



OI-7420 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 Port Number | R | 16 | INTEGER | 1 |
| 2 | 2 | Channel 2 Port Number | R | 16 | INTEGER | 2 |
| 3 | 3 | Channel 1 Reading | R | 32 | FLOAT | Any valid sensor reading |
| 5 | 5 | Channel 2 Reading | R | 32 | FLOAT | Any valid sensor reading |
| 7 | 7 | Channel 1 Mode | R | 16 | ENUMERATION | 0-2 . 0 is in normal mode, 1 is any other mode, 2 is cal mode |
| 8 | 8 | Channel 2 Mode | R | 16 | ENUMERATION | 0-2 . 0 is in normal mode, 1 is any other mode, 2 is cal mode |
| 9 | 9 | Channel 1 Power | R | 32 | FLOAT | 0. The 4-20 Sensors do not send the power reading. |
| B | 11 | Channel 2 Power | R | 32 | FLOAT | 0. The 4-20 Sensors do not send the power reading. |
| D | 13 | Channel 1 Sensor Type | R | 16 | ENUMERATION | 0. The 4-20 Sensors do not send the Sensor Type. |
| E | 14 | Channel 2 Sensor Type | R | 16 | ENUMERATION | 0. The 4-20 Sensors do not send the Sensor Type. |
| F | 15 | Channel 1 Gas Type | R/W | 16 | ENUMERATION | 0-127 See Gas Enumeration below |
| 10 | 16 | Channel 2 Gas Type | R/W | 16 | ENUMERATION | 0-127 See Gas Enumeration below |
| 11 | 17 | Channel 1 Fault | R | 16 | ENUMERATION | 0 or 13. The 4-20 Sensors do not send what type of Fault |
| 12 | 18 | Channel 2 Fault | R | 16 | ENUMERATION | 0 or 13. The 4-20 Sensors do not send what type of Fault |
| 13 | 19 | Channel 1 On/Off | R/W | 16 | ENUMERATION | 0 – 1, 0 means off, 1 means on |
| 14 | 20 | Channel 2 On/Off | R/W | 16 | ENUMERATION | 0 – 1, 0 means off, 1 means on |
| 15 | 21 | Channel 1 Relay 1 On/Off | R/W | 16 | ENUMERATION | 0 – 1, 0 means off, 1 means on |
| 16 | 22 | Channel 2 Relay 1 On/Off | R/W | 16 | ENUMERATION | 0 – 1, 0 means off, 1 means on |
| 17 | 23 | Channel 1 Relay 1 High/Low | R/W | 16 | ENUMERATION | 0 - 1 ,0 means low, 1 means high |
| 18 | 24 | Channel 2 Relay 1 High/Low | R/W | 16 | ENUMERATION | 0 - 1 ,0 means low, 1 means high |
| 19 | 25 | Channel 1 Relay 1 Set Point | R/W | 32 | FLOAT | Float < 2000. When writing it needs to be less than the scale. |
| 1B | 27 | Channel 2 Relay 1 Set Point | R/W | 32 | FLOAT | Float < 2000. When writing it needs to be less than the scale. |
| 1D | 29 | Channel 1 Relay 1 Latch/Unlatch | R/W | 16 | ENUMERATION | 0 - 1 ,0 means unlatch, 1 means latch |
| 1E | 30 | Channel 2 Relay 1 Latch/Unlatch | R/W | 16 | ENUMERATION | 0 - 1 ,0 means unlatch, 1 means latch |
| 1F | 31 | Channel 1 Relay 2 On/Off | R/W | 16 | ENUMERATION | 0 – 1, 0 means off, 1 means on |
| 20 | 32 | Channel 2 Relay 2 On/Off | R/W | 16 | ENUMERATION | 0 – 1, 0 means off, 1 means on |
| 21 | 33 | Channel 1 Relay 2 High/Low | R/W | 16 | ENUMERATION | 0 - 1 ,0 means low, 1 means high |
| 22 | 34 | Channel 2 Relay 2 High/Low | R/W | 16 | ENUMERATION | 0 - 1 ,0 means low, 1 means high |
| 23 | 35 | Channel 1 Relay 2 Set Point | R/W | 32 | FLOAT | Float < 2000. When writing it needs to be less than the scale. |
| 25 | 37 | Channel 2 Relay 2 Set Point | R/W | 32 | FLOAT | Float < 2000. When writing it needs to be less than the scale. |
| 27 | 39 | Channel 1 Relay 2 Latch/Unlatch | R/W | 16 | ENUMERATION | 0 - 1 ,0 means unlatch, 1 means latch |
| 28 | 40 | Channel 2 Relay 2 Latch/Unlatch | R/W | 16 | ENUMERATION | 0 - 1 ,0 means unlatch, 1 means latch |

