6 Position CAN BUS CDPx™
Switch and Display Panel
Product Specification 29036-1

Document Control No. 29036-801 Rev E

26 Apr 2018

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DOCUMENT REVISION HISTORY

<table>
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<th>DCN</th>
<th>Date</th>
<th>Description</th>
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<tr>
<td>A</td>
<td>D567</td>
<td>18 Mar 15</td>
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<td>B</td>
<td>D640</td>
<td>10 Jul 15</td>
<td>Spec Update Web Review</td>
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<td>C</td>
<td>E138</td>
<td>30 May 17</td>
<td>CAN Message Update SA</td>
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<td>D</td>
<td>E214</td>
<td>23 Aug 17</td>
<td>Website Release Update</td>
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<td>E</td>
<td>E459</td>
<td>26 Apr 2018</td>
<td>PGN Update</td>
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REVISION HISTORY

A: 18 March 2015
a. Eng Draft: Copied from 29036-800J.
b. Title Page Updated revision history and date.
c. Par I & II Update warranty and License Disclaimer.
d. Par 1.1 Updated firmware version and revision reference.
e. Par 2.6 Updated views.
f. Par 3.2 Inserted 3.2.5 for manufacturer ID.
g. Par 7.0 Added summary tables 7.1 and 7.2.
h. Par 7.3 Added Change of State requirement.
i. Par 8.0 Added label text worksheet
j. Par 9.0 Added Appendix B Software EULA.

B: 10 July 2015
a. Title Page Updated revision history and date.
b. Par I & II Update warranty and License Disclaimer.
c. Par 9.0 Update address in software EULA.

C: 30 May 2017
a. Title Page Updated revision history and date.
b. Par 1.1 Updated firmware version and revision reference.
c. Par 5.2 Changed the LED timing.
d. Par 7.3 Added EDP and DP.
e. Par 7.3 Added transmit on change of state.
f. Par 7.4 Removed priority and SA from control message.
g. Par 9.0 Update address in software EULA.
h. Par 7.4 Removed flag for status message

D: 23 Aug 2017
a. Title Page Updated revision history and date.
b. Par 1.1 Change firmware project.
c. Par 1.1 Changed display spec document.
d. Par 2.6 Changed picture view to add switch second indicators.
e. Par 5.3.1 Changed display base SA.
f. Par 5.4 Deleted reference to display spec. Redundant with 1.1.
g. Par 8.0 Added switch second indicators to table.

E: 26 Apr 2018
a. Title Page Updated revision history and date.
b. Par 1.1 Update software revision and version.
c. Par 2.11 Corrected shipping label.
d. Par 7.1 Added PGN (0xFF47) - (0xFF4A).
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I  Warranty

Data Panel Corporation warrants the original purchaser of its products that the products are free of defects in materials and workmanship, when operated under normal conditions and in accordance with accepted industry recommended practices. The standard warranty period is 12 months from the date the product is first put into service but not to exceed 18 months from the date of shipment.

Products must be returned, freight prepaid, to Data Panel for inspection. A Return Material Authorization (RMA) number must be obtained from that location before shipment is made, and clearly indicated on the shipping package. Product must be received within 3 months of the claim as per the requirements of the Returned Goods Process, which is considered to be part of the warranty. Data Panel reserves the right to repair or replace any product found to be under warranty. This warranty policy does not provide for a refund or credit for defective material.

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II  License Disclaimer

EXCLUSION OF INCIDENTAL, CONSEQUENTIAL AND CERTAIN OTHER DAMAGES:

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1.0 Overview

The 29036-1 is a 6 position Switch Panel utilizing dpx™ style switches with clear bezel and a monochrome LCD display.

The panel message format is CAN2B J1939 structure and will communicate with typical J1939 CAN BUS systems.

1.1 Project Scope

This document establishes the design requirements for the CAN based switch and display panel. Detail on display screens and display control is listed in 33026-805.

Software features noted require firmware project 29036-561-0301 or greater.

2.0 Mechanical Requirements

2.1 Operating Temperature

2.1.1 The system shall meet the requirements of this document while operating in the temperature range from -40 °C to +80 °C unless otherwise specified.

