



OI-7543-6 Modbus Register Map

Register Address (Hexadecimal)	Register Address (Decimal)	Data Description	R/W	Length (In Bits)	Units	Valid Response
Radio Data						
1	1	Channel 1 Radio Address	R/W	16	INTEGER	Radio Address (1-255)
2	2	Channel 2 Radio Address	R/W	16	INTEGER	Radio Address (1-255)
3	3	Channel 3 Radio Address	R/W	16	INTEGER	Radio Address (1-255)
4	4	Channel 4 Radio Address	R/W	16	INTEGER	Radio Address (1-255)
5	5	Channel 5 Radio Address	R/W	16	INTEGER	Radio Address (1-255)
6	6	Channel 6 Radio Address	R/W	16	INTEGER	Radio Address (1-255)
7	7	Channel 1 Reading	R	32	FLOAT	Any valid sensor reading
9	9	Channel 2 Reading	R	32	FLOAT	Any valid sensor reading
B	11	Channel 3 Reading	R	32	FLOAT	Any valid sensor reading
D	13	Channel 4 Reading	R	32	FLOAT	Any valid sensor reading
F	15	Channel 5 Reading	R	32	FLOAT	Any valid sensor reading
11	17	Channel 6 Reading	R	32	FLOAT	Any valid sensor reading
13	19	Channel 1 Mode	R	16	ENUMERATION	0-7 See Mode Enumeration Below
14	20	Channel 2 Mode	R	16	ENUMERATION	0-7 See Mode Enumeration Below
15	21	Channel 3 Mode	R	16	ENUMERATION	0-7 See Mode Enumeration Below
16	22	Channel 4 Mode	R	16	ENUMERATION	0-7 See Mode Enumeration Below
17	23	Channel 5 Mode	R	16	ENUMERATION	0-7 See Mode Enumeration Below
18	24	Channel 6 Mode	R	16	ENUMERATION	0-7 See Mode Enumeration Below
19	25	Channel 1 Battery	R	32	FLOAT	Sensor Input Voltage(>= 0.0)
1B	27	Channel 2 Battery	R	32	FLOAT	Sensor Input Voltage(>= 0.0)
1D	29	Channel 3 Battery	R	32	FLOAT	Sensor Input Voltage(>= 0.0)
1F	31	Channel 4 Battery	R	32	FLOAT	Sensor Input Voltage(>= 0.0)
21	33	Channel 5 Battery	R	32	FLOAT	Sensor Input Voltage(>= 0.0)
23	35	Channel 6 Battery	R	32	FLOAT	Sensor Input Voltage(>= 0.0)
25	37	Channel 1 Sec Since Last Message	R	16	INTEGER	-1-32768 Secs, -1 = never. Staying 0 = timeout
26	38	Channel 2 Sec Since Last Message	R	16	INTEGER	-1-32768 Secs, -1 = never. Staying 0 = timeout
27	39	Channel 3 Sec Since Last Message	R	16	INTEGER	-1-32768 Secs, -1 = never. Staying 0 = timeout
28	40	Channel 4 Sec Since Last Message	R	16	INTEGER	-1-32768 Secs, -1 = never. Staying 0 = timeout
29	41	Channel 5 Sec Since Last Message	R	16	INTEGER	-1-32768 Secs, -1 = never. Staying 0 = timeout
2A	42	Channel 6 Sec Since Last Message	R	16	INTEGER	-1-32768 Secs, -1 = never. Staying 0 = timeout
2B	43	Channel 1 Sensor Type	R	16	ENUMERATION	0-31 See Sensor Type Enumeration Below

