



## **Infinitum Aircore EC Parameters**

March 14, 2025



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**Notes:**

All registers are Holding Registers. These registers are the most universal 16-bit register, may be read or written, and may be used for a variety of things including inputs, outputs, configuration data, or any requirement for "holding" data. Some are readable/writeable and some are read-only, and some are write-only. Each register described in this document explains their R/W functionality.

The "Type" descriptors are explained at the end of this document but follows these examples. "Unsigned ODP" is an unsigned 16-bit number with no characters past decimal point. It has a minimum value of 0 and a maximum value of 65536. "Signed ODP" is a signed 16-bit number with no characters past the decimal point. It has a minimum value of -32768 and a maximum value of 32768. "Bit Field 1" means the register is set like a bit field 1 with input Integer 0 (false/off/disable) or 1 (true/on/enable).

| Register Number<br>All are Holding Registers | Parameter          | Description                                                                                        | Options                                                   | Type         | Read / Write | Units | Default Value | Gen2/3 | Gen4 | Gen 4.1 | Notes |
|----------------------------------------------|--------------------|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------|--------------|--------------|-------|---------------|--------|------|---------|-------|
| <b>Section 10: Motor</b>                     |                    |                                                                                                    |                                                           |              |              |       |               |        |      |         |       |
| 1001                                         | Run/Stop Command   | Operation command to motor                                                                         | 0 = Stop<br>1 = Start                                     | Bit Field 1  | Read / Write | None  | None          | x      | x    | x       |       |
| 1002                                         | Direction Command  | Direction command only when motor stopped. Shaft rotation direction viewed from drive end of shaft | 0 = CCW<br>1 = CW                                         | Bit Field 1  | Read / Write | None  | 0=CCW         | x      | x    | x       |       |
| 1003                                         | Speed Command      | Speed command to motor in rpm. Values cannot exceed those in Register # 1101 through 1102          | Integer between Speed User Minimum and Speed User Maximum | Unsigned 0DP | Read / Write | RPM   | 100           | x      | x    | x       |       |
| <b>Section 11: Operating Limits</b>          |                    |                                                                                                    |                                                           |              |              |       |               |        |      |         |       |
| 1101                                         | Speed User Minimum | Configurable speed must be greater                                                                 | Integer between Model Type Speed Absolute Minimum         | Unsigned 0DP | Read /       | RPM   | 100           | x      | x    | x       |       |

| Register Number<br>All are Holding Registers | Parameter                  | Description                                                                      | Options                                                                                 | Type         | Read / Write | Units   | Default Value     | Gen2/3 | Gen4 | Gen 4.1 | Notes                |
|----------------------------------------------|----------------------------|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|--------------|--------------|---------|-------------------|--------|------|---------|----------------------|
|                                              |                            | than Register # 1114                                                             | and Model Type Speed Absolute Maximum                                                   |              | Write        |         |                   |        |      |         |                      |
| 1102                                         | Speed User Maximum         | Configurable speed must be less than Register # 1115                             | Integer between Model Type Speed Absolute Minimum and Model Type Speed Absolute Maximum | Unsigned ODP | Read / Write | RPM     | Motor Rated Speed | x      | x    | x       |                      |
| 1105                                         | Acceleration Ramp Duration | Duration of ramp time acceleration in seconds. Must be less than Register # 1112 | Number between 10 & 90                                                                  | Unsigned ODP | Read / Write | Seconds | 30                | x      | x    | x       |                      |
| 1106                                         | Deceleration Ramp Duration | Duration of ramp time deceleration in seconds. Must be less than Register # 1113 | Number between 10 & 90                                                                  | Unsigned ODP | Read / Write | Seconds | 30                | x      | x    | x       |                      |
| 1107 (See notes)                             | Skip Speed 1               | Avoids operating at specified rpm. Bypassed by range defined in Register # 1110  | None                                                                                    | Unsigned ODP | Read / Write | RPM     | 0 = disabled      | x      | x    |         | Repurposed in Gen4.1 |

| Register Number<br>All are Holding Registers | Parameter            | Description                                                                         | Options                                       | Type         | Read / Write | Units | Default Value | Gen2/3 | Gen4 | Gen 4.1 | Notes                |
|----------------------------------------------|----------------------|-------------------------------------------------------------------------------------|-----------------------------------------------|--------------|--------------|-------|---------------|--------|------|---------|----------------------|
| 1108 (See notes)                             | Skip Speed 2         | Avoids operating at specified rpm. Bypassed by range defined in Register # 1110     | None                                          | Unsigned ODP | Read / Write | RPM   | 0 = disabled  | x      | x    |         | Repurposed in Gen4.1 |
| 1109 (See notes)                             | Skip Speed 3         | Avoids operating at specified rpm. Bypassed by range defined in Register # 1110     | None                                          | Unsigned ODP | Read / Write | RPM   | 0 = disabled  | x      | x    |         | Repurposed in Gen4.1 |
| 1110 (See notes)                             | Skip Speed Bandwidth | Specifies bandwidth for speed ranges to be avoided in Register #s 1108 through 1110 | 0 = 30 RPM,<br>1 = 60 RPM<br>2 = 90 RPM       | Unsigned ODP | Read / Write | RPM   | 0 = 30 RPM    | x      | x    |         | Repurposed in Gen4.1 |
| 1107 (See notes)                             | Skip Speed 1 min     | Avoids operating at specified rpm. Minimum value of Skip Speed 1                    | Number between Motor 100 RPM and User Max RPM | Unsigned ODP | Read / Write | RPM   | 0 = disabled  |        |      | x       | Repurposed in Gen4.1 |
| 1108 (See notes)                             | Skip Speed 1 max     | Avoids operating at specified rpm. Maximum value of Skip Speed 1                    | Number between Motor 100 RPM and User Max RPM | Unsigned ODP | Read / Write | RPM   | 0 = disabled  |        |      | x       | Repurposed in Gen4.1 |