2.2 Storage Temperature

2.2.1 The system shall suffer no degradation of performance requirements of this document within the storage temperature limits of -40 °C to +80 °C unless otherwise specified.

2.3 Drop Test – Shipping/Handling/Bench

2.3.1 The system shall meet the operational requirements of this document after three (3) drops of three (3) feet onto concrete flooring packaged in normal shipping container.

2.4 Moisture Requirements

2.6.1 All boards will be conformal coated for moisture and humidity protection.
2.6.2 Switches shall be sealed from incidental splash.

2.5 Graphics

2.7.1 Panel Graphics will be a black gloss polycarbonate with polydome and white text where applicable.
2.7.2 dpx™ gloss finish labels will be used for labeling switch function.
2.6 Switch Panel Construction

2.6.1 The switch panel housing shall be constructed of 16 gage steel with welded corners.
2.6.2 The front plate shall be .090” aluminum black anodized.
2.6.3 The outline envelope shall be width of ~ 5.70” and height ~ 4.20”.
2.6.4 Depth is ~1.0” not to include the mating connector.

2.7 Mounting

2.7.1 The panel shall mount to a mounting bracket which is supplied. The mounting bracket may be mounted on different planes. Mounting screws are not furnished.

2.8 Switch Backlight, Label Indicators and Label Text

2.8.1 Switches shall have a clear bezel and switch backlight color shall be Red.
2.8.2 Switch indicator color shall be White.
2.8.3 Switches are numbered left to right and top to bottom.
2.8.4 Label indicator color and text shall be per label drawing 23086-325-XXX.
2.8.5 Label sheets shall be purchased separately and applied by the installer.
2.8.6 Label text worksheet located in Appendix B.
2.9 Connector

2.9.1 The device connector (receptacle pcb mount) shall be Molex 39-29-6068 (DP PN 105-7603-1x102).
2.9.2 The mating connector (plug cable) shall be Molex 39-01-2065 (DP PN 104-0351-001) with gold plated terminal Molex 39-00-0186 (DP PN 114-046).
2.9.3 The connector arrangement is listed:

<table>
<thead>
<tr>
<th>Connector</th>
<th>Function</th>
<th>Type of I/O</th>
</tr>
</thead>
<tbody>
<tr>
<td>J1-1</td>
<td>CAN High</td>
<td>Communication</td>
</tr>
<tr>
<td>J1-2</td>
<td>Ground</td>
<td>Ground</td>
</tr>
<tr>
<td>J1-3</td>
<td>Ignition ON/OFF</td>
<td>+12 Volts @ 1 Amp Max</td>
</tr>
<tr>
<td>J1-4</td>
<td>CAN Low</td>
<td>Communication</td>
</tr>
<tr>
<td>J1-5</td>
<td>Shield</td>
<td>Communication</td>
</tr>
<tr>
<td>J1-6</td>
<td>NC</td>
<td></td>
</tr>
</tbody>
</table>

2.10 Marking

2.10.1 The switch panel rear graphic will be permanently marked with the part number and connector pin-out.
2.10.2 The switch panel will have a durable printed label for revision level, manufacturing date and serial number. The label will withstand water, grease, fading, abrasion, and temperature.
2.10.3 The serial number format will be per PROD-3025. For reference:

yywwssxx S/W: vvr

yyww is the year / week
ssss is a unique four digit number for product built that week
x is the product revision at time of build
vvrr is the software version revision
2.11 Shipping Box Label

2.11.1 The shipping boxes will be marked barcode with the product description, DP part number, and date code (YYWW).
3.0 Electrical requirements

3.1 General

3.1.1 The switch panel shall be powered from an automotive +12 Vdc battery system with negative terminal return.
3.1.2 The switch panel components shall be rated for 125% of the maximum ampere load.

3.2 CANBUS Hardware Interface

3.2.1 The switch panel shall communicate via a multiplex CAN 2.0B hardware layer.
3.2.2 The switch panel shall have one CANBUS communication port.
3.2.3 The switch panel will require external CAN BUS termination.

