Channel 1	350	0 = N/A
		Channel 2	335	1 = Activate
		Channel 3	360	
	Restore Setup From Slot B	Channel 1	351	
		Channel 2	336	
		Channel 3	361	
Unit	Restore Entire Unit From Slot A		365	
	Restore Entire Unit From Slot B		366	

Delete Setup				
Channel	Delete Setup In Slot A	Channel 1	375	0 = N/A
		Channel 2	380	1 = Activate
		Channel 3	385	
	Delete Setup In Slot B	Channel 1	376	
		Channel 2	381	
		Channel 3	386	
Unit	Delete Entire Unit Setup In Slot A		390	
	Delete Entire Unit Setup In Slot B		391	

Reset Setup				
Channel	Reset Setup	Channel 1	395	0 = N/A
		Channel 2	396	1 = Activate
		Channel 3	397	
Unit	Reset Whole Unit		405	

Defer Calibration Alarm Date				
Channel	Defer Channel Calibration Alarm Date	Channel 1	415	0 = N/A
		Channel 2	416	1 = Activate
		Channel 3	417	

Defer Channel Service Alarm Date				
Channel	Defer Channel Service Alarm Date	Channel 1	425	0 = N/A
		Channel 2	426	1 = Activate
		Channel 3	427	

Setpoint Start/Stop Options				
Setpoint	Setpoint Initial Charge	Setpoint 1	435	0 = N/A
		Setpoint 2	440	1 = Activate
		Setpoint 3	445	
		Setpoint 4	450	
		Setpoint 5	455	
		Setpoint 6	460	
	Setpoint Manual Clean	Setpoint 1	436	
		Setpoint 2	441	
		Setpoint 3	446	
		Setpoint 4	451	
		Setpoint 5	456	
		Setpoint 6	461	

Setpoint Acknowledgments				
Setpoint	Acknowledge Setpoint Dose Alarm	Setpoint 1	437	0 = N/A
		Setpoint 2	442	1 = Activate
		Setpoint 3	447	
		Setpoint 4	452	
		Setpoint 5	457	
		Setpoint 6	462	

Reset Custom Ranges				
Auxiliary mA Input	Reset Auxiliary mA Input Custom Curve A	Channel 1 Channel 2 Channel 3	465 480 495	0 = N/A 1 = Activate
	Reset Auxiliary mA Input Custom Curve B	Channel 1 Channel 2 Channel 3	466 481 496	
Elect Cond	Reset Electrodeless Custom 1 Range	Channel 1 Channel 2 Channel 3	470 485 500	
	Reset Electrodeless Custom 2 Range	Channel 1 Channel 2 Channel 3	471 486 501	
Suspended Solids	Reset Suspended Solids Custom 1 Range	Channel 1 Channel 2 Channel 3	475 490 505	
	Reset Suspended Solids Custom 2 Range	Channel 1 Channel 2 Channel 3	476 491 506	

Data logging				
Unit	Start/Stop SD Card Data logging		515	0 = Stop 1 = Start

Save Live Trend Data				
Unit	Save Live Trend Data To SD Card	Trend 1 Trend 2 Trend 3	520 521 522	0 = N/A 1 = Activate

Suspended Solids / Turbidity - CIP				
Suspended Solids / Turbidity	Turn On/Off Suspended Solids Sensor Clean In Place (CIP) Mode	Channel 1 Channel 2 Channel 3	525 526 527	0 = Turn Off 1 = Turn On

Modbus RS485 Discretes

Note. The availability of some of the discrete depends upon the configuration of the instrument

Discrete #	Channel	Name	Semantics of Values

Digital Input Status

Digital Inputs			
500	Digital Input 1	Digital Input State	0 = Inactive
501	Digital Input 2		1 = Active
502	Digital Input 3		
503	Digital Input 4		
504	Digital Input 5		
505	Digital Input 6		
506	Digital Input 7		
507	Digital Input 8		

Sensor Status

Auxiliary mA Input			
540	Channel 1	Digital Input Switch Setup State	0 = Switch Setup Inactive
645	Channel 2		1 = Switch Setup Active
755	Channel 3		
541	Channel 1	Sensor simulation State	0 = Sensor Not Simulating
646	Channel 2		1 = Sensor Simulating
756	Channel 3		
542	Channel 1	Sensor Calibration State	0 = Sensor Not Calibrating
647	Channel 2		1 = Sensor Calibrating
757	Channel 3		

