# User Guide

# UFO CC10
## MULTI-FUNCTION LED DRIVER

Rev. D1

This guide contains important safety information and installation instructions.

Please read fully before installing, operating or performing any maintenance on the product.

# 02 Introduction & Safety

Thank you for purchasing the UFO CC10 LED driver. This user guide contains important information and should be read fully before any installation work commences. Please keep for future reference.

The CC10 is a compact 350mA, 500mA, 700mA and 1000mA output constant current multi-function driver designed to drive UFO constant current LED fittings up to 50W.

Constant voltage LEDs cannot be connected to this driver. Please refer to the specific section within this manual for wiring and connection guidance.

## Important

This product must be installed in accordance with the applicable installation code by a person familiar with the construction and operation of the product, its component parts and the hazards involved.

Electrical wiring and connection must be carried out by a suitably qualified person observing all local and statutory electrical regulations.

The CC10 driver is suitable for use only with a class 2 power unit.

## Important Safety Information

This driver is designed to work with constant current LED fittings operating on a 350mA, 500mA, 700mA or 1000mA output. Connecting this driver to any other LED devices may result in catastrophic failure of the LED device and/or the CC10 driver. Always check the input current and voltage of the LED devices to ensure compatibility prior to powering up the system.

Never hot swap LED fittings. When adding or removing LED fittings always power down the system first.

This driver is designed to work on a DC input voltage of 12-48V ONLY. The DC PSU supplying this driver must have an output capability sufficient to power up the driver and maintain the output load.

The CC10 driver is suitable for indoor/dry areas and must not be installed in damp or wet conditions.

# 04 Output Capacity

The UFO Unidrive CC10 driver supplies a constant current of 350mA, 500mA, 700mA or 1000mA at output voltages between 3.2 and 48V. UFO fittings operate on a max. voltage of 3.2V DC and provide a 1.1W output.

The UFO Unidrive CC10 driver has a low voltage DC input. Therefore the PSU used to supply the CC10 is selected based upon the total number of fittings the CC10 will be driving.

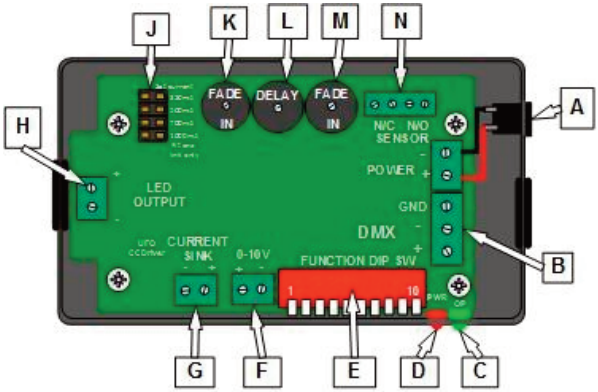
| Number of LED fittings | Max Volts DC | Total Watts DC (350mA) | Total Watts DC (500mA) | Total Watts DC (700mA) | Total Watts DC (1000mA) | Standard UFO PSU Paired with an IEC cable for either UK, EU or USA |
|---|---|---|---|---|---|---|
| 1 | 3.6 | 3.6 | 4.2 | 5.1 | 6.3 | 702070 12V 5A 60W PSU |
| 2 | 7.2 | 4.6 | 5.6 | 7.2 | 9.4 | 702070 12V 5A 60W PSU |
| 3 | 10.8 | 5.5 | 6.9 | 9.2 | 9.5 | 702070 12V 5A 60W PSU |
| 4 | 14.4 | 9.4 | 11.5 | 14.8 | 19.0 | 700994 24V 3.75A 90W PSU |
| 5 | 18.0 | 10.4 | 13.0 | 16.9 | 22.0 | 700994 24V 3.75A 90W PSU |
| 6 | 21.6 | 14.0 | 17.1 | 21.9 | 27.9 | 700485 36V 1.66A PSU |
| 7 | 25.2 | 14.9 | 18.4 | 24.0 | 30.9 | 700485 36V 1.66A PSU |
| 8 | 28.8 | 15.9 | 19.8 | 26.0 | 33.9 | 700485 36V 1.66A PSU |
| 9 | 32.4 | 19.6 | 24.3 | 31.4 | 40.5 | 700485 36V 1.66A PSU |
| 10 | 36.0 | 20.7 | 25.7 | 33.6 | 43.5 | 700485 36V 1.66A PSU |
| 11 | 39.6 | 21.6 | 26.9 | 35.5 | 46.3 | 708120 48V 0.5A 25W PSU |
| 12 | 43.2 | 22.6 | 28.3 | 37.5 | 49.2 | 708120 48V 0.5A 25W PSU |