2C	44	Channel 2 Sensor Type	R	16	ENUMERATION	0-31 See Sensor Type Enumeration Below
2D	45	Channel 3 Sensor Type	R	16	ENUMERATION	0-31 See Sensor Type Enumeration Below
2E	46	Channel 4 Sensor Type	R	16	ENUMERATION	0-31 See Sensor Type Enumeration Below
2F	47	Channel 5 Sensor Type	R	16	ENUMERATION	0-31 See Sensor Type Enumeration Below
30	48	Channel 6 Sensor Type	R	16	ENUMERATION	0-31 See Sensor Type Enumeration Below
31	49	Channel 1 ENG Unit	R	16	ENUMERATION	0-127 See ENG Unit Enumeration below
32	50	Channel 2 ENG Unit	R	16	ENUMERATION	0-127 See ENG Unit Enumeration below
33	51	Channel 3 ENG Unit	R	16	ENUMERATION	0-127 See ENG Unit Enumeration below
34	52	Channel 4 ENG Unit	R	16	ENUMERATION	0-127 See ENG Unit Enumeration below
35	53	Channel 5 ENG Unit	R	16	ENUMERATION	0-127 See ENG Unit Enumeration below
36	54	Channel 6 ENG Unit	R	16	ENUMERATION	0-127 See ENG Unit Enumeration below
37	55	Channel 1 Fault	R	16	ENUMERATION	0-15 See Fault Enumeration below
38	56	Channel 2 Fault	R	16	ENUMERATION	0-15 See Fault Enumeration below
39	57	Channel 3 Fault	R	16	ENUMERATION	0-15 See Fault Enumeration below
3A	58	Channel 4 Fault	R	16	ENUMERATION	0-15 See Fault Enumeration below
3B	59	Channel 5 Fault	R	16	ENUMERATION	0-15 See Fault Enumeration below
3C	60	Channel 6 Fault	R	16	ENUMERATION	0-15 See Fault Enumeration below
3D	61	Channel 1 On/Off	R/W	16	ENUMERATION	0 – 1, 0 means off, 1 means on
3E	62	Channel 2 On/Off	R/W	16	ENUMERATION	0 – 1, 0 means off, 1 means on
3F	63	Channel 3 On/Off	R/W	16	ENUMERATION	0 – 1, 0 means off, 1 means on
40	64	Channel 4 On/Off	R/W	16	ENUMERATION	0 – 1, 0 means off, 1 means on
41	65	Channel 5 On/Off	R/W	16	ENUMERATION	0 – 1, 0 means off, 1 means on
42	66	Channel 6 On/Off	R/W	16	ENUMERATION	0 – 1, 0 means off, 1 means on
43	67	Channel 1 Relay 1 On/Off	R/W	16	ENUMERATION	0 – 1, 0 means off, 1 means on
44	68	Channel 2 Relay 1 On/Off	R/W	16	ENUMERATION	0 – 1, 0 means off, 1 means on
45	69	Channel 3 Relay 1 On/Off	R/W	16	ENUMERATION	0 – 1, 0 means off, 1 means on
46	70	Channel 4 Relay 1 On/Off	R/W	16	ENUMERATION	0 – 1, 0 means off, 1 means on
47	71	Channel 5 Relay 1 On/Off	R/W	16	ENUMERATION	0 – 1, 0 means off, 1 means on
48	72	Channel 6 Relay 1 On/Off	R/W	16	ENUMERATION	0 – 1, 0 means off, 1 means on
49	73	Channel 1 Relay 1 Rise/Fall	R/W	16	ENUMERATION	0 - 1 ,0 means low, 1 means high
4A	74	Channel 2 Relay 1 Rise/Fall	R/W	16	ENUMERATION	0 - 1 ,0 means low, 1 means high
4B	75	Channel 3 Relay 1 Rise/Fall	R/W	16	ENUMERATION	0 - 1 ,0 means low, 1 means high
4C	76	Channel 4 Relay 1 Rise/Fall	R/W	16	ENUMERATION	0 - 1 ,0 means low, 1 means high
4D	77	Channel 5 Relay 1 Rise/Fall	R/W	16	ENUMERATION	0 - 1 ,0 means low, 1 means high
4E	78	Channel 6 Relay 1 Rise/Fall	R/W	16	ENUMERATION	0 - 1 ,0 means low, 1 means high
4F	79	Channel 1 Relay 1 Set Point	R/W	32	FLOAT	Any number 65000 or less and higher than 0
51	81	Channel 2 Relay 1 Set Point	R/W	32	FLOAT	Any number 65000 or less and higher than 0
53	83	Channel 3 Relay 1 Set Point	R/W	32	FLOAT	Any number 65000 or less and higher than 0
55	85	Channel 4 Relay 1 Set Point	R/W	32	FLOAT	Any number 65000 or less and higher than 0
57	87	Channel 5 Relay 1 Set Point	R/W	32	FLOAT	Any number 65000 or less and higher than 0