Conventional Conductivity			
555	Channel 1	Digital Input Switch Setup State	0 = Switch Setup Inactive
660	Channel 2		1 = Switch Setup Active
770	Channel 3		
556	Channel 1	Sensor simulation State	0 = Sensor Not Simulating
661	Channel 2		1 = Sensor Simulating
771	Channel 3		
557	Channel 1	Temperature simulation State	0 = Temperature Not Simulating
662	Channel 2		
772	Channel 3		1 = Temperature Simulating
558	Channel 1	Sensor Calibration State	0 = Sensor Not Calibrating
663	Channel 2		1 = Sensor Calibrating
773	Channel 3		
559	Channel 1	Temperature Calibration State	0 = Temperature Not Calibrating
664	Channel 2		
774	Channel 3		1 = Temperature Calibrating
560	Channel 1	Ranging State	0 = Sensor Not Ranging
665	Channel 2		1 = Sensor Ranging
775	Channel 3		

Dissolved Oxygen			
575 680 790	Channel 1 Channel 2 Channel 3	Digital Input Switch Setup State	0 = Switch Setup Inactive 1 = Switch Setup Active
576 681 791	Channel 1 Channel 2 Channel 3	Sensor simulation State	0 = Sensor Not Simulating 1 = Sensor Simulating
577 682 792	Channel 1 Channel 2 Channel 3	Pressure simulation State	0 = Pressure Not Simulating 1 = Pressure Simulating
578 683 793	Channel 1 Channel 2 Channel 3	Temperature simulation State	0 = Temperature Not Simulating 1 = Temperature Simulating
579 684 794	Channel 1 Channel 2 Channel 3	Sensor Calibration State	0 = Sensor Not Calibrating 1 = Sensor Calibrating
580 685 795	Channel 1 Channel 2 Channel 3	Temperature Calibration State	0 = Temperature Not Calibrating 1 = Temperature Calibrating

Electrodeless Conductivity			
595 700 810	Channel 1 Channel 2 Channel 3	Input Switch Setup State	0 = Switch Setup Inactive 1 = Switch Setup Active
596 701 811	Channel 1 Channel 2 Channel 3	Sensor simulation State	0 = Sensor Not Simulating 1 = Sensor Simulating
597 702 812	Channel 1 Channel 2 Channel 3	Temperature simulation State	0 = Temperature Not Simulating 1 = Temperature Simulating
598 703 813	Channel 1 Channel 2 Channel 3	Sensor Calibration State	0 = Sensor Not Calibrating 1 = Sensor Calibrating
599 704 814	Channel 1 Channel 2 Channel 3	Temperature Calibration State	0 = Temperature Not Calibrating 1 = Temperature Calibrating
600 705 815	Channel 1 Channel 2 Channel 3	Ranging State	0 = Sensor Not Ranging 1 = Sensor Ranging

pH / Redox			
615 720 830	Channel 1 Channel 2 Channel 3	Digital Input Switch Setup State	0 = Switch Setup Inactive 1 = Switch Setup Active
616 721 831	Channel 1 Channel 2 Channel 3	Sensor simulation State	0 = Sensor Not Simulating 1 = Sensor Simulating
617 722 832	Channel 1 Channel 2 Channel 3	Temperature simulation State	0 = Temperature Not Simulating 1 = Temperature Simulating
618 723 833	Channel 1 Channel 2 Channel 3	Sensor Calibration State	0 = Sensor Not Calibrating 1 = Sensor Calibrating
619 724 834	Channel 1 Channel 2 Channel 3	Temperature Calibration State	0 = Temperature Not Calibrating 1 = Temperature Calibrating

Suspended Solids / Turbidity			
630 740 845	Channel 1 Channel 2 Channel 3	Digital Input Switch Setup State	0 = Switch setup Inactive 1 = Switch setup Active
631 741 846	Channel 1 Channel 2 Channel 3	Sensor simulation State	0 = Sensor Not Simulating 1 = Sensor Simulating
632 742 847	Channel 1 Channel 2 Channel 3	Sensor Calibration State	0 = Sensor Not Calibrating 1 = Sensor Calibrating

Current Output			
870 880 890 900 910 920	Current Output A Current Output B Current Output C Current Output D Current Output E Current Output F	Calibration State	0 = Current Output Not Calibrating 1 = Current Output Calibrating
871 881 891 901 911 921	Current Output A Current Output B Current Output C Current Output D Current Output E Current Output F	Simulation State	0 = Current Output Not Simulating 1 = Current Output Simulating