**Important**

Connecting too many constant current LED fittings to the CC10 driver with excessive maximum voltage output or using an underrated PSU will result in the driver shutting down.

Always check the maximum output voltage of the fittings and ensure that based on 3.6V per LED an adequate number of fittings are connected, and a suitable rated input PSU for the CC10 driver is selected, prior to powering up the system.

# Functional Information 05

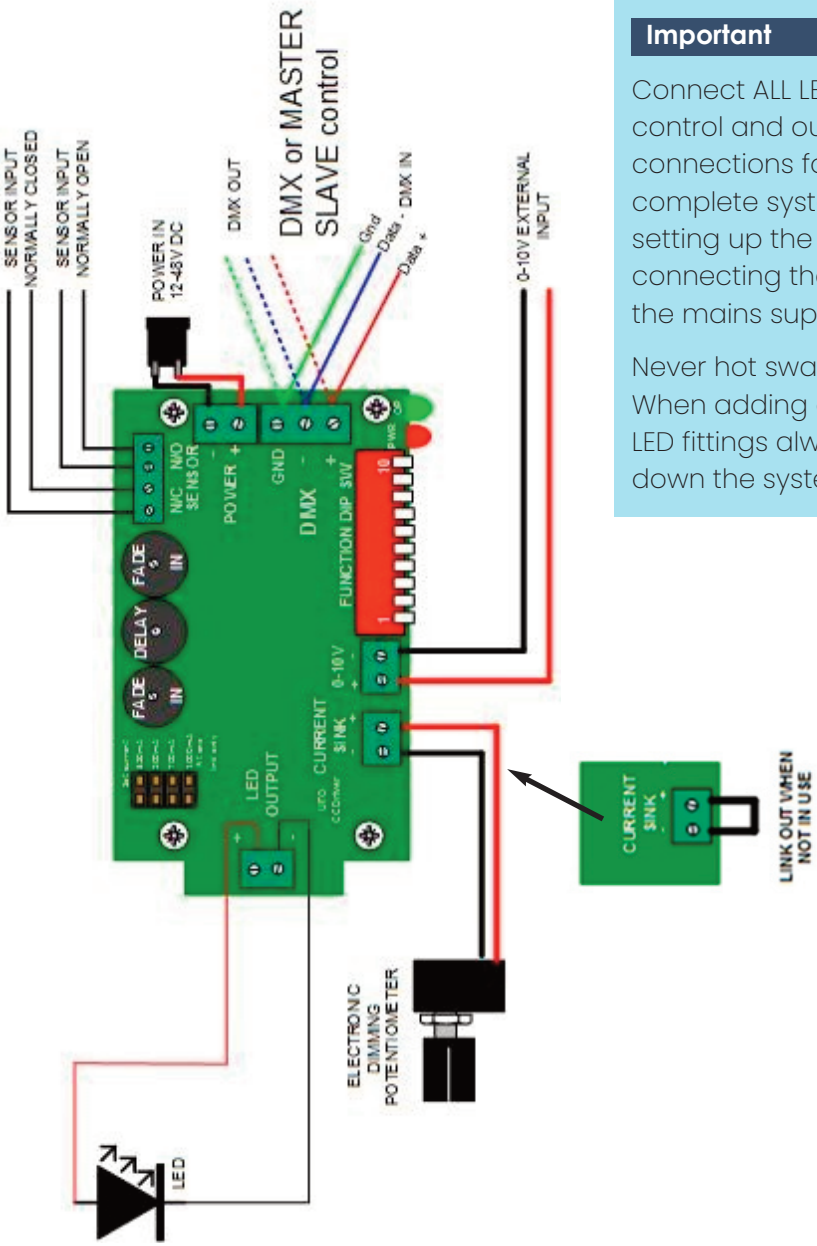



## Driver PCB Layout

Refer to the table below for description of each part.

| Device | Function |
|---|---|
| A | Power input jack socket (2.5mm centre positive). DC input voltage 12V to 48V dependent on number of LED fittings connected |
| B | DMX input/output screw terminals. Data positive, data negative and ground. Occupies two DMX channels – Channel 1 - LED dimming, Channel 2 LED ON/OFF. Use for DMX control or Primary/Secondary link to other CC10 drivers |
| C | Function LED – indicates signal and control presence |
| D | Power and fault LED – indicates power input and overcurrent, short circuit and over temperature faults (flashing) |
| E | Function DIP switch – sets different functions (manual, DMX, sensor input etc.) and also addressing for DMX. Switch down for ON up for OFF |
| F | 0-10V input screw terminals. Positive and negative current source (external receiving voltage) 0-10V dimming voltage input (0 to 100%) |
| G | Manual (current sink) dimming screw terminals – 10V on screw terminals adjusted by external electronic potentiometer. Normally linked out when not in use |
| H | Constant current screw terminal output LED + and common ground |
| J | Set Current. 350mA, 500mA, 700mA or 1000mA. Fit one link only |
| K | FADE IN potentiometer. Adjusts the fade in time for sensor operation between 1 and 12 seconds |
