

## DCU 410E/408E Engine Controller

Part#: 1006445 (DCU 410E) 1006510 (DCU 408E)

Rev. April 18, 2018

### Interfaces

| Section               | Ch. | Cond.                        | Min      | Typ.         | Max        | Unit       | Comment   |
|-----------------------|-----|------------------------------|----------|--------------|------------|------------|---|
| Power Supply, Vcc     | 2   | @ 24 VDC                     | 18<br>-  | 24<br>0.5    | 32<br>2    | VDC<br>A   | Max ripple 10% without exceeding Min and Max values.                      |
| Switch Inputs         | 8   | Low = 0-2 V<br>High = 8-32 V | -        | 24           | -          | VDC        | Opto-coupled  |
| 4-20 mA Inputs        | 4   |                              | 0        | 4-20         | 25         | mA         | Accuracy: +/- 0.5 %.  |
| PT100 Inputs          | 4   |                              | 0        | -            | 800        | °C         | Accuracy: +/- 2.0 %.<br>With optional wire resistance comp                |
| Switch Outputs        | 12  |                              | -<br>0   | Vcc-0.5<br>- | -<br>0.2   | V<br>A     | Power supply - 0.5 V<br>Current limited                                   |
| Crank Output          | 1   |                              | 0        | -            | 1.8        | A          | Internally fused.   |
| Config. Relay Outputs | 2   |                              | 0        | -            | 1          | A          | Potential free/Form C contacts.<br>Internally fused.                      |
| Tacho/MPU             | 1   |                              | 0.1<br>4 | 5<br>32      | 10<br>32   | kHz<br>Vpp | Magnetic pickup sensor  |
| CAN bus #1            | 1   |                              | -        | 250          | -          | kbps       | SAE J1939   |
| CAN bus #2            | 1   |                              | -        | 250          | -          | kbps       | SAE J1939   |
| Ethernet              | 1   |                              | -        | 10 / 100     | -          | Mbps       | Auto Crossover  |
| Modbus TCP            | 1   |                              | -        | 10 / 100     | -          | Mbps       |   |
| Modbus RTU            | 1   |                              | 9600     | 19 200       | 115200     | baud       | 8 bit, even parity, 1 stop bit.<br>Failsafe biasing, internal termination |
| RIO Link Connection   | 1   |                              | -        | 19 200       | -          | baud       | 8 bit, even parity, 1 stop bit  |
| SDU Link Connection   | 1   |                              | -        | 19 200       | -          | baud       | 8 bit, even parity, 1 stop bit  |
| USB Port              | 1   |                              | -        | -            | 480        | Mbps       | USB 2.0 Hi-speed Memory Interface   |
| Relay Expansion       | 1   |                              | -        | -            | -          | -          | For MK-14 Relay Expansion   |
| 24 V Supply Output    | 1   |                              | -<br>0   | Vcc-0.5<br>- | -<br>1     | V<br>A     | Current limited   |
| 5 V Supply Output     | 1   |                              | 4.8<br>0 | 5.0<br>-     | 5.2<br>0.1 | V<br>A     | For supply of 0-5 V sensors etc.<br>Current limited                       |

### Screen (Only DCU 410E)

| Section       | Conditions | Width | Typ.   | Height | Unit   | Comment |
|---------------|------------|-------|--------|--------|--------|---------|
| Size          | -          | -     | 5.7"   | -      | inches |         |
| Resolution    | -          | 640   | -      | 480    | pixels |         |
| Pixel Density | -          | -     | 140    | -      | PPI    |         |
| Colors        | -          | -     | 262144 | -      | colors |         |

| Section       | Conditions             | Min        | Typ.       | Max | Unit              | Comment              |
|---------------|------------------------|------------|------------|-----|-------------------|----------------------|
| Viewing angle | horizontal<br>vertical | ±60<br>±47 | ±65<br>±52 | -   | Deg.              | Contrast ratio >10:1 |
| Brightness    | Setting=100%           |            | 450        | -   | cd/m <sup>2</sup> | Backlight at 100%    |