59	89	Channel 6 Relay 1 Set Point	R/W	32	FLOAT	Any number 65000 or less and higher than 0
5B	91	Channel 1 Relay 1 Latch/Unlatch	R/W	16	ENUMERATION	0 - 1 ,0 means unlatch, 1 means latch
5C	92	Channel 2 Relay 1 Latch/Unlatch	R/W	16	ENUMERATION	0 - 1 ,0 means unlatch, 1 means latch
5D	93	Channel 3 Relay 1 Latch/Unlatch	R/W	16	ENUMERATION	0 - 1 ,0 means unlatch, 1 means latch
5E	94	Channel 4 Relay 1 Latch/Unlatch	R/W	16	ENUMERATION	0 - 1 ,0 means unlatch, 1 means latch
5F	95	Channel 5 Relay 1 Latch/Unlatch	R/W	16	ENUMERATION	0 - 1 ,0 means unlatch, 1 means latch
60	96	Channel 6 Relay 1 Latch/Unlatch	R/W	16	ENUMERATION	0 - 1 ,0 means unlatch, 1 means latch
61	97	Channel 1 Relay 2 On/Off	R/W	16	ENUMERATION	0 - 1, 0 means off, 1 means on
62	98	Channel 2 Relay 2 On/Off	R/W	16	ENUMERATION	0 - 1, 0 means off, 1 means on
63	99	Channel 3 Relay 2 On/Off	R/W	16	ENUMERATION	0 - 1, 0 means off, 1 means on
64	100	Channel 4 Relay 2 On/Off	R/W	16	ENUMERATION	0 - 1, 0 means off, 1 means on
65	101	Channel 5 Relay 2 On/Off	R/W	16	ENUMERATION	0 - 1, 0 means off, 1 means on
66	102	Channel 6 Relay 2 On/Off	R/W	16	ENUMERATION	0 - 1, 0 means off, 1 means on
67	103	Channel 1 Relay 2 Rise/Fall	R/W	16	ENUMERATION	0 - 1 ,0 means low, 1 means high
68	104	Channel 2 Relay 2 Rise/Fall	R/W	16	ENUMERATION	0 - 1 ,0 means low, 1 means high
69	105	Channel 3 Relay 2 Rise/Fall	R/W	16	ENUMERATION	0 - 1 ,0 means low, 1 means high
6A	106	Channel 4 Relay 2 Rise/Fall	R/W	16	ENUMERATION	0 - 1 ,0 means low, 1 means high
6B	107	Channel 5 Relay 2 Rise/Fall	R/W	16	ENUMERATION	0 - 1 ,0 means low, 1 means high
6C	108	Channel 6 Relay 2 Rise/Fall	R/W	16	ENUMERATION	0 - 1 ,0 means low, 1 means high
6D	109	Channel 1 Relay 2 Set Point	R/W	32	FLOAT	Any number 65000 or less and higher than 0
6F	111	Channel 2 Relay 2 Set Point	R/W	32	FLOAT	Any number 65000 or less and higher than 0
71	113	Channel 3 Relay 2 Set Point	R/W	32	FLOAT	Any number 65000 or less and higher than 0
73	115	Channel 4 Relay 2 Set Point	R/W	32	FLOAT	Any number 65000 or less and higher than 0
75	117	Channel 5 Relay 2 Set Point	R/W	32	FLOAT	Any number 65000 or less and higher than 0
77	119	Channel 6 Relay 2 Set Point	R/W	32	FLOAT	Any number 65000 or less and higher than 0
79	121	Channel 1 Relay 2 Latch/Unlatch	R/W	16	ENUMERATION	0 - 1 ,0 means unlatch, 1 means latch
7A	122	Channel 2 Relay 2 Latch/Unlatch	R/W	16	ENUMERATION	0 - 1 ,0 means unlatch, 1 means latch
7B	123	Channel 3 Relay 2 Latch/Unlatch	R/W	16	ENUMERATION	0 - 1 ,0 means unlatch, 1 means latch
7C	124	Channel 4 Relay 2 Latch/Unlatch	R/W	16	ENUMERATION	0 - 1 ,0 means unlatch, 1 means latch
7D	125	Channel 5 Relay 2 Latch/Unlatch	R/W	16	ENUMERATION	0 - 1 ,0 means unlatch, 1 means latch
7E	126	Channel 6 Relay 2 Latch/Unlatch	R/W	16	ENUMERATION	0 - 1 ,0 means unlatch, 1 means latch
7F	127	Channel 1 Relay 3 On/Off	R/W	16	ENUMERATION	0 - 1, 0 means off, 1 means on
80	128	Channel 2 Relay 3 On/Off	R/W	16	ENUMERATION	0 - 1, 0 means off, 1 means on
81	129	Channel 3 Relay 3 On/Off	R/W	16	ENUMERATION	0 - 1, 0 means off, 1 means on
82	130	Channel 4 Relay 3 On/Off	R/W	16	ENUMERATION	0 - 1, 0 means off, 1 means on
83	131	Channel 5 Relay 3 On/Off	R/W	16	ENUMERATION	0 - 1, 0 means off, 1 means on
84	132	Channel 6 Relay 3 On/Off	R/W	16	ENUMERATION	0 - 1, 0 means off, 1 means on
85	133	Channel 1 Relay 3 Rise/Fall	R/W	16	ENUMERATION	0 - 1 ,0 means low, 1 means high
86	134	Channel 2 Relay 3 Rise/Fall	R/W	16	ENUMERATION	0 - 1 ,0 means low, 1 means high
87	135	Channel 3 Relay 3 Rise/Fall	R/W	16	ENUMERATION	0 - 1 ,0 means low, 1 means high