| Register Number<br>All are Holding Registers | Parameter                    | Description                                                                    | Options                                           | Type         | Read / Write | Units   | Default Value    | Gen2/3 | Gen4 | Gen 4.1 | Notes                |
|----------------------------------------------|------------------------------|--------------------------------------------------------------------------------|---------------------------------------------------|--------------|--------------|---------|------------------|--------|------|---------|----------------------|
| 1109 (See notes)                             | Skip Speed 2 min             | Avoids operating at specified rpm. Minimum value of Skip Speed 2               | Number between Motor 100 RPM and User Max RPM     | Unsigned ODP | Read / Write | RPM     | 0 = disabled     |        |      | x       | Repurposed in Gen4.1 |
| 1110 (See notes)                             | Skip Speed 2 max             | Avoids operating at specified rpm. Maximum value of Skip Speed 2               | Number between Motor 100 RPM and User Max RPM     | Unsigned ODP | Read / Write | RPM     | 0 = 30 RPM       |        |      | x       | Repurposed in Gen4.1 |
| 1111                                         | Direction Allowed            | Fixes rotation of motor to specified direction or enables directional control. | 0 = Allow CCW/CW<br>1 = Fixed CCW<br>2 = Fixed CW | Enumerated   | Read / Write | None    | 0 = Allow CCW/CW | x      | x    | x       |                      |
| 1112                                         | Maximum Accel Allowed        | Manufacturers maximum acceleration rate allowed in rpm. Configured at factory  | None                                              | Unsigned ODP | Read         | RPM/Sec | None             | x      | x    | x       |                      |
| 1113                                         | Maximum Deceleration Allowed | Manufacturers maximum deceleration rate allowed in rpm. Configured at factory  | None                                              | Unsigned ODP | Read         | RPM/Sec | None             | x      | x    | x       |                      |

| Register Number<br>All are Holding Registers | Parameter                | Description                                                                                                                                                                        | Options                                                                                       | Type         | Read / Write | Units   | Default Value                            | Gen2/3 | Gen4 | Gen 4.1 | Notes |
|----------------------------------------------|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------------|--------------|---------|------------------------------------------|--------|------|---------|-------|
| 1114                                         | Motor Type Speed Minimum | Motor Type minimum speed for the motor configured at the factory.                                                                                                                  | None                                                                                          | Unsigned ODP | Read         | RPM/Sec | 100                                      | x      | x    | x       |       |
| 1115                                         | Motor Type Speed Maximum | Motor Type maximum speed for the motor configured at the factory.                                                                                                                  | None                                                                                          | Unsigned ODP | Read         | RPM/Sec | Motor Dependent                          | x      | x    | x       |       |
| 1116                                         | Load Inertia             | Inertia modifier to change start actions                                                                                                                                           | Number between 0 and xxxxx                                                                    | Unsigned ODP | Write        |         | 0                                        |        |      | x       |       |
| <b>Section 12: Operation Type</b>            |                          |                                                                                                                                                                                    |                                                                                               |              |              |         |                                          |        |      |         |       |
| 1201                                         | Control Mode             | Select source for control signals:<br>Register #s 1202 through 1205 must be selected for I/O terminals use<br>Register #s 1202 through 1205 must be overridden to allow Modbus use | 0 = I/O Terminals (Analog & Digital)<br>1 = Modbus Interface (TCP or RTU)<br>2 = GUI override | Enumerated   | Read / Write | None    | 1 = Modbus Interface (either TCP or RTU) | x      | x    | x       |       |

| Register Number<br>All are Holding Registers | Parameter                | Description                                                                                                                                | Options                                                                     | Type       | Read / Write | Units | Default Value | Gen2/3 | Gen4 | Gen 4.1 | Notes |
|----------------------------------------------|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|------------|--------------|-------|---------------|--------|------|---------|-------|
| 1202                                         | Speed Input Source       | Selects speed input source input commands. Digital input selection allows desired constant speed settings in Register #s 2201 through 2204 | 0 = Modbus<br>1 = Analog<br>2 = DI1 & DI2<br>3 = DI2 & DI3<br>4 = DI3 & DI4 | Enumerated | Read / Write | None  | 0 = Modbus    | x      | x    | x       |       |
| 1203                                         | Start/Stop Input Source  | Selects source for Start and Stop Commands. Digital input selection used in Register # 1202 allows Modbus use.                             | 0 = Modbus<br>1 = DI1<br>2 = DI2<br>3 = DI3<br>4 = DI4                      | Enumerated | Read / Write | None  | 0 = Modbus    | x      | x    | x       |       |
| 1204                                         | Direction Input Source   | Selects source for direction commands. Digital input selection in Register #s 1202 and 1203 allows Modbus use.                             | 0 = Modbus<br>1 = DI1<br>2 = DI2<br>3 = DI3<br>4 = DI4                      | Enumerated | Read / Write | None  | 0 = Modbus    | x      | x    | x       |       |
| 1205                                         | Clear Fault Input Source | Selects source for fault reset commands. Digital input selection in Register #s 1202                                                       | 0 = Modbus<br>1 = DI1<br>2 = DI2                                            | Enumerated | Read / Write | None  | 0 = Modbus    | x      | x    | x       |       |

