# C.A 2150-D

CODE: EDITION: 080719

## MODBUS MAP ADDRESSES


(From version D2.00)

ENERDIS®
CHAUVIN ARNOUX GROUP

**Programming Data (Read/Write)**

| Word | Byte | Variable | Description |
|---|---|---|---|
| 0 | 0 | Sensor type | **0**=10-300V, **1**= Pickup (Magnetic) , **2**=NAMUR, **3**= PNP sensor, **4**= NPN sensor, **5**=TTL/24V Encoder, **6**=Contact closure |
| | 1 | Input Mode | **0**=Counter, **1**=Chronometer, **2**= Frequency meter, **3**=Tachometer |
| 1 | 2 | Counting Direction | **0**=UP, **1**=DOWN, **2**=UP/DOWN |
| | 3 | Unidirectional Counter / Chrono. Inputs A and B Mode | **0**=IN A, **1**=IN AB |
| 2 | 4 | Bidirectional counter Inputs A and B Mode | **0**= Independent, **1**= Directional, **2**= Phase |
| | 5 | Total Mode | **0**=Relative, **1**=Absolut |
| 3 | 6 | Chronometer mode | **0**=UP, **1**=DOWN |
| | 7 | Chronometer scale | **0**=Hr, **1**=H:MM, **2**=M:SS, **3**=0.01S |
| 4 | 8 | Tachometer mode | **0**=RPM, **1**=RATE, **2**=DUTY |
| | 9 | Tachometer scale “Rate” | **0**=Direct, **1**=Inverse, **2**=Linear |
| 5 | 10 | - | *reserved = 0* |
| | 11 | Input Frequency 1 Tachometer scale[5] | Digit 4 |
| 6 | 12 | | Digit 3 |
| | 13 | | Digit 2 |
| 7 | 14 | | Digit 1 |
| | 15 | | Digit 0 |
| 8 | 16 | Frequency Decimal Point | **0**=99999, **1**=9999.9, **2**=999.99 |
| | 17 | Display 1 Tachometer scale[5] | Digit 4 |
| 9 | 18 | | Digit 3 |
| | 19 | | Digit 2 |
| 10 | 20 | | Digit 1 |
| | 21 | | Digit 0 |
| 11 | 22 | Input frequency 2 Tachometer scale[5] | Digit 4 |
| | 23 | | Digit 3 |
| 12 | 24 | | Digit 2 |
| | 25 | | Digit 1 |
| 13 | 26 | | Digit 0 |
| | 27 | Display 2 Tachometer scale[5] | Digit 4 |
| 14 | 28 | | Digit 3 |
| | 29 | | Digit 2 |
| 15 | 30 | | Digit 1 |
| | 31 | | Digit 0 |
| 16 | 32 | Total | **0**=No, **1**=Yes |
| | 33 | Display Process Decimal point | **0**=99999, **1**=9999.9, **2**=999.99, **3**=99.999, **4**=9.9999 |
| 17 | 34 | Display Total Decimal point | **0**=99999999, **1**=9999999.9, **2**=999999.99, **3**=99999.999, **4**=9999.9999 |