88	136	Channel 4 Relay 3 Rise/Fall	R/W	16	ENUMERATION	0 - 1 ,0 means low, 1 means high
89	137	Channel 5 Relay 3 Rise/Fall	R/W	16	ENUMERATION	0 - 1 ,0 means low, 1 means high
8A	138	Channel 6 Relay 3 Rise/Fall	R/W	16	ENUMERATION	0 - 1 ,0 means low, 1 means high
8B	139	Channel 1 Relay 3 Set Point	R/W	32	FLOAT	Any number 65000 or less and higher than 0
8D	141	Channel 2 Relay 3 Set Point	R/W	32	FLOAT	Any number 65000 or less and higher than 0
8F	143	Channel 3 Relay 3 Set Point	R/W	32	FLOAT	Any number 65000 or less and higher than 0
91	145	Channel 4 Relay 3 Set Point	R/W	32	FLOAT	Any number 65000 or less and higher than 0
93	147	Channel 5 Relay 3 Set Point	R/W	32	FLOAT	Any number 65000 or less and higher than 0
95	149	Channel 6 Relay 3 Set Point	R/W	32	FLOAT	Any number 65000 or less and higher than 0
97	151	Channel 1 Relay 3 Latch/Unlatch	R/W	16	ENUMERATION	0 - 1 ,0 means unlatch, 1 means latch
98	152	Channel 2 Relay 3 Latch/Unlatch	R/W	16	ENUMERATION	0 - 1 ,0 means unlatch, 1 means latch
99	153	Channel 3 Relay 3 Latch/Unlatch	R/W	16	ENUMERATION	0 - 1 ,0 means unlatch, 1 means latch
9A	154	Channel 4 Relay 3 Latch/Unlatch	R/W	16	ENUMERATION	0 - 1 ,0 means unlatch, 1 means latch
9B	155	Channel 5 Relay 3 Latch/Unlatch	R/W	16	ENUMERATION	0 - 1 ,0 means unlatch, 1 means latch
9C	156	Channel 6 Relay 3 Latch/Unlatch	R/W	16	ENUMERATION	0 - 1 ,0 means unlatch, 1 means latch
Modbus and Build Data						
1771	6001	Modbus Address	R	16	INTEGER	1 – 247
1772	6002	Modbus Baud Rate	R	16	INTEGER	Any Valid Baud Rate. See Below.
1773	6003	Month	R	16	INTEGER	1 – 12
1774	6004	Day	R	16	INTEGER	1 – 31
1775	6005	Year	R	16	INTEGER	2009 –
1776	6006	Serial Number Character	R	16	ENUMERATION	0 – 52 See Serial Number below
1777	6007	Serial Number	R	32	LONG INT	1 – 99999
Settings in Startup Menu						
177B	6011	Restore to Factory Default	R	16	ENUMERATION	When read will be 0.
177C	6012	Relay 3 as Fault Relay	R	16	ENUMERATION	0 – 1, 0 means normal relay, 1 means Fault Relay
177D	6013	Relay 1 Fail Safe	R	16	ENUMERATION	0 – 1, 0 means not Fail Safe, 1 means Fail Safe
177E	6014	Relay 2 Fail Safe	R	16	ENUMERATION	0 – 1, 0 means not Fail Safe, 1 means Fail Safe
177F	6015	Relay 3 Fail Safe	R	16	ENUMERATION	0 – 1, 0 means not Fail Safe, 1 means Fail Safe
1780	6016	N/A	R	16		Read as 0.
1781	6017	Fault Terminal Fail Safe	R	16	ENUMERATION	0 – 1, 0 means not Fail Safe, 1 means Fail Safe
1782	6018	Radio Timeout	R	16	INTEGER	6-255. This is the timeout in minutes.
1783	6019	Network Channel	R	16	INTEGER	1—78
1784	6020	Primary Secondary	R	16	ENUMERATION	0 – 1, 0 means Primary, 1 means Secondary.
Relays in Alarm State						
1785	6021	Relay 1 is in Alarm	R	16	ENUMERATION	0 – 1, 0 means not in Alarm, 1 means in Alarm
1786	6022	Relay 2 is in Alarm	R	16	ENUMERATION	0 – 1, 0 means not in Alarm, 1 means in Alarm
1787	6023	Relay 3 is in Alarm	R	16	ENUMERATION	0 – 1, 0 means not in Alarm, 1 means in Alarm
Diagnostics Data						
2704	9988	Reset	R/W	16	INTEGER	Read 0. If user sets to 1, resets the unit.