Instrument Error Status

Discrete #	Channel /type	Error Code	Name	Semantics of Values
Internal Errors				
1001		E001	Processor RAM Read/Write Error	0 = Inactive 1 = Active
1002		E002	External RAM Read/Write Error	
1003		E003	Internal Setup Checksum Error	
1004		E004	Output Card Setup Checksum Error	
1005		E005	Internal Outputs Setup Checksum Error	
1007		E007	Unit Setup Checksum Error	
1008		E008	Unit Store A Checksum Error	
1009		E009	Unit Store B Checksum Error	
1010		E010	Maths Error	
1011		E011	Maths Error	
1012		E012	Maths Error	
1013		E013	Maths Error	
1014		E014	Contrast Chip Error	
1015		E015	Unit SD Card Checksum Error	
1016		E016	SD Card Full	
Input Channel Errors				
1030	Channel 1	E030	Input Card Checksum Error	0 = Inactive 1 = Active
1080	Channel 2	E080		
1130	Channel 3	E130		
1031	Channel 1	E031	Setup Checksum Error	
1081	Channel 2	E081		
1131	Channel 3	E131		
1032	Channel 1	E032	Store A Checksum Error	
1082	Channel 2	E082		
1132	Channel 3	E132		
1033	Channel 1	E033	Store B Checksum Error	
1083	Channel 2	E083		
1133	Channel 3	E133		
1034	Channel 1	E034	Factory Cal Checksum Error	
1084	Channel 2	E084		
1134	Channel 3	E134		
1035	Channel 1	E035	User Cal Checksum Error	
1085	Channel 2	E085		
1135	Channel 3	E135		
1036	Channel 1	E036	Sensor Cal Out of Spec	
1086	Channel 2	E086		
1136	Channel 3	E136		
1037	Channel 1	E037	Sensor Zero Cal Out of Spec	
1087	Channel 2	E087		
1137	Channel 3	E137		

Input Channel Errors Continued				
1038	Channel 1	E038	Sensor Span Cal Out of Spec	0 = Inactive
1088	Channel 2	E088		1 = Active
1138	Channel 3	E138		
1039	Channel 1	E039	No Signal	
1089	Channel 2	E089		
1139	Channel 3	E139		
1040	Channel 1	E040	Signal Overload	
1090	Channel 2	E090		
1140	Channel 3	E140		
1041	Channel 1	E041	Partial Depletion	
1091	Channel 2	E091		
1141	Channel 3	E141		
1042	Channel 1	E042	Full Depletion	
1092	Channel 2	E092		
1142	Channel 3	E142		
1043	Channel 1	E043	Sensor User Offset At Limit	
1093	Channel 2	E093		
1143	Channel 3	E143		
1044	Channel 1	E044	Sensor User Slope At Limit	
1094	Channel 2	E094		
1144	Channel 3	E144		
1045	Channel 1	E045	Sensor User Slope Below Spec	
1095	Channel 2	E095		
1145	Channel 3	E145		
1046	Channel 1	E046	Sensor User Slope Above Spec	
1096	Channel 2	E096		
1146	Channel 3	E146		
1047	Channel 1	E047	Sensor Open Circuit	
1097	Channel 2	E097		
1147	Channel 3	E147		
1048	Channel 1	E048	Sensor Short Circuit	
1098	Channel 2	E098		
1148	Channel 3	E148		
1049	Channel 1	E049	Sensor Positive Saturation	
1099	Channel 2	E099		
1149	Channel 3	E149		
1050	Channel 1	E050	Sensor Negative Saturation	
1100	Channel 2	E100		
1150	Channel 3	E150		
1051	Channel 1	E051	Sensor Input Over Range	
1101	Channel 2	E101		
1151	Channel 3	E151		
1052	Channel 1	E052	Sensor Input Under Range	
1102	Channel 2	E102		
1152	Channel 3	E152		
1053	Channel 1	E053	Temperature Sensor Fault	
1103	Channel 2	E103		
1153	Channel 3	E153		