| L | DELAY potentiometer. Adjusts the on time for sensor operation (between fade in and fade out) from 1 sec to approximately 5 minutes |
| M | FADE OUT potentiometer. Adjusts the fade out time for sensor operation between 1 and 12 seconds |
| N | Sensor input – one normally open (N/O – goes open circuit to trigger FADE IN) one normally closed (N/C – goes closed circuit to trigger FADE IN) |

# 06 Typical Wiring Connections




**Important**

Connect ALL LEDs, electrical control and output wiring connections for the complete system BEFORE setting up the driver and connecting the driver PSU to the mains supply.

Never hot swap LED fittings. When adding or removing LED fittings always power down the system first.

# Driver Setup 07

**ALWAYS** carry out **ALL** wiring connections, set current (350mA, 500mA, 700mA or 1000mA) and set up the appropriate functionality (see below) prior to connecting power to the driver.

## Non Dimming Operation

For non dimming operation, all of the manual and remote controls are disabled.

EITHER

DIP SWITCH 1-9 OFF — DIP SWITCH 10 ON — REMOVE CURRENT SINK LINKS (G)

OR

DIP SWITCH 1-10 OFF — INSERT CURRENT SINK LINKS (G)

## Manual Dimming Operation - Current Sink

For manual dimming using an electronic potentiometer, the current sink screw terminal link must first be removed – and a potentiometer connected, in its place. Only compatible electronic potentiometers recommended by UFO are to be used.

DIP SWITCH 1-9 OFF — DIP SWITCH 10 ON — REMOVE CURRENT SINK LINK (G) — CONNECT ELECTRONIC POT (G)

## 0-10V Dimming - Current Source

0-10V dimming (current source) requires an external varying 0 to 10V DC control voltage. The control voltage will dim both LED outputs simultaneously. See 0-10V value table on following pages. For remote dimming using 0-10V, the current sink screw terminal link must first be inserted.