2705	9989	Serial Receive Good Count	R	16	UINT	0 – 65535
2706	9990	Serial Receive Error Count	R	16	UINT	0 – 65535
2707	9991	Serial Transmit Good Count	R	16	UINT	0 – 65535
2708	9992	Serial Transmit Error Count	R	16	UINT	0 – 65535
2709	9993	Radio Receive Good Count	R	16	UINT	0 – 65535
270A	9994	Radio Receive Error Count	R	16	UINT	0 – 65535
270B	9995	Radio Transmit Good Count	R	16	UINT	0 – 65535
270C	9996	Radio Transmit Error Count	R	16	UINT	0 – 65535
270D	9997	Uptime Days	R	16	UINT	0 – 65535
270E	9998	Uptime Hours	R	16	UINT	0 – 65535
270F	9999	Uptime Minutes	R	16	UINT	0 – 65535

MODE SENSOR	MODE
0	NORMAL
1	NULL
2	CALIBRATION
3	RELAY
4	Radio ADD
5	Diagnostic/ Batt
6	Advanced Menu
7	Admin Menu

Valid Baud Rates
4800
9600
19200

Serial Number Char	Char
1	A
2	B
3	C
4	D
5	E
6	F
7	G
8	H
9	I
10	J
11	K
12	L
13	M
14	N
15	O
16	P

ENG UNIT NUM	GAS
0	PPM H2S
1	PPM SO2
2	% O2
3	PPM CO
4	PPM CL2
5	% CO2
6	% LEL
7	PPM VOC
8	FEET
9	PPM Hcl
10	PPM NH3
11	% H2
12	PPM ClO2
13	PPM HCN
14	PPM F2
15	PPM HF
16	PPM CH2O
17	PPM NO2
18	PPM O3
19	INCHES
20	mA 4-20
21	Not Specified

17	Q
18	R
19	S
20	T
21	U
22	V
23	W
24	X
25	Y
26	Z
27	AA
28	AB
29	AC
30	AD
31	AE
32	AF
33	AG
34	AH
35	AI
36	AJ
37	AK
38	AL
39	AM
40	AN
41	AO
42	AP
43	AQ
44	AR
45	AS
46	AT
47	AU
48	AV
49	AW
50	AX
51	AY
52	AZ

22	°C
23	°F
24	% CH4
25	PPM NO
26	PPM PH3
27	Unknown, future gas type

SENSOR TYPE NUM	SENSOR
0	EC
1	IR
2	CB
3	MOS
4	PID
5	TANK
6	4-20
7	SWITCH
8	Unknown
30	WF190
31	None Selected

FAULT	FAULT
0	NONE
1	Digital Sensor Board Timeout
2	Bad reading from sensor
3	Bad LPIR Element
4	ADC not responding
5	Null Failed
6	Cal Failed
7	Future Error
8	Two Sensors Same Address
9	Sensor Radio Timeout
10	When Sensor is wired, it means no sensor is connected
11	Rapid Temperature change on LPIR
12	Future Error
13	Unspecified Error on sensor unit. Shown only on Monitor
14	No Primary Monitor at Sensor Head
15	Monitor Fault