| | | | |
|---|---|---|---|
| | 35 | Limit time Tachometer [3] (00.1s to 99.9 s) | Digit 2 |
| 18 | 36 | | Digit 1 |
| | 37 | | Digit 0 |
| 19 | 38 | Average time Tachometer [2] (0.1s to 9.9 s) | Digit 1 |
| | 39 | | Digit 0 |
| 20 | 40 | Pulses per revolution Tachometer RPM [5] | Digit 4 |
| | 41 | | Digit 3 |
| 21 | 42 | | Digit 2 |
| | 43 | | Digit 1 |
| 22 | 44 | | Digit 0 |
| | 45 | Counter/ Chrono. Offset Process [5] | Digit 4 (sign) |
| 23 | 46 | | Digit 3 |
| | 47 | | Digit 2 |
| 24 | 48 | | Digit 1 |
| | 49 | | Digit 0 |
| 25 | 50 | Counter/ Chrono. Offset Total [8] | Digit 7 (sign) |
| | 51 | | Digit 6 |
| 26 | 52 | | Digit 5 |
| | 53 | | Digit 4 |
| 27 | 54 | | Digit 3 |
| | 55 | | Digit 2 |
| 28 | 56 | | Digit 1 |
| | 57 | | Digit 0 |
| 29 | 58 | Process Factor [5] | Digit 4 |
| | 59 | | Digit 3 |
| 30 | 60 | | Digit 2 |
| | 61 | | Digit 1 |
| 31 | 62 | | Digit 0 |
| | 63 | Process Factor Decimal Point | **0**=99999, **1**=9999.9, **2**=999.99, **3**=99.999, **4**=9.9999 |
| 32 | 64 | Process Factor Mult / Div | **0**=Multiplier, **1**=Divider |
| | 65 | Total Factor [5] | Digit 4 |
| 33 | 66 | | Digit 3 |
| | 67 | | Digit 2 |
| 34 | 68 | | Digit 1 |
| | 69 | | Digit 0 |
| 35 | 70 | Total Factor Decimal Point | **0**=99999, **1**=9999.9, **2**=999.99, **3**=99.999, **4**=9.9999 |
| | 71 | Total Counter Factor Mult / Div | **0**=Multiplier, **1**=Divider |
| 36 | 72 | Mode RUN Color | **0**=Amber, **1**=Red, **2**=Green |
| | 73 | Mode PROG Color | **0**=Amber, **1**=Red, **2**=Green |
| 37 | 74 | Mode Total Color | **0**=Amber, **1**=Red, **2**=Green |
| | 75 | ECO Mode | **0**=OFF, **1**=ON |
| 38 | 76 | Brightness | **0**=High, **1**=Low |

| | | | |
|---|---|---|---|
| | 77 | - | *reserved = 0* |
| 39 | 78 | ECO Mode Minutes [2]<br>(00 to 99 min) | Digit 1 |
| | 79 | | Digit 0 |
| 40 | 80 | Setpoint 1 Value [8] | Digit 7 (sign if Total) |
| | 81 | | Digit 6 (if Total) |
| 41 | 82 | | Digit 5 (if Total) |
| | 83 | | Digit 4 (sign if Process) |
| 42 | 84 | | Digito 3 |
| | 85 | | Digit 2 |
| 43 | 86 | | Digit 1 |
| | 87 | | Digit 0 |
| 44 | 88 | Setpoint 2 Value [8] | Digit 7 (sign if Total) |
| | 89 | | Digit 6 (if Total) |
| 45 | 90 | | Digit 5 (if Total) |
| | 91 | | Digit 4 (sign if Process) |
| 46 | 92 | | Digito 3 |
| | 93 | | Digit 2 |
| 47 | 94 | | Digit 1 |
| | 95 | | Digit 0 |
| 48 | 96 | Setpoint 3 Value [8] | Digit 7 (sign if Total) |
| | 97 | | Digit 6 (if Total) |
| 49 | 98 | | Digit 5 (if Total) |
| | 99 | | Digit 4 (sign if Process) |
| 50 | 100 | | Digito 3 |
| | 101 | | Digit 2 |
| 51 | 102 | | Digit 1 |
| | 103 | | Digit 0 |
| 52 | 104 | Setpoint 4 Value [8] | Digit 7 (sign if Total) |
| | 105 | | Digit 6 (if Total) |
| 53 | 106 | | Digit 5 (if Total) |
| | 107 | | Digit 4 (sign if Process) |
| 54 | 108 | | Digito 3 |
| | 109 | | Digit 2 |
| 55 | 110 | | Digit 1 |
| | 111 | | Digit 0 |
| 56 | 112 | Delay (0 to 99 s) / Hysteresis<br>Setpoint 1<br>Mode Frec / Tach [5] | Digit 4 (if Hysteresis) |
| | 113 | | Digit 3 (if Hysteresis) |
| 57 | 114 | | Digit 2 (if Hysteresis) |
| | 115 | | Digit 1 |
| 58 | 116 | | Digit 0 |
| | 117 | Delay (0 to 99 s) / Hysteresis<br>Setpoint 2<br>Mode Frec / Tach [5] | Digit 4 (if Hysteresis) |
| 59 | 118 | | Digit 3 (if Hysteresis) |
| | 119 | | Digit 2 (if Hysteresis) |
| 60 | 120 | | Digit 1 |
| | 121 | | Digit 0 |