3.3 Battery Voltage Limits

3.3.1 The switch panel shall meet the operating requirements of this specification for a voltage range of 9.0 – 16.5 Vdc. Further listed here as Battery or +12Vdc.
3.3.2 Over-voltage shall be defined as any input voltage greater than 18 Vdc.
3.3.3 The switch panel shall survive 24.0 Vdc double battery voltage for 3 minutes.
3.3.4 The switch panel shall survive a 26.5 Vdc jump start voltage for 1 minute.
3.3.5 The switch panel shall not be damaged by DC battery discharge to zero volts.
3.3.6 The switch panel shall be protected from reverse battery -12.5 Vdc for 1 minute.

3.4 Current Limits

3.4.1 Maximum node current shall be 1 Amp.

3.5 Switch LED Lighting

3.5.1 System backlighting shall be per Paragraph 2.8.
3.5.2 Switch indicators shall be per Paragraph 2.8.

3.6 Switch Backlight

3.6.1 The switch panel shall provide pwm control for dimming the switch backlight.
3.6.2 The switch panel shall provide ON/OFF control of the display backlight.

3.7 Buzzer / Alarm

3.7.1 The switch panel shall provide software control for a buzzer / alarm.
3.7.2 Default operation shall provide an audible chirp when a switch is pressed.
3.8  **Light Sensor**

3.8.1 The switch panel shall provide for an analog light sensor input.

3.9  **Switch Function**

3.9.1 All switches shall be momentary, normally off.
3.9.2 Switch state and switch function shall be controlled by external CAN BUS controller.

3.10  **Display**

3.10.1 The display shall be a monochrome dot matrix LCD Display.
3.10.2 The display shall have a dot format of 128 x 64.
3.10.3 The display is LED backlit. The LED color shall be White.
3.10.4 The display is Transflective style.
3.10.5 The display shall have an operating temperature of -20C to +70C.

3.11  **LED Indicators**

3.11.1 The switch panel will have a Blue PWR LED to indicate switch panel power.
3.11.2 The Blue PWR LED will be a hardware function.
3.11.3 The switch panel will have a Red FAULT LED, software controlled, to indicate board faults.
3.11.4 The switch panel will have a Green COM LED, software controlled, to indicate communication status.
3.11.5 A more detailed explanation is provided in subsequent sections.

4.0  **Not Used**
5.0 Software Requirements and Operation

5.1 COM LED Status and Operation

5.1.1 The green COM LED will turn on when plugged into a valid communication network.
5.1.2 The green COM LED will flash with communication errors.
5.1.3 If the module fails in source address (SA) arbitration, the COM LED shall flash. When source address (SA) arbitration fails, both modules shall go offline.
5.1.4 The following are communication LED fault flash patterns:

<table>
<thead>
<tr>
<th>ID</th>
<th>COM Fault Description</th>
<th>ON</th>
<th>OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>C0</td>
<td>Valid Communication Network</td>
<td>ON</td>
<td>-</td>
</tr>
<tr>
<td>C1</td>
<td>Source Address (SA) Arbitration</td>
<td>1 Short</td>
<td>1 Long</td>
</tr>
<tr>
<td>C2</td>
<td>Output Control Message Missing</td>
<td>2 Short</td>
<td>1 Long</td>
</tr>
</tbody>
</table>

5.2 Fault Detection and Fault LED

5.2.1 The red FAULT LED will flash if a fault is detected.
5.2.2 The default state of the FAULT LED is OFF.
5.2.3 All faults shall be cleared with a power cycle of the switch panel.

<table>
<thead>
<tr>
<th>Fault Description</th>
<th>ON</th>
<th>OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>None Defined</td>
<td>1 Short</td>
<td>1 Long</td>
</tr>
</tbody>
</table>

Short is defined as ON 500 mSec and OFF 500 mSec.
Long OFF defined as 2.00 Sec
Pulse Width is +/- 50 mSec

Example: C2 Control Message Missing
5.3 **System Operation**

5.3.1 **CAN Communication**

a. Standard communication structure shall be 29 bit ID.

b. The baud rate shall be 250k bits/sec.

c. This device shall have a service configurable source address.

d. Base Source Address (SA) shall be 0xF2 (242).

e. Message format shall be per Appendix A.