DIP SWITCH 1-9 OFF — DIP SWITCH 10 ON — INSERT CURRENT SINK LINK (G) — CONNECT 0-10V INPUT +VE & -VE TO TERMINALS (F)

## DMX Dimming & Control

DIP SWITCH 10 OFF — DIP SWITCH 1-9 TO DMX ADDRESS VALUE — INSERT CURRENT SINK LINK (G)

**NOTE:**
The CC10 driver occupies two DMX channels – see DMX Channel Table on page 9.
For guidance on DMX address switch settings see DMX Address Table on page 10.

# 08 Driver Setup

## Primary Control

DIP SWITCH 10 ON — REMOVE CURRENT SINK LINK (G) — CONNECT DMX LINK CABLES TO SLAVE UNITS

## Secondary Control

DIP SWITCH 1-10 OFF — INSERT CURRENT SINK LINK (G)

## Sensor Input

Sensor input may either be Normally Open (N/O) or Normally Closed operation. For N/O operation the sensor must go open circuit to operate the driver. For N/C operation the sensor must go closed circuit to operate the driver.

The sensor circuit has three timers FADE IN, DELAY & FADE OUT. These timers are adjusted by trimmer potentiometers (K, L & M), see sensor table on opposite page.

**EITHER**

DIP SWITCH 1 &10 ON — REMOVE CURRENT SINK LINKS (G) — CONNECT SENSOR TO N/O TERMINALS (M)

**OR**

DIP SWITCH 2 &10 ON — REMOVE CURRENT SINK LINKS (G) — CONNECT SENSOR TO N/C TERMINALS (M)

**NOTE:**
Where a movement sensor is used to trigger the input, the DELAY and FADE OUT timers will not run to completion until all movement has ceased.

## DMX Channel Table

| Channel No. | Function | Value |
|---|---|---|
| 01 | LED Output Dimming | 0-255 - No light to maximum light output |
| 02 | LED Output On | 0-250 |
| 02 | LED Output Off | 251-255 |

## 0-10V Current Source Value Table

| Value -DC Volts | Description |
|---|---|
| 0 - 0.47 | LED Output Off |
| 0.48 | LED Output Minimum Illumination |
| 10 | LED Output Maximum Illumination |

## Sensor Table

| Trimmer | Range (approx.) | Description |
|---|---|---|
| Fade In | 1 - 10 seconds | On sensor operation, fades in LED output from no light to maximum light |
| Delay | 1 - 300 seconds | Maintains LED output at maximum light |
| Fade Out | 1 - 10 seconds | After delay, timer fades out LED output from maximum light to no light |

**NOTE:**
The trimmer potentiometers are set for minimum (seconds) at full counter clockwise rotation, maximum seconds) at full clockwise rotation.

# 10 DMX Address Tables

## Dip Switches S6 to S9

DIP Switch Setting

0=Off
1=On

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| S8 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| S7 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 |
| S6 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |

| S1 | S2 | S3 | S4 | S5 | DMX Address | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 32 | 64 | 96 | 128 | 160 | 192 | 224 | 256 | 288 | 320 | 352 | 384 | 416 | 448 | 480 |
| 1 | 0 | 0 | 0 | 0 | 1 | 33 | 65 | 97 | 129 | 161 | 193 | 225 | 257 | 289 | 321 | 353 | 385 | 417 | 449 | 481 |
| 0 | 1 | 0 | 0 | 0 | 2 | 34 | 66 | 98 | 130 | 162 | 194 | 226 | 258 | 290 | 322 | 354 | 386 | 418 | 450 | 482 |
| 1 | 1 | 0 | 0 | 0 | 3 | 35 | 67 | 99 | 131 | 163 | 195 | 227 | 259 | 291 | 323 | 355 | 387 | 419 | 451 | 483 |
| 0 | 0 | 1 | 0 | 0 | 4 | 36 | 68 | 100 | 132 | 164 | 196 | 228 | 260 | 292 | 324 | 356 | 388 | 420 | 452 | 484 |
| 1 | 0 | 1 | 0 | 0 | 5 | 37 | 69 | 101 | 133 | 165 | 197 | 229 | 261 | 293 | 325 | 357 | 389 | 421 | 453 | 485 |
| 0 | 1 | 1 | 0 | 0 | 6 | 38 | 70 | 102 | 134 | 166 | 198 | 230 | 262 | 294 | 326 | 358 | 390 | 422 | 454 | 486 |
| 1 | 1 | 1 | 0 | 0 | 7 | 39 | 71 | 103 | 135 | 167 | 199 | 231 | 263 | 295 | 327 | 359 | 391 | 423 | 455 | 487 |
| 0 | 0 | 0 | 1 | 0 | 8 | 40 | 72 | 104 | 136 | 168 | 200 | 232 | 264 | 296 | 328 | 360 | 392 | 424 | 456 | 488 |
| 1 | 0 | 0 | 1 | 0 | 9 | 41 | 73 | 105 | 137 | 169 | 201 | 233 | 265 | 297 | 329 | 361 | 393 | 425 | 457 | 489 |
| 0 | 1 | 0 | 1 | 0 | 10 | 42 | 74 | 106 | 138 | 170 | 202 | 234 | 266 | 298 | 330 | 362 | 394 | 426 | 458 | 490 |
| 1 | 1 | 0 | 1 | 0 | 11 | 43 | 75 | 107 | 139 | 171 | 203 | 235 | 267 | 299 | 331 | 363 | 395 | 427 | 459 | 491 |
| 0 | 0 | 1 | 1 | 0 | 12 | 44 | 76 | 108 | 140 | 172 | 204 | 236 | 268 | 300 | 332 | 364 | 396 | 428 | 460 | 492 |
| 1 | 0 | 1 | 1 | 0 | 13 | 45 | 77 | 109 | 141 | 173 | 205 | 237 | 269 | 301 | 333 | 365 | 397 | 429 | 461 | 493 |
| 0 | 1 | 1 | 1 | 0 | 14 | 46 | 78 | 110 | 142 | 174 | 206 | 238 | 270 | 302 | 334 | 366 | 398 | 430 | 462 | 494 |
| 1 | 1 | 1 | 1 | 0 | 15 | 47 | 79 | 111 | 143 | 175 | 207 | 239 | 271 | 303 | 335 | 367 | 399 | 431 | 463 | 495 |
| 0 | 0 | 0 | 0 | 1 | 16 | 48 | 80 | 112 | 144 | 176 | 208 | 240 | 272 | 304 | 336 | 368 | 400 | 432 | 464 | 496 |
| 1 | 0 | 0 | 0 | 1 | 17 | 49 | 81 | 113 | 145 | 177 | 209 | 241 | 273 | 305 | 337 | 369 | 401 | 433 | 465 | 497 |
| 0 | 1 | 0 | 0 | 1 | 18 | 50 | 82 | 114 | 146 | 178 | 210 | 242 | 274 | 306 | 338 | 370 | 402 | 434 | 466 | 498 |
| 1 | 1 | 0 | 0 | 1 | 19 | 51 | 83 | 115 | 147 | 179 | 211 | 243 | 275 | 307 | 339 | 371 | 403 | 435 | 467 | 499 |
| 0 | 0 | 1 | 0 | 1 | 20 | 52 | 84 | 116 | 148 | 180 | 212 | 244 | 276 | 308 | 340 | 372 | 404 | 436 | 468 | 500 |
| 1 | 0 | 1 | 0 | 1 | 21 | 53 | 85 | 11 | 149 | 181 | 213 | 245 | 277 | 309 | 341 | 373 | 405 | 437 | 469 | 501 |
| 0 | 1 | 1 | 0 | 1 | 22 | 54 | 86 | 118 | 150 | 182 | 214 | 246 | 278 | 310 | 342 | 374 | 406 | 438 | 470 | 502 |
| 1 | 1 | 1 | 0 | 1 | 23 | 55 | 87 | 119 | 151 | 183 | 215 | 247 | 279 | 311 | 343 | 375 | 407 | 439 | 471 | 503 |
| 0 | 0 | 0 | 1 | 1 | 24 | 56 | 88 | 120 | 152 | 184 | 216 | 248 | 280 | 312 | 344 | 376 | 408 | 440 | 472 | 504 |
| 1 | 0 | 0 | 1 | 1 | 25 | 57 | 89 | 121 | 153 | 185 | 217 | 249 | 281 | 313 | 345 | 377 | 409 | 441 | 473 | 505 |
| 0 | 1 | 0 | 1 | 1 | 26 | 58 | 90 | 122 | 154 | 186 | 218 | 250 | 282 | 314 | 346 | 378 | 410 | 442 | 474 | 506 |
| 1 | 1 | 0 | 1 | 1 | 27 | 59 | 91 | 123 | 155 | 187 | 219 | 251 | 283 | 315 | 347 | 379 | 411 | 443 | 475 | 507 |
| 0 | 0 | 1 | 1 | 1 | 28 | 60 | 92 | 124 | 156 | 188 | 220 | 252 | 284 | 316 | 348 | 380 | 412 | 444 | 476 | 508 |
| 1 | 0 | 1 | 1 | 1 | 29 | 61 | 93 | 125 | 157 | 189 | 221 | 253 | 285 | 317 | 349 | 381 | 413 | 445 | 477 | 509 |
| 0 | 1 | 1 | 1 | 1 | 30 | 62 | 94 | 126 | 158 | 190 | 222 | 254 | 286 | 318 | 350 | 382 | 414 | 446 | 478 | 510 |
| 1 | 1 | 1 | 1 | 1 | 31 | 63 | 95 | 127 | 159 | 191 | 223 | 255 | 287 | 319 | 351 | 383 | 415 | 447 | 479 | 511 |