| Register Number<br>All are Holding Registers | Parameter                   | Description                                                                                                                                                                         | Options                                                                                                 | Type         | Read / Write | Units   | Default Value  | Gen2/3 | Gen4 | Gen 4.1 | Notes      |
|----------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|--------------|--------------|---------|----------------|--------|------|---------|------------|
|                                              |                             | through 1204 allows Modbus use.                                                                                                                                                     | 3 = DI3<br>4 = DI4                                                                                      |              |              |         |                |        |      |         |            |
| 1210                                         | Speed Override Input Source | Source to use to trigger Override condition                                                                                                                                         |                                                                                                         | Enumerated   | Read /Write  | None    | 0              |        |      | x       | New in 4.1 |
| <b>Section 13: Fault Reset</b>               |                             |                                                                                                                                                                                     |                                                                                                         |              |              |         |                |        |      |         |            |
| 1301                                         | Number of Attempts          | Defines number of automatic fault reset attempts. Not all faults can be reset automatically<br>If drive exceeds set number it must be reset from source selected in Register # 1205 | 0 = Stop on fault<br>1 through 10 = number of restart attempts per fault<br>99 = Keep trying to restart | Unsigned 0DP | Read / Write | None    | 3 = 3 attempts | x      | x    | x       |            |
| 1302                                         | Reset Delay                 | Defines time between successive automatic reset attempts                                                                                                                            | 0.0 = Immediately reset<br>decimal between 0.0-120.0 = Time in seconds, 0.5 second increments           | Unsigned 1DP | Read / Write | Seconds | 10 = 5 seconds | x      | x    | x       |            |

| Register Number<br>All are Holding Registers | Parameter           | Description                                                                                                                                             | Options                                                              | Type         | Read / Write | Units | Default Value                                                                 | Gen2/3 | Gen4 | Gen 4.1 | Notes |
|----------------------------------------------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|--------------|--------------|-------|-------------------------------------------------------------------------------|--------|------|---------|-------|
| <b>Section 20: Terminal Settings (AI)</b>    |                     |                                                                                                                                                         |                                                                      |              |              |       |                                                                               |        |      |         |       |
| 2001                                         | AI1 Function        | Select function for Analog Input AI1.                                                                                                                   | 0 = Speed control                                                    | Enumerated   | Read / Write | None  | 0 =Speed Control                                                              | x      | x    | x       |       |
| 2002                                         | AI1 Minimum Setting | Defines minimum percent value corresponding to minimum mA(V) signal for analog input AI1:<br>0 = 0 to 100% (0 to 20 mA)<br>20 = 20 to 100% (4 to 20 mA) | Enter number between 0 & 100<br>Must be less than Register # 2003    | Unsigned 1DP | Read / Write | %     | speed user minimum (100 rpm) / speed user minimum( Motor Rated Speed) * 100 % | x      | x    | x       |       |
| 2003                                         | AI1 Maximum Setting | Defines maximum percent value corresponding to V(mA) signal for analog input AI1                                                                        | Enter number between 0 & 100<br>Must be greater than Register # 2002 | Unsigned 1DP | Read / Write | %     | 100 = 100%                                                                    | x      | x    | x       |       |
| 2006                                         | AI1 Type Selection  | Selects input type for AI1                                                                                                                              | 0 = Voltage<br>1= Current                                            | Enumerated   | Read /       | None  | 0 = Voltage                                                                   | x      | x    | x       |       |

| Register Number<br>All are Holding Registers      | Parameter             | Description                                                                                          | Options                                                                                             | Type         | Read / Write | Units | Default Value | Gen2/3 | Gen4 | Gen 4.1 | Notes      |
|---------------------------------------------------|-----------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|--------------|--------------|-------|---------------|--------|------|---------|------------|
|                                                   |                       |                                                                                                      |                                                                                                     |              | Write        |       |               |        |      |         |            |
| 2010                                              | AI1 Open Max          | Upper bound for Analog failover voltage                                                              | 0 to 100%                                                                                           | Unsigned ODP | Read / Write | %     | 0             |        |      | x       | New in 4.1 |
| 2011                                              | AI1 Open Speed        | Analog Failover speed                                                                                | 100 to User Max RPM                                                                                 | Unsigned ODP | Read / Write | RPM   | 0             |        |      | x       | New in 4.1 |
| 2012                                              | AI1 Stop/Override Min | Lower range setting for Analog stop voltage                                                          | 0 to 100%                                                                                           | Unsigned ODP | Read / Write | %     | 0             |        |      | x       | New in 4.1 |
| 2013                                              | AI1 Stop/Override Max | Upper range setting for Analog stop voltage                                                          | 0 to 100%                                                                                           | Unsigned ODP | Read / Write | %     | 0             |        |      | x       | New in 4.1 |
| <b>Section 21: Terminal Settings (Digital In)</b> |                       |                                                                                                      |                                                                                                     |              |              |       |               |        |      |         |            |
| 2101                                              | DI1 Function          | Indicates behavior assigned to DI1 respective to input parameters for Register #s 1202 through 1205. | 0 = None<br>1 = Run<br>2 = Direction<br>3 = Clear Fault<br>4 = Constant Speed<br>6 = Speed Override | Enumerated   | Read         | None  | None          | x      | x    | x       |            |

| Register Number<br>All are Holding Registers          | Parameter        | Description                                                                                          | Options                                                                                             | Type         | Read / Write | Units | Default Value | Gen2/3 | Gen4 | Gen 4.1 | Notes |
|-------------------------------------------------------|------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|--------------|--------------|-------|---------------|--------|------|---------|-------|
| 2102                                                  | DI2 Function     | Indicates behavior assigned to DI1 respective to input parameters for Register #s 1202 through 1205. | 0 = None<br>1 = Run<br>2 = Direction<br>3 = Clear Fault<br>4 = Constant Speed<br>6 = Speed Override | Enumerated   | Read         | None  | None          | x      | x    | x       |       |
| 2103                                                  | DI3 Function     | Indicates behavior assigned to DI1 respective to input parameters for Register #s 1202 through 1205. | 0 = None<br>1 = Run<br>2 = Direction<br>3 = Clear Fault<br>4 = Constant Speed<br>6 = Speed Override | Enumerated   | Read         | None  | None          | x      | x    | x       |       |
| 2104                                                  | DI4 Function     | Indicates behavior assigned to DI1 respective to input parameters for Register #s 1202 through 1205. | 0 = None<br>1 = Run<br>2 = Direction<br>3 = Clear Fault<br>4 = Constant Speed<br>6 = Speed Override | Enumerated   | Read         | None  | None          | x      | x    | x       |       |
| <b>Section 22: Terminal Settings (Constant Speed)</b> |                  |                                                                                                      |                                                                                                     |              |              |       |               |        |      |         |       |
| 2201                                                  | Constant Speed 1 | Speed motor operates when corresponding combination of digital inputs are                            | Number between Speed User Minimum and Speed User Maximum                                            | Unsigned ODP | Read / Write | RPM   | 100           | x      | x    | x       |       |