### Measurements and Weight

| Section        | Part | Weight | Width | Height | Depth | Unit | Comment                                   |
|----------------|------|--------|-------|--------|-------|------|---|
| Size           | 410E | -      | 260   | 160    | 50    | mm   | Included Connectors                       |
|                | 408E | -      | 244   | 164    | 48    | mm   | Included Connectors                       |
| Cutout         | 410E | -      | 242   | 142    | -     | mm   | Clearance 2 mm, Access depth: 60 mm       |
|                | 408E | -      | N/A   | N/A    | -     | -    |   |
| Mounting Holes | 410E | -      | 246   | 146    | -     | mm   | Centre to edge 7 mm<br>M3 Mounting screws |

# Datasheet



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|        |      |     |     |     |   |    |   |
|--------|------|-----|-----|-----|---|----|---|
|        | 408E | -   | 224 | 152 | - | mm | M5 Mounting screws<br>DIN mounting possible |
| Weight | 410E | 1.3 | -   | -   | - | kg | Connectors Included                         |
|        | 408E | 1.5 | -   | -   | - | kg | Connectors Included                         |

### Environmental

| Section                            | Condition       | Min  | Typ. | Max | Unit   | Comment   |
|------------------------------------|-----------------|------|------|-----|--------|---|
| Vibration                          | Operational     | -    | 4    | -   | g      | IEC 60068-2-6 Fc  |
| Operating Temperature              | Operational     | 5    | -    | 70  | °C     | IEC 60068-2-1 Ab/Ad                                       |
| Storage Temperature                | Not powered     | -30  | -    | +80 | °C     |   |
| Dry Heat                           | Operational     | -    | -    | 70  | °C     | IEC 60068-2-2 Bb/Bd                                       |
|                                    |                 | -    | -    | 16  | hours  |   |
| Damp Heat, cyclic                  | Cyclic 20-55-20 | -    | -    | -   | °C     | IEC 60068-2-30 Db   |
|                                    | Humidity 95%    | -    | -    | -   | -      |   |
|                                    | Duration        | -    | -    | 48  | hours  |   |
| Enclosure                          | Operational     | IP56 | -    | -   | -      | Front panel (DCU 410E only)                               |
| High Voltage                       | Not powered     | -    | -    | 548 | Vrms   | Voltage applied between <i>clamped</i> supply and shield. |
|                                    |                 | -    | -    | 1   | minute |   |
| Fast low-energy Transients/bursts  | Operational     | -    | -    | -   | -      | IEC 61000-4-4   |
|                                    |                 | -    | -    | 2   | kV     | 24 VDC supply lines, 5 kHz                                |
|                                    |                 | -    | -    | 1   | kV     | Signal lines, 5 kHz                                       |
| Slow high-energy Transients/surges | Operational     | -    | -    | -   | -      | IEC 61000-4-5   |
|                                    |                 | -    | -    | 0.5 | kV     | 24 VDC supply lines                                       |
|                                    |                 | -    | -    | 1   | kV     | Signal lines  |
| Electrostatic Discharge, ESD       | Operational     | -    | -    | -   | -      | IEC 61000-4-2   |
|                                    |                 | 8    | -    | 8   | kV     | Air   |
|                                    |                 | 6    | -    | 6   | kV     | Contact   |

### EMC

| Section                    | Condition   | Min | Typ. | Max   | Unit | Comment   |
|----------------------------|-------------|-----|------|-------|------|---|
| Conducted emission         | Operational | -   | -    | -     | -    | CISPR 16-1-1 / 16-1-2 / 16-2-1                  |
| Radiated emission          | Operational | -   | -    | -     | -    | Quasi-peak at 3m:                               |
|                            |             | 150 | -    | 300   | kHz  | 80-50 dBμV/m                                    |
|                            |             | 0.3 | -    | 300   | MHz  | 50-34 dBμV/m                                    |
|                            |             | 30  | -    | 156   | MHz  | 54 dBμV/m                                       |
|                            |             | 156 | -    | 165   | MHz  | 24 dBμV/m                                       |
|                            |             | 165 | -    | 2 000 | MHz  | 54 dBμV/m                                       |
| Radio frequency Immunity   | Operational | -   | -    | 10    | Vrms | IEC 61000-4-6                                   |
| Radiated electric Immunity | Operational | 80  | -    | 2 000 | MHz  | IEC 61000-4-3<br>10 V/m, 80% AM, 400 Hz / 1 kHz |

#### Validity of Information

Data valid at revision date. Auto-Maskin reserves the right to make improvements and changes of specification at any time.