5.3.2 **Power Up Init**

a. The switch panel shall perform an initialization, turn all outputs OFF, and reset all fault conditions.

b. The switch panel shall set the NODEALIVE bit to 01.

c. After init, the switch panel shall check for Source Address Mode.

d. After init, the switch panel shall perform a bulb test of FAULT and COM indicators for 3-5 seconds.

e. After init, if a CAN BUS hardware fault is detected (e.g. no CAN BUS), TEST PATTERN Screen 255 shall be displayed.

f. After bulb test the switch panel shall process CAN message per Appendix A.

5.3.3 **Input Debounce**

a. Switch Inputs shall be on or off for 10 mSec before a change of state.

b. Switch Inputs shall be sampled three times at 3 mSec intervals.

5.3.4 **Diagnostics and Status Messages**


5.4 **Display Operation**

a. The default screen displayed will be 255 until the message CD1 is received.

b. If the LC1 message times out, Screen 252 will be displayed.

c. If the CD1 message times out, Screen 253 will be displayed.
5.5 Source Address Setting

Configuration of the node Source Address may be done with Switch 1 – Switch 4.

Switch 1 AND Switch 3 are held down (ON) and Switch 2 AND Switch 4 are (OFF) while power is turned ON to the panel.

The panel will beep 3 times and then turn ON backlight. The Switch 1 indicator will turn ON setting the default CAN node address to the base address + 0.

If Switch 2, 3, or 4 are pressed, the node address will be the base address +1 for each switch and the LED control PGN +1.

The indicator for the switch pressed will turn ON. Turning off power will save the base address offset to EEPROM. Only switches 1 through switch 4 are valid.

| Switch 1   | offset = SA + 0 |
| Switch 2   | offset = SA + 1 |
| Switch 3   | offset = SA + 2 |
| Switch 4   | offset = SA + 3 |

5.6 Diagnostics Messages - DM13 Start/Stop Broadcast

To reduce bus load during parameter configuration the diagnostic message 13 (DM13) shall be used as a general bus silencer for all nodes on the bus. Upon reception of a DM13 the node shall stop/start broadcasting messages. When transmit is stopped the node shall continue to poll the CAN Bus to check for DM13 start broadcast. Once broadcast is started the node shall stop only if it receives the DM13 stop broadcast message. Reference: SAE J1939-11

5.7 Bootload

5.7.1 A PC based DPLoader 2.x GUI and a 30009-1 UCG are required to program the firmware via the CAN BUS Bootload process.

5.7.2 The Bootloader operation requires point-to-point operation without additional switch panels on the CAN BUS. The Bootloader Command and Response messages:

<table>
<thead>
<tr>
<th></th>
<th>PDU Format</th>
<th>PDU Specific</th>
<th>Source Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bootloader Command</td>
<td>0xFE (254)</td>
<td>Target SA</td>
<td>39</td>
</tr>
<tr>
<td>Target Response</td>
<td>0xFE (254)</td>
<td>39</td>
<td>Target SA</td>
</tr>
</tbody>
</table>

5.7.3 The target will go into Bootloader Mode when the data bytes of the proprietary message are: A5, B4, 0, 0, 0, 0, 0, 0.

5.7.4 Target will remain in Bootloader Mode until it is successfully updated.

5.7.5 During Bootloader Mode no LED’s shall blink.
6.0 DOCUMENT APPROVAL

DATA PANEL APPROVAL

Fred W. Sauer  25 Apr 2018
Signature  Printed Name  Date

CUSTOMER APPROVAL

Signature  Printed Name  Date

6.1 ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>29036-1</td>
<td>6 Position DPx with display</td>
</tr>
<tr>
<td>29036-X</td>
<td>Customer Specific Requirements</td>
</tr>
</tbody>
</table>
7.0 Appendix A: CAN Message Control and Operation

7.1 CAN Control and Operation Message Summary Table

<table>
<thead>
<tr>
<th>Description</th>
<th>Function</th>
<th>PGN</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switch State Message [SSM]</td>
<td>Switches</td>
<td>65350 (0xFF46)</td>
<td>242 /1</td>
</tr>
<tr>
<td>LED Indicator Control [LC1]</td>
<td>Indicators</td>
<td>65351 (0xFF47)</td>
<td>n/a</td>
</tr>
<tr>
<td>See 33026-805 for CD1 – CD5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

/1: See Paragraph 5.5 for base address offset.