Switches S1 to S5

DMX Address

# Troubleshooting 11

| Problem | Probable Causes | Remedy |
|---|---|---|
| [GENERAL] System is dead - power LED (D) not lit. No light output from LED | Mains supply off | Check supply and reinstate |
| | Loose mains plugs | Check plugs |
| | Loose DC output wire or connection | Check all connections |
| | PSU failed - check output with DVM | Replace PSU |
| | Driver PCB failure | Replace driver |
| [GENERAL] One output channel is dead Power LED (D) is lit | Loose output wire to dead channel or faulty/poorly fitting power in on extrusion. Check output with DVM | Check all connections |
| | Driver PCB failure | Replace driver |
| [NO DIMMING MODE] System is dead - power LED (D) lit. No light output | Current sink input link in place - DIP switch 10 on | Switch 10 off or remove link |
| | Loose output GND wire or poorly fitting power in on extrusion | Check all connections |
| | PSU failed - check output with DVM | Replace PSU |
| | Driver PCB failure | Replace driver |
| [MANUAL DIMMING MODE] Power LED (D) lit – function LED (C) not lit – output LED devices illuminated but not dimming | Switch 10 off | Switch 10 to on |
| | Electronic potentiometers wired incorrectly - wrong polarity | Check polarity of connections and reconnect correctly. |
| [0-10V DIMMING MODE] Power LED (D) lit - function LED (C) not lit. Output LED devices illuminated but not dimming | Switch 10 is off | Switch 10 to on |
| [0-10V DIMMING MODE] Power LED (D) lit - function LED (C) not lit. Output LED devices not illuminated | 0-10V wired incorrectly - wrong polarity | Check polarity of connections and reconnect correctly |
| | 0-10V control signal missing check input with DVM | Check all connections and output of 0-10v controller using DVM |
| [0-10V DIMMING MODE] Power LED (D) lit - function LED (C) lit. Output LED devices illuminated but flickering | 0V from 0-10V control signal is missing | Check all connections and output of 0-10V controller using DVM |