| | | | | | | |
|---------------------------------|------|---------------------------------|-----|----|-------------|--|
| 29 | 41 | Channel 1 Relay 3 On/Off | R/W | 16 | ENUMERATION | 0 – 1, 0 means off, 1 means on |
| 2A | 42 | Channel 2 Relay 3 On/Off | R/W | 16 | ENUMERATION | 0 – 1, 0 means off, 1 means on |
| 2B | 43 | Channel 1 Relay 3 High/Low | R/W | 16 | ENUMERATION | 0 - 1 ,0 means low, 1 means high |
| 2C | 44 | Channel 2 Relay 3 High/Low | R/W | 16 | ENUMERATION | 0 - 1 ,0 means low, 1 means high |
| 2D | 45 | Channel 1 Relay 3 Set Point | R/W | 32 | FLOAT | Float < 2000. When writing it needs to be less than the scale. |
| 2F | 47 | Channel 2 Relay 3 Set Point | R/W | 32 | FLOAT | Float < 2000. When writing it needs to be less than the scale. |
| 31 | 49 | Channel 1 Relay 3 Latch/Unlatch | R/W | 16 | ENUMERATION | 0 - 1 ,0 means unlatch, 1 means latch |
| 32 | 50 | Channel 2 Relay 3 Latch/Unlatch | R/W | 16 | ENUMERATION | 0 - 1 ,0 means unlatch, 1 means latch |
| 33 | 51 | Channel 1 Relay 4 On/Off | R/W | 16 | ENUMERATION | 0 – 1, 0 means off, 1 means on |
| 34 | 52 | Channel 2 Relay 4 On/Off | R/W | 16 | ENUMERATION | 0 – 1, 0 means off, 1 means on |
| 35 | 53 | Channel 1 Relay 4 High/Low | R/W | 16 | ENUMERATION | 0 - 1 ,0 means low, 1 means high |
| 36 | 54 | Channel 2 Relay 4 High/Low | R/W | 16 | ENUMERATION | 0 - 1 ,0 means low, 1 means high |
| 37 | 55 | Channel 1 Relay 4 Set Point | R/W | 32 | FLOAT | Float < 2000. When writing it needs to be less than the scale. |
| 39 | 57 | Channel 2 Relay 4 Set Point | R/W | 32 | FLOAT | Float < 2000. When writing it needs to be less than the scale. |
| 3B | 59 | Channel 1 Relay 4 Latch/Unlatch | R/W | 16 | ENUMERATION | 0 - 1 ,0 means unlatch, 1 means latch |
| 3C | 60 | Channel 2 Relay 4 Latch/Unlatch | R/W | 16 | ENUMERATION | 0 - 1 ,0 means unlatch, 1 means latch |
| 3D | 61 | Channel 1 Max Scale | R/W | 16 | INTEGER | 0-2000 |
| 3E | 62 | Channel 2 Max Scale | R/W | 16 | INTEGER | 0-2000 |
| 3F | 63 | Channel 1 Min Scale | R/W | 16 | INTEGER | -70-0 |
| 40 | 64 | Channel 2 Min Scale | R/W | 16 | INTEGER | -70-0 |
| Modbus and Build Data | | | | | | |
| 1771 | 6001 | Modbus Address | R/W | 16 | INTEGER | 1 – 247 |
| 1772 | 6002 | Modbus Baud Rate | R/W | 16 | INTEGER | 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 | 15 This is for the Letter “O” in the serial number. |
| 1777 | 6007 | Serial Number | R | 32 | LONG INT | 1 – 99999 |
| Settings in Startup Menu | | | | | | |
| 177C | 6012 | Relay 4 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 | Relay 4 Fail Safe | R | 16 | ENUMERATION | 0 – 1, 0 means not Fail Safe, 1 means Fail Safe |
| 1781 | 6017 | Fault Terminal Fail Safe | R | 16 | ENUMERATION | 0 – 1, 0 means not Fail Safe, 1 means Fail Safe |
| Diagnostics Data | | | | | | |
| 2704 | 9988 | Reset | R/W | 16 | INTEGER | 0, 1. 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 |

| 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 |
| 17 | Q |
| 18 | R |
| 19 | S |

| Valid Baud Rates |
|------------------|
| 4800 |
| 9600 |
| 19200 |

| FAULT | FAULT |
|-------|---|
| 0 | NONE |
| 1 | N/A |
| 2 | Future Error |
| 3 | Future Error |
| 4 | N/A |
| 5 | N/A |
| 6 | N/A |
| 7 | Future Error |
| 8 | N/A |
| 9 | N/A |
| 10 | When Sensor is wired, it means no sensor is connected |
| 11 | Future Error |
| 12 | Future Error |
| 13 | Unspecified Error on sensor unit. Shown only on Monitor |
| 14 | N/A |
| 15 | Monitor Fault |

| SENSOR TYPE NUM | SENSOR |
|-----------------|--------|
| 0 | EC |
| 1 | IR |
| 2 | CB |
| 3 | MOS |
| 4 | PID |
| 5 | TANK |

| | |
|----|----|
| 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 |

| |
|------------------|
| 64-20 |
| 7 SWITCH |
| 8 Unknown |
| 30 WF190 |
| 31 None Selected |

| GAS TYPE NUM | GAS |
|--------------|---------------|
| 0 | H2S |
| 1 | SO2 |
| 2 | O2 |
| 3 | CO |
| 4 | CL2 |
| 5 | CO2 |
| 6 | LEL |
| 7 | VOC |
| 8 | FEET |
| 9 | HCl |
| 10 | NH3 |
| 11 | H2 |
| 12 | ClO2 |
| 13 | HCN |
| 14 | F2 |
| 15 | HF |
| 16 | CH2O |
| 17 | NO2 |
| 18 | O3 |
| 19 | INCHES |
| 20 | 4-20 |
| 21 | Not Specified |
| 22 | C° |
| 23 | F° |
| 24..N | Future Gases |