Input Channel Errors Continued				
1054 1104 1154	Channel 1 Channel 2 Channel 3	E054 E104 E154	Temperature Input Over Range	0 = Inactive 1 = Active
1055 1105 1155	Channel 1 Channel 2 Channel 3	E055 E105 E155	Temperature Input Under Range	
1056 1106 1156	Channel 1 Channel 2 Channel 3	E056 E106 E156	Temperature Compensation Outside Limits	
1057 1107 1157	Channel 1 Channel 2 Channel 3	E057 E107 E157	Polar graphic Zero Calibration At Limit	
1058 1108 1158	Channel 1 Channel 2 Channel 3	E058 E108 E158	Polar graphic Span Calibration At Limit	
1059 1109 1159	Channel 1 Channel 2 Channel 3	E059 E109 E159	Galvanic Zero Calibration At Limit	
1060 1110 1160	Channel 1 Channel 2 Channel 3	E060 E110 E160	Galvanic Span Calibration At Limit	
1061 1111 1161	Channel 1 Channel 2 Channel 3	E061 E111 E161	Pressure Sensor Over Range	
1062 1112 1162	Channel 1 Channel 2 Channel 3	E062 E112 E162	Pressure Sensor Under Range	
1063 1113 1163	Channel 1 Channel 2 Channel 3	E063 E113 E163	Pressure Above 20mA	
1064 1114 1164	Channel 1 Channel 2 Channel 3	E064 E114 E164	Pressure Below 4mA	
1065 1115 1165	Channel 1 Channel 2 Channel 3	E065 E115 E165	Aux mA Input Above 20mA	
1066 1116 1166	Channel 1 Channel 2 Channel 3	E066 E116 E166	Aux mA Input Below 4mA	
1067 1117 1167	Channel 1 Channel 2 Channel 3	E067 E117 E167	Sensor 0mV Calibration Out Of Spec	
1068 1118 1168	Channel 1 Channel 2 Channel 3	E068 E118 E168	Calibration Due	
1069 1119 1169	Channel 1 Channel 2 Channel 3	E069 E119 E169	Planned Service Due	

Input Channel Errors Continued				
1070	Channel 1	E070	SD Card Checksum Error	0 = Inactive 1 = Active
1120	Channel 2	E120		
1170	Channel 3	E170		
1071	Channel 1	E071	Gain Error	
1121	Channel 2	E121		
1171	Channel 3	E171		
1072	Channel 1	E072	Invalid Linearisation Curve	
1122	Channel 2	E122		
1172	Channel 3	E172		
1073	Channel 1	E073	Linearisation Over Range	
1123	Channel 2	E123		
1173	Channel 3	E173		
1074	Channel 1	E074	Linearisation Under Range	
1124	Channel 2	E124		
1174	Channel 3	E174		
1075	Channel 1	E075	Curve Low Limit	
1125	Channel 2	E125		
1175	Channel 3	E175		
1076	Channel 1	E076	Curve High Limit	
1126	Channel 2	E126		
1176	Channel 3	E176		
1077	Channel 1	E077	Custom Error	
1127	Channel 2	E127		
1177	Channel 3	E177		

Setpoint Errors

Setpoint Errors				
1180	Setpoint 1	E180	Dose Alarm Error	0 = Inactive 1 = Active
1190	Setpoint 2	E190		
1200	Setpoint 3	E200		
1210	Setpoint 4	E210		
1220	Setpoint 5	E220		
1230	Setpoint 6	E230		
1185	Setpoint 1	E185	Store A Checksum Error	
1195	Setpoint 2	E195		
1205	Setpoint 3	E205		
1215	Setpoint 4	E215		
1225	Setpoint 5	E225		
1235	Setpoint 6	E235		
1186	Setpoint 1	E186	Store A Checksum Error	
1196	Setpoint 2	E196		
1206	Setpoint 3	E206		
1216	Setpoint 4	E216		
1226	Setpoint 5	E226		
1236	Setpoint 6	E236		
1187	Setpoint 1	E187	Setup Checksum Error	
1197	Setpoint 2	E197		
1207	Setpoint 3	E207		
1217	Setpoint 4	E217		
1227	Setpoint 5	E227		
1237	Setpoint 6	E237		
1188	Setpoint 1	E188	SD Card Checksum Error	
1198	Setpoint 2	E198		
1208	Setpoint 3	E208		
1218	Setpoint 4	E218		
1228	Setpoint 5	E228		
1238	Setpoint 6	E238		