| | | | |
|---|---|---|---|
| 61 | 122 | Delay (0 to 99 s) / Hysteresis Setpoint 3 Mode Frec / Tach [5] | Digit 4 (if Hysteresis) |
| | 123 | | Digit 3 (if Hysteresis) |
| 62 | 124 | | Digit 2 (if Hysteresis) |
| | 125 | | Digit 1 |
| 63 | 126 | | Digit 0 |
| | 127 | Delay (0 to 99 s) / Hysteresis Setpoint 4 Mode Frec / Tach [5] | Digit 4 (if Hysteresis) |
| 64 | 128 | | Digit 3 (if Hysteresis) |
| | 129 | | Digit 2 (if Hysteresis) |
| 65 | 130 | | Digit 1 |
| | 131 | | Digit 0 |
| 66 | 132 | Setpoint 1 Pulse Time [2] (1 to 99 s) Mode Counter / Crono | Digit 1 |
| | 133 | | Digit 0 |
| 67 | 134 | Setpoint 2 Pulse Time [2] (1 to 99 s) Mode Counter / Crono | Digit 1 |
| | 135 | | Digit 0 |
| 68 | 136 | Setpoint 3 Pulse Time [2] (1 to 99 s) Mode Counter / Crono | Digit 1 |
| | 137 | | Digit 0 |
| 69 | 138 | Setpoint 4 Pulse Time [2] (1 to 99 s) Mode Counter / Crono | Digit 1 |
| | 139 | | Digit 0 |
| 70 | 140 | Pulse / Latch Mode Setpoint 1 | **0**=Latch, **1**=Pulse |
| | 141 | Pulse / Latch Mode Setpoint 2 | **0**=Latch, **1**=Pulse |
| 71 | 142 | Pulse / Latch Mode Setpoint 3 | **0**=Latch, **1**=Pulse |
| | 143 | Pulse / Latch Mode Setpoint 4 | **0**=Latch, **1**=Pulse |
| 72 | 144 | ON/OFF Setpoint 1 | **0**=OFF, **1**=ON |
| | 145 | ON/OFF Setpoint 2 | **0**=OFF, **1**=ON, (**2**=Track, -if Frec / Tach-) |
| 73 | 146 | ON/OFF Setpoint 3 | **0**=OFF, **1**=ON |
| | 147 | ON/OFF Setpoint 4 | **0**=OFF, **1**=ON, (**2**=Track, -if Frec / Tach-) |
| 74 | 148 | HI/LO Setpoint 1 | **0**=HI, **1**=LO, (**2**=LO2, -if Frec / Tach-) |
| | 149 | HI/LO Setpoint 2 | **0**=HI, **1**=LO, (**2**=LO2, -if Frec / Tach-) |
| 75 | 150 | HI/LO Setpoint 3 | **0**=HI, **1**=LO, (**2**=LO2, -if Frec / Tach-) |
| | 151 | HI/LO Setpoint 4 | **0**=HI, **1**=LO, (**2**=LO2, -if Frec / Tach-) |
| 76 | 152 | Delay / Hysteresis Setpoint 1 | **0**=DLY, **1**=HYS |
| | 153 | Delay / Hysteresis Setpoint 2 | **0**=DLY, **1**=HYS |
| 77 | 154 | Delay / Hysteresis Setpoint 3 | **0**=DLY, **1**=HYS |
| | 155 | Delay / Hysteresis Setpoint 4 | **0**=DLY, **1**=HYS |
| 78 | 156 | Setpoint 1 Comparison Value | **0**=Process, **1**=Total |
| | 157 | Setpoint 2 Comparison Value | **0**=Process, **1**=Total |
| 79 | 158 | Setpoint 3 Comparison Value | **0**=Process, **1**=Total |
| | 159 | Setpoint 4 Comparison Value | **0**=Process, **1**=Total |
| 80 | 160 | Functions Setpoint 1 Count / Crono | **0**=No, **1**=Reset, **2**=Stop, **3**=Clear, **4**=Chain |
| | 161 | Functions Setpoint 2 Count / Crono | **0**=No, **1**=Reset, **2**=Stop, **3**=Clear, **4**=Chain |
| 81 | 162 | Functions Setpoint 3 Count / Crono | **0**=No, **1**=Reset, **2**=Stop, **3**=Clear, **4**=Chain |
| | 163 | Functions Setpoint 4 Count / Crono | **0**=No, **1**=Reset, **2**=Stop, **3**=Clear, **4**=Chain |
| 82 | 164 | Setpoint 1 Color | **0**=No Change, **1**=Amber, **2**=Red, **3**=Green |
| | 165 | Setpoint 2 Color | **0**=No Change, **1**=Amber, **2**=Red, **3**=Green |
| 83 | 166 | Setpoint 3 Color | **0**=No Change, **1**=Amber, **2**=Red, **3**=Green |