| Register Number<br>All are Holding Registers | Parameter        | Description                                                                                                                                         | Options                                                  | Type         | Read / Write | Units | Default Value | Gen2/3 | Gen4 | Gen 4.1 | Notes |
|----------------------------------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|--------------|--------------|-------|---------------|--------|------|---------|-------|
|                                              |                  | activated. Speed must within parameters for Register #s 1101 through 1102                                                                           |                                                          |              |              |       |               |        |      |         |       |
| 2202                                         | Constant Speed 2 | Speed motor operates when corresponding combination of digital inputs are activated. Speed must within parameters for Register #s 1101 through 1102 | Number between Speed User Minimum and Speed User Maximum | Unsigned ODP | Read / Write | RPM   | 100           | x      | x    | x       |       |
| 2203                                         | Constant Speed 3 | Speed motor operates when corresponding combination of digital inputs are activated. Speed must within parameters for Register #s 1101 through 1102 | Number between Speed User Minimum and Speed User Maximum | Unsigned ODP | Read / Write | RPM   | 100           | x      | x    | x       |       |

| Register Number<br>All are Holding Registers      | Parameter        | Description                                                                                                                                         | Options                                                                             | Type         | Read / Write | Units | Default Value | Gen2/3 | Gen4 | Gen 4.1 | Notes                   |
|---------------------------------------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------|--------------|-------|---------------|--------|------|---------|-------------------------|
| 2204                                              | Constant Speed 4 | Speed motor operates when corresponding combination of digital inputs are activated. Speed must within parameters for Register #s 1101 through 1102 | Number between Speed User Minimum and Speed User Maximum                            | Unsigned ODP | Read / Write | RPM   | 100           | x      | x    | x       |                         |
| 2205                                              | Override Speed   | Speed to use in Override condition                                                                                                                  | Number between Speed User Minimum and Speed User Maximum                            | Unsigned ODP | Read / Write | RPM   | 0             |        |      | x       | New in 4.1              |
| <b>Section 23: Terminal Settings (Analog Out)</b> |                  |                                                                                                                                                     |                                                                                     |              |              |       |               |        |      |         |                         |
| 2301                                              | AO1 Function     | Connects motor signal to analog output AO1                                                                                                          | 0 = Speed<br>1 = Torque<br>2 = Power<br>3 = Current<br>4 = 10 V (for potentiometer) | Enumerated   | Read / Write | None  | 0 = Speed     | x      | x    | x       | Only uses Speed and 10V |
| 2305                                              | AO1 Type         | Selects output signal type                                                                                                                          | 0 = Voltage<br>1 = Current                                                          | Bit Field 1  | None         | None  | 0 = Voltage   | x      | x    | x       |                         |

| Register Number<br>All are Holding Registers       | Parameter           | Description                                            | Options                                             | Type       | Read / Write | Units     | Default Value | Gen2/3 | Gen4 | Gen 4.1 | Notes            |
|----------------------------------------------------|---------------------|--------------------------------------------------------|-----------------------------------------------------|------------|--------------|-----------|---------------|--------|------|---------|------------------|
| <b>Section 24: Terminal Settings (Digital Out)</b> |                     |                                                        |                                                     |            |              |           |               |        |      |         |                  |
| 2401                                               | DO1 Function        | Selects motor status indicated by corresponding output | 0 = None<br>1 = Active<br>2 = Fault<br>3 = At Range | Enumerated | Read / Write | None      | 1 = Active    | x      | x    | x       |                  |
| 2402                                               | DO2 Function        | Selects motor status indicated by corresponding output | 0 = None<br>1 = Active<br>2 = Fault<br>3 = At Range | Enumerated | Read / Write | None      | 2 = Fault     | x      | x    | x       |                  |
| <b>Section 30: Monitor (Electrical)</b>            |                     |                                                        |                                                     |            |              |           |               |        |      |         |                  |
| 3001                                               | DC Bus Voltage      | Indication of DC Bus Voltage (V)                       | None                                                | Signed 1DP | Read         | Volts (V) | None          | x      |      |         | Removed for Gen4 |
| 3004                                               | Average RMS Current | Indication of Average RMS motor phase current (A)      | None                                                | Signed 2DP | Read         | Amps (A)  | None          | x      |      |         | Removed for Gen4 |

| Register Number<br>All are Holding Registers | Parameter      | Description                                                                   | Options | Type       | Read / Write | Units | Default Value | Gen2/3 | Gen4 | Gen 4.1 | Notes                                |
|----------------------------------------------|----------------|-------------------------------------------------------------------------------|---------|------------|--------------|-------|---------------|--------|------|---------|--------------------------------------|
| <b>Section 31: Monitor (Environmental)</b>   |                |                                                                               |         |            |              |       |               |        |      |         |                                      |
| 3101                                         | Stator RTD     | Displays temperature value from associated sensor. Defined in Register # 3151 | None    | Signed 0DP | Read         | °C    | None          | x      |      |         | Gen2 uses stator RTD                 |
| 3102                                         | Stator Average | Displays temperature value from associated sensor. Defined in Register # 3152 | None    | Signed 0DP | Read         | °C    | None          |        | x    | x       | Gen4 uses average of two thermistors |
| 3103                                         | T3 Heatsink    | Displays temperature value from associated sensor. Defined in Register # 3153 | None    | Signed 0DP | Read         | °C    | None          |        | x    | x       |                                      |
| 3104                                         | T2 Stator NTC1 | Displays temperature value from associated sensor. Defined in Register # 3154 | None    | Signed 0DP | Read         | °C    | None          |        | x    | x       |                                      |
| 3105                                         | Inv board temp | Displays temperature value from associated                                    | None    | Signed 0DP | Read         | °C    | None          | x      | x    | x       |                                      |