Current Output Errors

Current Output Errors				
1240	Current Op A	E240	4-20mA Output Hardware Fault	0 = Inactive 1 = Active
1250	Current Op B	E250		
1260	Current Op C	E260		
1270	Current Op D	E270		
1280	Current Op E	E280		
1290	Current Op F	E290		
1241	Current Op A	E241	Sensor Input Below 4-20mA Output Zero	
1251	Current Op B	E251		
1261	Current Op C	E261		
1271	Current Op D	E271		
1281	Current Op E	E281		
1291	Current Op F	E291		
1242	Current Op A	E242	Sensor Input Above 4-20mA Output Span	
1252	Current Op B	E252		
1262	Current Op C	E262		
1272	Current Op D	E272		
1282	Current Op E	E282		
1292	Current Op F	E292		
1243	Current Op A	E243	Sensor Input Below 4-20mA Output Span	
1253	Current Op B	E253		
1263	Current Op C	E263		
1273	Current Op D	E273		
1283	Current Op E	E283		
1293	Current Op F	E293		
1244	Current Op A	E244	Sensor Input Above 4-20mA Output Zero	
1254	Current Op B	E254		
1264	Current Op C	E264		
1274	Current Op D	E274		
1284	Current Op E	E284		
1294	Current Op F	E294		
1245	Current Op A	E245	Store A Checksum Error	
1255	Current Op B	E255		
1265	Current Op C	E265		
1275	Current Op D	E275		
1285	Current Op E	E285		
1295	Current Op F	E295		
1246	Current Op A	E246	Store B Checksum Error	
1256	Current Op B	E256		
1266	Current Op C	E266		
1276	Current Op D	E276		
1286	Current Op E	E286		
1296	Current Op F	E296		
1247	Current Op A	E247	Setup Checksum Error	
1257	Current Op B	E257		
1267	Current Op C	E267		
1277	Current Op D	E277		
1287	Current Op E	E287		
1297	Current Op F	E297		

Digital Input Errors

Digital Input Errors				
1301	Digital IP 1	E301	Store A Checksum Error	0 = Inactive 1 = Active
1306	Digital IP 2	E306		
1311	Digital IP 3	E311		
1316	Digital IP 4	E316		
1321	Digital IP 5	E321		
1326	Digital IP 6	E326		
1331	Digital IP 7	E331		
1336	Digital IP 8	E336		
1302	Digital IP 1	E302	Store B Checksum Error	
1307	Digital IP 2	E307		
1312	Digital IP 3	E312		
1317	Digital IP 4	E317		
1322	Digital IP 5	E322		
1327	Digital IP 6	E327		
1332	Digital IP 7	E332		
1337	Digital IP 8	E337		
1303	Digital IP 1	E303	Setup Checksum Error	
1308	Digital IP 2	E308		
1313	Digital IP 3	E313		
1318	Digital IP 4	E318		
1323	Digital IP 5	E323		
1328	Digital IP 6	E328		
1333	Digital IP 7	E333		
1338	Digital IP 8	E338		
1304	Digital IP 1	E304	SD Card Checksum Error	
1309	Digital IP 2	E309		
1314	Digital IP 3	E314		
1319	Digital IP 4	E319		
1324	Digital IP 5	E324		
1329	Digital IP 6	E329		
1334	Digital IP 7	E334		
1339	Digital IP 8	E339		

Communication Errors

Communication Errors				
1340	Channel 1	E340	Communications Failure	0 = Inactive 1 = Active
1342	Channel 2	E342		
1344	Channel 3	E344		
1341	Channel 1	E341	Communications Error	
1343	Channel 2	E343		
1345	Channel 3	E345		
1346		E346	Output Communication Failure	
1347		E347	Output Communication Error	
1348		E348	Output Card Communication Failure	
1349		E349	Output Card Communication Error	

Data Logging Errors

Data logging Errors				
1350		E350	Data logging Setup Checksum Error	0 = Inactive
1351		E351	Data logging Store A Checksum Error	1 = Active
1352		E352	Data logging Store B Checksum Error	
1353		E353	Data logging SD Card Checksum Error	

Calculation Errors

Calculation Errors				
1400	Calc 1	E400	Calculation Over Range	0 = Inactive
1410	Calc 2	E410		1 = Active
1401	Calc 1	E401	Calculation Under Range	
1411	Calc 2	E411		
1402	Calc 1	E402	Calculation Setup Checksum	
1412	Calc 2	E412		
1403	Calc 1	E403	Calculation Store A Checksum	
1413	Calc 2	E413		
1404	Calc 1	E404	Calculation Store B Checksum	
1414	Calc 2	E414		
1405	Calc 1	E405	Calculation SD Card Checksum	
1415	Calc 2	E415		

Modbus Errors

Modbus Errors			
1420	E420	Modbus Setup Checksum Error	0 = Inactive
1421	E421	Modbus Store A Checksum Error	1 = Active
1422	E422	Modbus Store B Checksum Error	
1423	E423	Modbus SD Card Checksum Error	

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