| | | | |
|---|---|---|---|
| | 167 | Setpoint 4 Color | **0**=No Change, **1**=Amber, **2**=Red, **3**=Green |
| 84 | 168 | *reserved* | |
| | 169 | Analogue Output Comparison Value | **0**=Process, **1**=Total |
| 85 | 170 | Analogue Output Value High [8] | Digit 7 (sign if Total) |
| | 171 | | Digit 6 ( if Total) |
| 86 | 172 | | Digit 5 ( if Total) |
| | 173 | | Digit 4 (sign if Process) |
| 87 | 174 | | Digito 3 |
| | 175 | | Digit 2 |
| 88 | 176 | | Digit 1 |
| | 177 | | Digit 0 |
| 89 | 178 | Analogue Output Value Low [8] | Digit 7 (sign if Total) |
| | 179 | | Digit 6 ( if Total) |
| 90 | 180 | | Digit 5 ( if Total) |
| | 181 | | Digit 4 (sign if Process) |
| 91 | 182 | | Digito 3 |
| | 183 | | Digit 2 |
| 92 | 184 | | Digit 1 |
| | 185 | | Digit 0 |
| 93 | 186 | Locking code [4] | Digit 3 |
| | 187 | | Digit 2 |
| 94 | 188 | | Digit 1 |
| | 189 | | Digit 0 |
| 95 | 190 | Programming Lock (1) | Bit 0 : Lock Set 1<br>Bit 1 : Lock Set 2<br>Bit 2 : Lock Set 3<br>Bit 3 : Lock Set 4<br>Bit 4 : Lock Input<br>Bit 5 : Lock Display |
| | 191 | Programming Lock (2) | Bit 0 : Lock Prog Direct Setpoints<br>Bit 1 : Lock RS / ETH Ports<br>Bit 2 : Lock Logical Functions<br>**Bit 3 : Total Lock (except Keypad)**<br>Bit 4 : Lock Analogue Output |
| 96 | 192 | Programming Lock (y 3) | Bit 0 : Lock Brightness-Color-Eco<br>Bit 1 : Lock RESET Key (UP)<br>Bit 2 : Lock VISUAL Key (SHIFT) |
| | 193 | Logic Function IN 1 | Functions List :<br>1 :<br>2 : ... |
| 97 | 194 | Logic Function IN 2 | |
| | 195 | Logic Function IN 3 | |
| 98 | 196 | Print Date and Hour | **0**=No, **1**=Yes |
| | 197 | *reserved* | |

| | | | |
|---|---|---|---|
| **Programming Data (Read Only)** | | | |
| 99 | 198 | IP adress Ethernet Port | IPAddress [0] |
| | 199 | | IPAddress [1] |
| 100 | 200 | | IPAddress [2] |
| | 201 | | IPAddress [3] |
| 101 | 202 | Unit Adresse RS232/485 Port | RS Address [0] |
| | 203 | | RS Address [1] |
| 102 | 204 | Baud Rate RS232/485 | **0**=1200, **1**=2400, **2**=4800, **3**=9600, **4**=19200 |
| | 205 | Protocol RS232/485 | **0**=ASCII, **1**=ISO1745, **2**=Modbus RTU |
| 103 | 206 | Delay Response RS485 | **0**=No, **1**=30ms, **2**=60ms, **3**=120ms, **4**=250ms |
| | 207 | *reserved* | *reserved* |
| **Dynamic Values (Read Only)** | | | |
| 122 | 244 | Max Value (Peak) | |
| | 245 | | |
| | 246 | | |
| | 247 | | |
| 124 | 248 | Min Value (Val) | |
| | 249 | | |
| | 250 | | |
| | 251 | | |
| 126 | 252 | Process Value | |
| | 253 | | |
| | 254 | | |
| | 255 | | |
| 128 | 256 | Total Value | |
| | 257 | | |
| | 258 | | |
| | 259 | | |
| 130 | 260 | Sign Overflow Total | |
| | 261 | Sign Overflow Process | |
| 131 | 262 | Overflow Total | |
| | 263 | Overflow Process | |
| 132 | 264 | Offset Total Value | |
| | 265 | | |
| | 266 | | |
| | 267 | | |
| 134 | 268 | Offset Process Value | |
| | 269 | | |
| | 270 | | |
| | 271 | | |