| Register Number<br>All are Holding Registers | Parameter          | Description                                                                   | Options | Type       | Read / Write | Units | Default Value    | Gen2/3 | Gen4 | Gen 4.1 | Notes                            |
|----------------------------------------------|--------------------|-------------------------------------------------------------------------------|---------|------------|--------------|-------|------------------|--------|------|---------|----------------------------------|
|                                              |                    | sensor. Defined in Register # 3155                                            |         |            |              |       |                  |        |      |         |                                  |
| 3106                                         | T3 Heatsink        | Displays temperature value from associated sensor. Defined in Register # 3156 | None    | Signed 0DP | Read         | °C    | None             | x      |      |         |                                  |
| 3107                                         | T4 Stator NTC2     | Displays temperature value from associated sensor. Defined in Register # 3157 | None    | Signed 0DP | Read         | °C    | None             |        | x    |         |                                  |
| 3114                                         | T14 CIM Board Temp | Displays temperature value from associated sensor. Defined in Register # 3164 | None    | Signed 0DP | Read         | °C    | None             | x      | x    | x       |                                  |
| 3151                                         | Temp Label 1       | Factory set label value measured in Register # 3101                           | None    | Enumerated | Read         | None  | Stator Calc Temp | x      |      |         | Gen2 uses stator RTD temp sensor |
| 3152                                         | Temp Label 2       | Factory set label value measured in Register # 3102                           | None    | Enumerated | Read         | None  | Stator Calc Temp |        | x    | x       | Average of two thermistors       |

| Register Number<br>All are Holding Registers | Parameter     | Description                                         | Options | Type       | Read / Write | Units | Default Value            | Gen2/3 | Gen4 | Gen 4.1 | Notes               |
|----------------------------------------------|---------------|-----------------------------------------------------|---------|------------|--------------|-------|--------------------------|--------|------|---------|---------------------|
| 3153                                         | Temp Label 3  | Factory set label value measured in Register # 3103 | None    | Enumerated | Read         | None  | Heat Sink Temp           |        | x    | x       | Gen4 and later only |
| 3154                                         | Temp Label 4  | Factory set label value measured in Register # 3104 | None    | Enumerated | Read         | None  | Stator Thermistor 1 Temp |        | x    | x       | Gen4 and later only |
| 3155                                         | Temp Label 5  | Factory set label value measured in Register # 3105 | None    | Enumerated | Read         | None  | Inverter Board Temp      | x      |      |         |                     |
| 3156                                         | Temp Label 6  | Factory set label value measured in Register # 3106 | None    | Enumerated | Read         | None  |                          | x      |      |         | Gen2 only           |
| 3157                                         | Temp Label 7  | Factory set label value measured in Register # 3107 | None    | Enumerated | Read         | None  | Stator Thermistor 2 Temp |        | x    | x       | Gen4 and later only |
| 3164                                         | Temp Label 14 | Factory set label value measured in Register # 3114 | None    | Enumerated | Read         | None  | CIM Board Temp           | x      | x    | x       |                     |

| Register Number<br>All are Holding Registers | Parameter        | Description                                     | Options | Type           | Read / Write | Units              | Default Value | Gen2/3 | Gen4 | Gen 4.1 | Notes            |
|----------------------------------------------|------------------|-------------------------------------------------|---------|----------------|--------------|--------------------|---------------|--------|------|---------|------------------|
| <b>Section 32: Monitor (Performance)</b>     |                  |                                                 |         |                |              |                    |               |        |      |         |                  |
| 3201                                         | Output Torque    | Indication of output torque calculated by drive | None    | Signed 3DP     | Read         | Nm                 | None          | x      |      |         | Removed for Gen4 |
| 3202                                         | Output Power     | Indication of output power calculated by drive  | None    | Unassigned 0DP | Read         | Watts (W)          | None          | x      |      |         | Removed in Gen4  |
| <b>Section 33: Monitor (Operating)</b>       |                  |                                                 |         |                |              |                    |               |        |      |         |                  |
| 3301                                         | Run/Stop Actual  | Displays motor Run/Stop status                  | None    | Bit Field 1    | Read         | Running or Stopped | None          | x      | x    | x       |                  |
| 3302                                         | Direction Actual | Displays direction of motor rotation            | None    | Bit Field 1    | Read         | CW or CCW          | None          | x      | x    | x       |                  |
| 3303                                         | Speed Actual     | Displays measured speed of motor                | None    | Unsigned 0DP   | Read         | RPM                | None          | x      | x    | x       |                  |