7.2 Diagnostics and Status Message Summary Table

<table>
<thead>
<tr>
<th>Description</th>
<th>Function</th>
<th>PGN</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnostics and Status [STAT]</td>
<td>Status</td>
<td>65384 (0xFF44)</td>
<td>209</td>
</tr>
</tbody>
</table>

### 7.3 Switch State Message [SSM] from Switch Panel (PGN 65350)

<table>
<thead>
<tr>
<th>PGN</th>
<th>Dec</th>
<th>Hex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Length</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Priority 3</td>
<td>12</td>
<td>0x0C</td>
</tr>
<tr>
<td>EDP &amp; DP</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>PDU Format</td>
<td>255</td>
<td>0xFF</td>
</tr>
<tr>
<td>PDU Specific</td>
<td>70</td>
<td>0x46</td>
</tr>
<tr>
<td>Source Address - Node</td>
<td>242 - 245</td>
<td>0xF2 – 0xF5</td>
</tr>
<tr>
<td>Change Criteria</td>
<td>On-Change</td>
<td></td>
</tr>
<tr>
<td>Max Update Period</td>
<td>50 mSec</td>
<td></td>
</tr>
<tr>
<td>Min Update Period</td>
<td>10 mSec</td>
<td></td>
</tr>
</tbody>
</table>

**PGN 65350**

<table>
<thead>
<tr>
<th>Byte 1</th>
<th>8</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>d4</td>
<td>d4</td>
<td>d3</td>
<td>d3</td>
<td>d2</td>
<td>d2</td>
<td>d1</td>
<td>d1</td>
</tr>
<tr>
<td>Byte 2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>d6</td>
<td>d6</td>
<td>d5</td>
<td>d5</td>
</tr>
<tr>
<td>Byte 3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
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<td>1</td>
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<td>Byte 5</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
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<td>1</td>
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<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

**Switch 1** | not used | not used | **Battery Power Note 2**
**Switch 2** | not used | not used | **Light Sensor Note 3**
**Switch 3** | not used | not used |
**Switch 4** | not used | not used |
**Switch 5** | not used | not used |
**Switch 6** | not used | not used |
**not used** | not used | not used |
**not used** | not used | not used |
**Node Alive Note 1**

**Note 1:** Bit Pair = 0x01b
**Note 2:** A/D reading of Battery Power not supported with this assembly.
**Note 3:** Data Length: 1 byte (Data Range: 0 - 255 steps)
7.4 LED Indicator [LC1] Control Message (PGN 65351 – See Note 1)

<table>
<thead>
<tr>
<th>PGN</th>
<th>Dec</th>
<th>Hex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Length</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>EDP &amp; DP</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>PDU Format</td>
<td>255</td>
<td>0xFF</td>
</tr>
<tr>
<td>PDU Specific</td>
<td>71-74</td>
<td>0x47 – 0x4A</td>
</tr>
</tbody>
</table>