| | | | |
|---|---|---|---|
| 136 | 272 | Setpoint 1 Value | |
| | 273 | | |
| | 274 | | |
| | 275 | | |
| 138 | 276 | Setpoint 2 Value | |
| | 277 | | |
| | 278 | | |
| | 279 | | |
| 140 | 280 | Setpoint 3 Value | |
| | 281 | | |
| | 282 | | |
| | 283 | | |
| 142 | 284 | Setpoint 4 Value | |
| | 285 | | |
| | 286 | | |
| | 287 | | |
| 144 | 288 | Status Relay / Alarm Setpoint 1 | |
| | 289 | Status Relay / Alarm Setpoint 2 | |
| 145 | 290 | Status Relay / Alarm Setpoint 3 | |
| | 291 | Status Relay / Alarm Setpoint 4 | |
| 146 | 292 | Actual Display Color | |
| | 293 | Actual Display Brightness | |
| 147 | 294 | Status Chronometer | |
| | 295 | installed Options | |
| 148 | 296 | Software Version | 200 |
| | 297 | Hardware Version | “d” |
| 149 | 298 | | |
| | 299 | | |

| **Dynamic Values (Write Only)** | | | |
|---|---|---|---|
| 1134 | 2268 | Offset Process Value | Not saved in memory |
| | 2269 | | |
| | 2270 | | |
| | 2271 | | |
| 1136 | 2272 | Setpoint 1 Value | Not saved in memory |
| | 2273 | | |
| | 2274 | | |
| | 2275 | | |
| 1138 | 2276 | Setpoint 2 Value | Not saved in memory |
| | 2277 | | |
| | 2278 | | |

| | | | |
|---|---|---|---|
| | 2279 | | |
| 1140 | 2280 | Setpoint 3 Value | Not saved in memory |
| | 2281 | | |
| | 2282 | | |
| | 2283 | | |
| 1142 | 2284 | Setpoint 4 Value | Not saved in memory |
| | 2285 | | |
| | 2286 | | |
| | 2287 | | |

**Commands**

| | | | |
|---|---|---|---|
| 116 (0x74) | “t” | Offset | Add the display value to the Offset memory. Default Offset value is “0”. Not saved in memory. *01 05 00 74 FF 00 CC 20 |
| 114 (0x72) | “r” | Reset | Reset the Offset value to “0”. *01 05 00 72 FF 00 2C 21 |
| 112 (0x70) | “p" | Reset Max | Reset the MAX (“Peak”) value. *01 05 00 70 FF 00 8D E1 |
| 118 (0x76) | “v” | Reset Min | Reset the MIN (“Val”) value. *01 05 00 76 FF 00 6D E0 |
| 100 (0x64) | “d" | Reset Main Counter | Reset the counter. *01 05 00 64 FF 00 CD E5 |
| 122 (0x76) | “z” | Reset Total Counter | Reset the totalizer. *01 05 00 7A FF 00 AD E3 |
| 98+49 (0x62 + 0x31) | “b1” | Brightness HI | Change the display brightness to HI. Not saved in memory. *01 05 62 31 FF 00 C2 4D |
| 98+50 (0x62 + 0x32) | “b2” | Brightness LO | Change the display brightness to LO. Not saved in memory. *01 05 62 32 FF 00 32 4D |
| 99+49 (0x63 + 0x31) | “c1" | Color Display Orange | Change the color display to Orange. Not saved in memory. *01 05 63 31 FF 00 C3 B1 |
| 99+50 (0x63 + 0x32) | “c2” | Color Display Red | Change the color display to Red. Not saved in memory. *01 05 63 32 FF 00 33 B1 |
| 99+51 (0x63 + 0x33) | “c3” | Color Display Green | Change the color display to Red. Not saved in memory. *01 05 63 33 FF 00 62 71 |
| 104+115 (0x68+0x73) | “hs” | Start Chronometer | Start the Chronometer Mode. *01 05 68 73 FF 00 61 81 |
| 104+116 (0x68+0x74) | “ht” | Stop Chronometer | Stop the Chronometer Mode. *01 05 68 74 FF 00 D0 40 |

* Example of frame in hexadecimal for unit nº 1 in Modbus RTU communication.
In Modbus TCP/IP protocol an header of 6 bytes is added and the last 2 bytes of CRC are not used.