| Register Number<br>All are Holding Registers | Parameter   | Description                  | Options | Type         | Read / Write | Units | Default Value | Gen2/3 | Gen4 | Gen 4.1 | Notes |
|----------------------------------------------|-------------|------------------------------|---------|--------------|--------------|-------|---------------|--------|------|---------|-------|
| <b>Section 35: Monitor (Analog In)</b>       |             |                              |         |              |              |       |               |        |      |         |       |
| 3501                                         | AIN1 Value  | Displays input signal to AI1 | None    | Unsigned 1DP | Read         | %     | None          | x      | x    | x       |       |
| <b>Section 36: Monitor (Analog Out)</b>      |             |                              |         |              |              |       |               |        |      |         |       |
| 3601                                         | AOUT1 Value | Displays signal out to AO1   | None    | Unsigned 1DP | Read         | %     | None          | x      | x    | x       |       |
| <b>Section 37: Monitor (DI)</b>              |             |                              |         |              |              |       |               |        |      |         |       |
| 3701                                         | DIN1 Value  | Displays status of DI1       | None    | Bit Field 1  | Read         | None  | None          | x      | x    | x       |       |
| 3702                                         | DIN2 Value  | Displays status of DI2       | None    | Bit Field 1  | Read         | None  | None          | x      | x    | x       |       |
| 3703                                         | DIN3 Value  | Displays status of DI3       | None    | Bit Field 1  | Read         | None  | None          | x      | x    | x       |       |
| 3704                                         | DIN4 Value  | Displays status of DI4       | None    | Bit Field 1  | Read         | None  | None          | x      | x    | x       |       |

| Register Number<br>All are Holding Registers | Parameter     | Description                                | Options | Type                                                                                                                                    | Read / Write | Units | Default Value | Gen2/3 | Gen4 | Gen 4.1 | Notes |
|----------------------------------------------|---------------|--------------------------------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------|--------------|-------|---------------|--------|------|---------|-------|
| <b>Section 38: Monitor (Digital Out)</b>     |               |                                            |         |                                                                                                                                         |              |       |               |        |      |         |       |
| 3801                                         | DOUT1 Value   | Displays status of DO1                     | None    | Bit Field 1                                                                                                                             | Read         | None  | None          | x      | x    | x       |       |
| 3802                                         | DOUT2 Value   | Displays status of DO2                     | None    | Bit Field 1                                                                                                                             | Read         | None  | None          | x      | x    | x       |       |
| <b>Section 40: Faults</b>                    |               |                                            |         |                                                                                                                                         |              |       |               |        |      |         |       |
| 4001                                         | Active Faults | Monitors for active Faults                 | None    | Bit Field 1                                                                                                                             | Read         | None  | None          | x      | x    | x       |       |
| 4003                                         | Clear Faults  | Write "1" to this register to clear Faults | None    | Unsigned ODP                                                                                                                            | Write        | None  | None          | x      | x    | x       |       |
| 4011                                         | Fault Word    | Displays encoded Fault word                | None    | Bit Fault<br>0 FAULT_HW<br>1 FAULT_Overcurrent<br>2 FAULT_Overvoltage<br>3 FAULT_Undervoltage<br>4 FAULT_Overtemp<br>5 FAULT_GateDriver | Read         | None  | None          | x      | x    | x       |       |

| Register Number<br>All are Holding Registers | Parameter        | Description             | Options | Type                                                                                                                                                                                                 | Read / Write | Units | Default Value | Gen2/3 | Gen4 | Gen 4.1 | Notes |
|----------------------------------------------|------------------|-------------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------|---------------|--------|------|---------|-------|
|                                              |                  |                         |         | 6<br>FAULT_GateDriverUV<br><br>8<br>FAULT_UARTComm Error<br><br>11<br>FAULT_MotorParameters<br>12<br>FAULT_Motor_Disable<br>13<br>Fault_Inverter_Flash<br>14<br>Fault_Inverter_Error<br>15 Fault_CIM |              |       |               |        |      |         |       |
| 4012                                         | Gate Drive Fault | Fault Word – Gate Drive | None    | Bit Gate Fault<br>0<br>GATE_DRV_FLT<br><br>3<br>GATE_DRV_FLT_UVLO                                                                                                                                    | Read         | None  | None          | x      | x    | x       |       |
| 4013                                         | Over Temp Fault  | Fault Word- Over Temp   | None    | (0=No Fault, Bit(x) on = indicated Flt)                                                                                                                                                              | Read         | None  | None          | x      | x    | x       |       |

| Register Number<br>All are Holding Registers | Parameter        | Description          | Options | Type                                                                                                                                                                                                                     | Read / Write | Units | Default Value | Gen2/3 | Gen4 | Gen 4.1 | Notes |
|----------------------------------------------|------------------|----------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------|---------------|--------|------|---------|-------|
|                                              |                  |                      |         | Bit1 = Flt_OverTemp_Stat orTherm1<br>Bit2 = Flt_OverTemp_Heat Sink<br>Bit3 = Flt_OverTemp_Stat orTherm2<br>Bit8 = Flt_OverTemp_Board                                                                                     |              |       |               |        |      |         |       |
| 4014                                         | CIM Fault Status | Fault Word – Comm/IO | None    | (0=No Fault, Bit(x) on = indicated Flt)<br>Bit0 = Flt_CIM_InvComm<br>Bit1 = Flt_CIM_Digital Input<br>Bit2 = Flt_CIM_Analog Input<br>Bit3 = Flt_CIM_24 VDC<br>Bit4 = Flt_CIM_Inv Settings Flt<br>Bit5 = Flt_CIM_Interlock | Read         | None  | None          | x      | x    | x       |       |