# 12 Troubleshooting

| Problem | Probable Causes | Remedy |
|---|---|---|
| [DMX DIMMING MODE] Power LED (D) lit - function LED (C) lit. Output LED devices illuminated but not responding to DMX | DMX address not set on DIP switches 1-9 | Set DMX address |
| [DMX DIMMING MODE] Power LED (D) lit - function LED (C) lit. Output LED devices not illuminated and not responding to DMX | Switch 10 is on | Switch 10 off |
| | Incorrect DMX address set | Set correct DMX address |
| [DMX DIMMING MODE] Power LED (D) lit - function LED (C) not lit. Output LED devices illuminated but not responding to DMX | DMX control signal missing | Check all connections are secure and correct polarity and confirm output of DMX controller and/or previous DMX device in DMX chain |
| [SECONDARY MODE] Power LED (D) lit - function LED (C) not lit. Output LED devices illuminated but not responding to master control | Primary driver not set up correctly | Check primary driver set up |
| | DMX control signal from primary driver missing | Check all connections are secure and correct polarity and confirm output of primary driver and/or previous devices in primary / secondary DMX chain |
| [N/O or N/C SENSOR OPERATION] Power LED (D) lit - function LED (C) not lit. Output LED devices illuminated but not responding to sensor | Switch 10 is off | Switch 10 to on |
| [N/O SENSOR OPERATION] Power LED (D) lit - function LED (C) not lit. Output LED devices not illuminated and not responding to sensor | Switch 1 is off | Switch 1 to on |
| | Current sink input link in place | Remove link |
| [N/C SENSOR OPERATION] Power LED (D) lit - function LED (C) not lit. Output LED devices not illuminated and not responding to sensor | Switch 2 is off | Switch 2 to on |
| | Current sink input link in place | Remove link |
| [N/O or N/C SENSOR OPERATION] Power LED (D) lit - function LED (C) not lit. Output LED devices not illuminated and not responding to sensor | Sensor control signal is missing | Check all connections and output of sensor using DVM |
| | Sensor wired to wrong input | Check input connections and rewire |

# Troubleshooting 13

| Problem | Probable Causes | Remedy |
|---|---|---|
| [SHORT CIRCUIT]<br>Output LED devices go out and power LED (D) flashes rapidly | Short circuit between LED output and GND. Short circuit between LED1 output and/or LED 2 output and GND | Check for short circuit on output cables using a DVM. Repair or replace faulty cables or devices. |
| [OVER CURRENT]<br>Heavily loaded system - Output LED devices go out momentarily and power LED (D) flashes rapidly | System overloaded beyond 30W | Reduce load by removing some LED fittings until a safe working load of not more than 30W is achieved |
| [OVER TEMPERATURE]<br>Output LED devices go out momentarily and power LED (D) flashes rapidly | Driver ambient temperature too hot | Relocate driver to cooler ambient environment |

# 14 Technical Information

| | |
|---|---|
| **Product Code** | DR-CC-DC-48-50-D-CU<br>(driver with single integral dimming potentiometer)<br>DR-CC-DC-48-50-ALL-CU<br>(driver with fully functional manual / dmx / 0-10V / sensor control) |
| **Description** | 50W fully functional dimmable constant current driver |
| **Input Power** | 12-48V DC |
| **Rated Power** | 50W maximum output |
| **Output Current** | 350mA, 500mA, 700mA, 1000mA |
| **Connection** | Power - 2.1mm input jack plug<br>Control & Outputs - screw terminals |
| **Protection** | SCP / OCP / OTP |
| **Functionality** | Individual manual (current sink) dimming with electronic potentiometer<br><br>0-10V (current source) output dimming<br><br>DMX with 2 channels (LED dimming & on/off). Controllable from DMX system or can operate standalone master/slave with other CC10 drivers.<br><br>2 channels (N/O & N/C) sensor input to trigger output LED devices with fade in, delay and fade out controls. |
| **Ambient Temp.** | Min. -20°C to Max. +45°C |
| **IP Rating** | IP20 for indoor use only |
| **Dimensions** | 180mm (7.09") x 116.5mm (4.59") x 44.5mm (1.75") |

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