Transmission Repetition: 50 mSec
Message Timeout: 200 mSec

See Note 1

<table>
<thead>
<tr>
<th>Byte 1</th>
<th>8</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>d4</td>
<td>d4</td>
<td>d3</td>
<td>d3</td>
<td>d2</td>
<td>d2</td>
<td>d1</td>
<td>d1</td>
</tr>
<tr>
<td>Byte 2</td>
<td>d8</td>
<td>d8</td>
<td>d7</td>
<td>d7</td>
<td>d6</td>
<td>d6</td>
<td>d5</td>
<td>d5</td>
</tr>
<tr>
<td>Byte 3</td>
<td>d12</td>
<td>d12</td>
<td>d11</td>
<td>d11</td>
<td>d10</td>
<td>d10</td>
<td>d9</td>
<td>d9</td>
</tr>
<tr>
<td>Byte 4</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Byte 5</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Byte 6</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Byte 7</td>
<td>C4</td>
<td>C4</td>
<td>C3</td>
<td>C3</td>
<td>C2</td>
<td>C2</td>
<td>C1</td>
<td>C1</td>
</tr>
<tr>
<td>Byte 8</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LED 1 (Primary 1)</th>
<th>LED 9 (Secondary 3)</th>
<th>not used</th>
<th>Control Bit 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED 2 (Primary 2)</td>
<td>LED 10 (Secondary 4)</td>
<td>not used</td>
<td>Control Bit 2</td>
</tr>
<tr>
<td>LED 3 (Primary 3)</td>
<td>LED 11 (Secondary 5)</td>
<td>not used</td>
<td>Control Bit 3</td>
</tr>
<tr>
<td>LED 4 (Primary 4)</td>
<td>LED 12 (Secondary 6)</td>
<td>not used</td>
<td>Control Bit 4</td>
</tr>
<tr>
<td>LED 5 (Primary 5)</td>
<td>not used</td>
<td>not used</td>
<td>Backlight: Note 2</td>
</tr>
<tr>
<td>LED 6 (Primary 6)</td>
<td>not used</td>
<td>not used</td>
<td>not used</td>
</tr>
<tr>
<td>LED 7 (Secondary 1)</td>
<td>not used</td>
<td>not used</td>
<td>not used</td>
</tr>
<tr>
<td>LED 8 (Secondary 2)</td>
<td>not used</td>
<td>not used</td>
<td>not used</td>
</tr>
</tbody>
</table>

Note 1: PGN 65351 (0xFF47) Node #1 PGN 65353 (0xFF49) Node #3
PGN 65352 (0xFF48) Node #2 PGN 65354 (0xFF4A) Node #4

Note 2: Backlight duty cycle at operating frequency.
Resolution: 0.392 % per bit, 0 % offset
Data Length: 1 byte (Data Range: 0 - 255 steps)
Display backlight OFF when byte 8 = 0x00

Note 3: Control Bits C1 External Buzzer Control
Control Bits C2 Disable Local Chirp
Control Bits C3 Not Used – Set to 0x01
Control Bits C4 Not Used – Set to 0x01
### 7.5 Node Status Message To and From Node (PGN 65384)

<table>
<thead>
<tr>
<th>Data</th>
<th>Dec</th>
<th>Hex</th>
</tr>
</thead>
<tbody>
<tr>
<td>PGN 65384</td>
<td>8 7 6 5 4 3 2 1</td>
<td>software version</td>
</tr>
<tr>
<td>Byte 1</td>
<td>7 6 5 4 3 2 1 0</td>
<td>10 Bit – AN0</td>
</tr>
<tr>
<td>Byte 2</td>
<td>7 6 5 4 3 2 1 0</td>
<td></td>
</tr>
<tr>
<td>Byte 3</td>
<td>7 6 5 4 3 2 1 0</td>
<td></td>
</tr>
<tr>
<td>Byte 4</td>
<td>0 0 0 0 0 0 0 9 8</td>
<td></td>
</tr>
<tr>
<td>Byte 5</td>
<td>7 6 5 4 3 2 1 0</td>
<td></td>
</tr>
<tr>
<td>Byte 6</td>
<td>0 0 0 0 0 0 0 9 8</td>
<td></td>
</tr>
<tr>
<td>Byte 7</td>
<td>1 1 1 1 1 1 1 1</td>
<td></td>
</tr>
<tr>
<td>Byte 8</td>
<td>1 1 1 1 1 1 1 1</td>
<td></td>
</tr>
</tbody>
</table>

**Digital Control / Status Bit Pairs**

- **00 = OFF**
- **01 = ON**
- **10 = FAULT**
- **11 = NOT USED**

**Unused Bytes = 0xFF**
8.0 Appendix B: Label Text Worksheet

<table>
<thead>
<tr>
<th>Switch #</th>
<th>Switch Text</th>
<th>Backlight</th>
<th>Ind #1 Color</th>
<th>Ind #2 Color</th>
<th>Label P/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>White</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>White</td>
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<td></td>
<td></td>
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<tr>
<td>3</td>
<td></td>
<td>White</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>White</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>White</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>White</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: If Indicator #2 is not used write N/A in Ind #2 Color column for single indicator labels.