| Register Number<br>All are Holding Registers | Parameter                | Description                            | Options | Type                                                                                          | Read / Write | Units     | Default Value | Gen2/3 | Gen4 | Gen 4.1 | Notes |
|----------------------------------------------|--------------------------|----------------------------------------|---------|-----------------------------------------------------------------------------------------------|--------------|-----------|---------------|--------|------|---------|-------|
|                                              |                          |                                        |         | Bit6 = Flt_CIM_Override<br>Bit7 = Flt_CIM_Modbus Fail Over<br>Bit8 = Flt_CIM_Analog Fail Over |              |           |               |        |      |         |       |
| <b>Section 70: Device Information</b>        |                          |                                        |         |                                                                                               |              |           |               |        |      |         |       |
| 7002                                         | Motor Max Current        | Displays maximum motor current         | None    | Unsigned 2DP                                                                                  | Read         | Amps (A)  | None          | x      | x    | x       |       |
| 7003                                         | Motor Voltage            | Displays nominal VAC for motor         | None    | Unsigned 0DP                                                                                  | Read         | Volts (V) | None          | x      | x    | x       |       |
| 7004                                         | Motor Serial No (Word 1) | Displays Word 1 of motor serial number | None    | Unsigned 0DP                                                                                  | Read         | None      | None          |        | x    | x       |       |
| 7005                                         | Motor Serial No (Word 2) | Displays Word 2 of motor serial number | None    | Unsigned 0DP                                                                                  | Read         | None      | None          |        | x    | x       |       |
| 7006                                         | Motor Serial No (Word 3) | Displays Word 3 of motor serial number | None    | Unsigned 0DP                                                                                  | Read         | None      | None          |        | x    | x       |       |
| 7007                                         | Motor Serial No (Word 4) | Displays Word 4 of motor serial number | None    | Unsigned 0DP                                                                                  | Read         | None      | None          |        | x    | x       |       |

| Register Number<br>All are Holding Registers | Parameter                | Description                              | Options | Type         | Read / Write | Units | Default Value | Gen2/3 | Gen4 | Gen 4.1 | Notes |
|----------------------------------------------|--------------------------|------------------------------------------|---------|--------------|--------------|-------|---------------|--------|------|---------|-------|
| 7008                                         | Motor Serial No (Word 5) | Displays Word 5 of motor serial number   | None    | Unsigned ODP | Read         | None  | None          |        | x    | x       |       |
| 7009                                         | Motor Serial No (Word 6) | Displays Word 6 of motor serial number   | None    | Unsigned ODP | Read         | None  | None          |        | x    | x       |       |
| 7010                                         | Motor Serial No (Word 7) | Displays Word 7 of motor serial number   | None    | Unsigned ODP | Read         | None  | None          |        | x    | x       |       |
| 7011                                         | Old SN1                  | Displays Word 1 of motor serial number   | None    | Unsigned ODP | Read         | None  | None          | x      |      |         |       |
| 7012                                         | Old SN2                  | Displays Word 2 of motor serial number   | None    | Unsigned ODP | Read         | None  | None          | x      |      |         |       |
| 7013                                         | Old SN3                  | Displays Word 3 of motor serial number   | None    | Unsigned ODP | Read         | None  | None          | x      |      |         |       |
| 7014                                         | Old SN4                  | Displays Word 4 of motor serial number   | None    | Unsigned ODP | Read         | None  | None          | x      |      |         |       |
| 7021                                         | Motor Model              | Displays Motor Model number              | None    | Unsigned ODP | Read         | None  | None          | x      | x    | x       |       |
| 7031                                         | Inverter Firmware Major  | Displays Inverter Firmware Major Version | None    | Unsigned ODP | Read         | None  | None          | x      | x    | x       |       |
| 7032                                         | Inverter Firmware Minor  | Displays Inverter Firmware Minor Version | None    | Unsigned ODP | Read         | None  | None          | x      | x    | x       |       |

| Register Number<br>All are Holding Registers | Parameter          | Description                | Options | Type         | Read / Write | Units | Default Value | Gen2/3 | Gen4 | Gen 4.1 | Notes          |
|----------------------------------------------|--------------------|----------------------------|---------|--------------|--------------|-------|---------------|--------|------|---------|----------------|
| 7033                                         | CIM Firmware Major | Displays CIM Major Version | None    | Unsigned ODP | Read         | None  | None          | x      | x    | x       |                |
| 7034                                         | CIM Firmware Minor | Displays CIM Minor Version | None    | Unsigned ODP | Read         | None  | None          | x      | x    | x       |                |
| 7035                                         | Motor Type         | Displays Motor Type        | None    | Unsigned ODP | Read         | None  | None          | x      | x    | x       |                |
| 7036                                         | Hardware ID        | Displays HW ID             | None    | Unsigned ODP | Read         | None  | None          | x      | x    | x       |                |
| 7039                                         | Hardware ID INV    | Displays Inv ID            | None    | Unsigned ODP | Read         | None  | None          |        | x    | x       | Added for Gen4 |
| 7040                                         | Hardware ID VFD    | Displays VFD ID            | None    | Unsigned ODP | Read         | None  | None          |        | x    | x       | Added for Gen4 |
| 7041                                         | Hardware ID CIM    | Displays CIM               | None    | Unsigned ODP | Read         | None  | None          |        | x    | x       | Added for Gen4 |
| 7042                                         | Horsepower         | Displays Horsepower        | None    | Unsigned ODP | Read         | None  | None          |        | x    | x       | Added for Gen4 |
| 7043                                         | Frame Size         | Displays Fame Size         | None    | Unsigned ODP | Read         | None  | None          |        | x    | x       | Added for Gen4 |
| 7044                                         | Stator Type        | Stator Type                | None    | Unsigned ODP | Read         | None  | None          |        | x    | x       | Added for Gen4 |

| Register Number<br>All are Holding Registers     | Parameter         | Description                            | Options                                                                       | Type         | Read / Write | Units                | Default Value | Gen2/3 | Gen4 | Gen 4.1 | Notes            |
|--------------------------------------------------|-------------------|----------------------------------------|-------------------------------------------------------------------------------|--------------|--------------|----------------------|---------------|--------|------|---------|------------------|
| <b>Section 71: Device Information (Lifetime)</b> |                   |                                        |                                                                               |              |              |                      |               |        |      |         |                  |
| 7101                                             | Drive Runtime     | Displays Drive Runtime hours           | 0 = Reset                                                                     | Unsigned 0DP | Read / Write | Hour (hr)            | None          | x      | x    | x       |                  |
| 7102                                             | Motor Runtime     | Displays Motor Runtime hours           | 0 = Reset                                                                     | Unsigned 0DP | Read / Write | Hour (hr)            | None          | x      | x    | x       |                  |
| 7103                                             | Motor MWh         | Displays power consumed by motor (MWh) | 0 = Reset                                                                     | Unsigned 1DP | Read / Write | Mega Watt Hour (MWh) | None          | x      |      |         | Removed for Gen4 |
| <b>Section 86: MAC Address Words</b>             |                   |                                        |                                                                               |              |              |                      |               |        |      |         |                  |
| 8601                                             | RTU Slave Address | Modbus RTU slave address               | 1-247                                                                         | Unsigned 0DP | Read / Write | None                 | 247           | x      | x    | x       |                  |
| 8602                                             | RTU Baud Rate     | Modbus RTU baud rate                   | 0 = 1200 bps<br>1 = 2400 bps<br>2 = 4800 bps<br>3 = 9600 bps<br>4 = 19200 bps | Enumerated   | Read / Write | None                 | 4 = 19200 bps | x      | x    | x       |                  |

| Register Number<br>All are Holding Registers | Parameter             | Description                                     | Options                                                           | Type         | Read / Write | Units   | Default Value     | Gen2/3 | Gen4 | Gen 4.1 | Notes |
|----------------------------------------------|-----------------------|-------------------------------------------------|-------------------------------------------------------------------|--------------|--------------|---------|-------------------|--------|------|---------|-------|
|                                              |                       |                                                 | 5 = 38400 bps<br>6 = 57600 bps<br>7 = 76800 bps<br>8 = 115200 bps |              |              |         |                   |        |      |         |       |
| 8603                                         | RTU Parity            | Modbus RTU parity                               | 0 = No Parity<br>1 = Even Parity<br>2 = Odd Parity                | Enumerated   | Read / Write | None    | 1 = Even Parity   | x      | x    | x       |       |
| 8604                                         | MAC Address (Word 1)  | MAC Address bytes 1 & 2                         | None                                                              | Unsigned ODP | Read         | None    | None              | x      | x    | x       |       |
| 8605                                         | MAC Address (Word 2)  | MAC Address bytes 3 & 4                         | None                                                              | Unsigned ODP | Read         | None    | None              | x      | x    | x       |       |
| 8606                                         | MAC Address (Word 3)  | MAC Address bytes 5 & 6                         | None                                                              | Unsigned ODP | Read         | None    | None              | x      | x    | x       |       |
| 8607                                         | IoT Update Rate       | IoT Update Frequency in seconds (default is 60) | 0-65535 = 0-65535 seconds                                         | Unsigned ODP | Read / Write | Seconds | 900 = 900 Seconds | x      |      |         |       |
| 8611                                         | Modbus Monitor Enable | Enable for Modbus Monitor failover feature      | 0 = Disable<br>1 = Enable                                         | Bit Field 1  | Read /       | None    | 0 = Disable       | x      | x    | x       |       |

| Register Number<br>All are Holding Registers | Parameter              | Description                                               | Options                                                   | Type         | Read / Write | Units   | Default Value       | Gen2/3 | Gen4 | Gen 4.1 | Notes |
|----------------------------------------------|------------------------|-----------------------------------------------------------|-----------------------------------------------------------|--------------|--------------|---------|---------------------|--------|------|---------|-------|
| 8612                                         | Modbus Monitor Timeout | Time in seconds to detect Modbus communications fault     | 0-65535 = 0-65535 seconds                                 | Unsigned ODP | Write        | Seconds | 30 = 30 Seconds     | x      | x    | x       |       |
| 8613                                         | Modbus Monitor Resume  | If set, resume previous speed when communications resumes | 0 = Disable<br>1 = Enable                                 | Bit Field 1  | Read /       | None    | 0 = Disable         | x      | x    | x       |       |
| 8614                                         | Modbus Monitor Stop    | Stop motor in event of loss of communications             | 0 = Fail Over Speed<br>1 = Stop Motor                     | Bit Field 1  | Write        | None    | 0 = Fail Over Speed | x      | x    | x       |       |
| 8615                                         | Modbus Monitor Speed   | Interim motor speed during loss of communications         | Integer between Speed User Minimum and Speed User Maximum | Unsigned ODP | Read /       | RPM     | 100 RPM             | x      | x    | x       |       |
| <b>Section 87: System Controls</b>           |                        |                                                           |                                                           |              |              |         |                     |        |      |         |       |
| 8701                                         | Parameter Save         | Saves valid parameter values to permanent memory          | None                                                      | Bit Field 1  | Read / Write | None    | None                | x      | x    | x       |       |

## Section 88: Parameter Table “Type” Specifications

| Type                           | Description                                                                                    | Words | Minimum Value | Maximum Value |
|--------------------------------|------------------------------------------------------------------------------------------------|-------|---------------|---------------|
| Signed 0DP<br>No Decimal Point | Signed 16-bit number with no characters past decimal point                                     | 1     | -32768        | 32767         |
| Signed 1DP                     | Signed 16-bit number with one character past decimal point                                     | 1     | -3276.8       | 3276.7        |
| Signed 2DP                     | Signed 16-bit number with two characters past decimal point                                    | 1     | -327.68       | 327.67        |
| Signed 3DP                     | Signed 16-bit number with three characters past decimal point                                  | 1     | -32.768       | 32.768        |
| Unsigned 0DP                   | Unsigned 16-bit number with no characters past decimal point                                   | 1     | 0             | 65536         |
| Unsigned 1DP                   | Unsigned 16-bit number with one character past decimal point                                   | 1     | 0.0           | 6553.6        |
| Unsigned 2DP                   | Unsigned 16-bit number with two characters past decimal point                                  | 1     | 0.00          | 655.36        |
| Enumerated                     | An unsigned number defined by an enumerated list. The list is defined in a corresponding table | 1     | 0             | 65536         |

