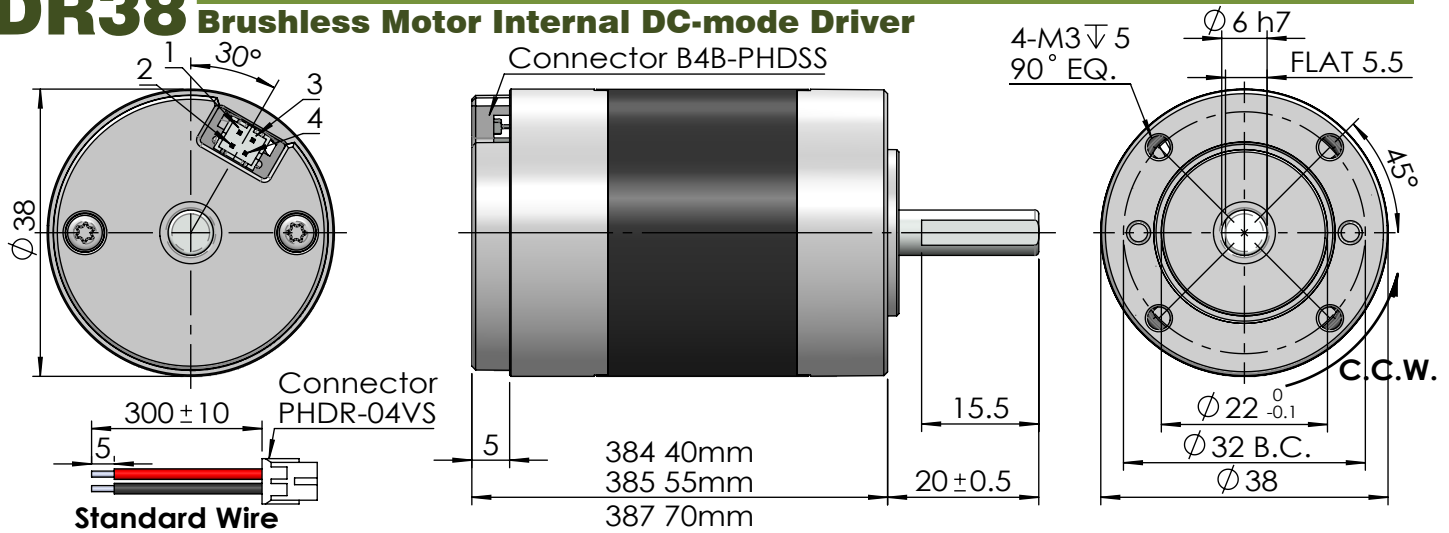


# DR38

B-Class Insulation / IP5X Protection

## Brushless Motor Internal DC-mode Driver



| <b>DR384 Motor Data</b> |      |         |                    |      |      |      |      |       |       | <b>15W</b> |      | <b>Weight</b> |       | <b>Inertia</b> |     | <b>Cogging</b> |      |
|-------------------------|------|---------|--------------------|------|------|------|------|-------|-------|------------|------|---------------|-------|----------------|-----|----------------|------|
| Item                    | Volt | No Load | Rated at Max. Eff. |      |      |      |      |       | Stall | Pmax       | Rt   | La            | Kt    | Ke             | Ks  | Tm             | Te   |
| Unit                    | V    | rpm     | mA                 | rpm  | mA   | g-Cm | W    | %     | g-Cm  |            |      |               |       |                |     |                |      |
| -120                    | 12   | 1900    | 80                 | 1456 | 267  | 131  | 2.0  | 61.09 | 560   | 2.7        | 13.5 | 11            | 0.700 | 7.19           | 139 | 4.7            | 0.81 |
| -139                    | 12   | 3900    | 280                | 3005 | 950  | 225  | 6.9  | 60.88 | 980   | 9.8        | 3.4  | 2.8           | 0.336 | 3.45           | 290 | 5.2            | 0.82 |
| -161                    | 12   | 6100    | 400                | 4974 | 1840 | 277  | 14.1 | 64.07 | 1500  | 23.5       | 1.4  | 1.1           | 0.192 | 1.97           | 507 | 6.5            | 0.79 |
| -195                    | 12   | 9500    | 830                | 7611 | 3449 | 342  | 26.7 | 64.60 | 1720  | 42.0       | 0.65 | 0.48          | 0.131 | 1.34           | 746 | 6.5            | 0.74 |
| -220                    | 24   | 2080    | 80                 | 1462 | 193  | 196  | 2.9  | 63.60 | 660   | 3.5        | 49.4 | 32.6          | 1.737 | 17.83          | 56  | 2.8            | 0.66 |
| -239                    | 24   | 3900    | 95                 | 3142 | 403  | 204  | 6.6  | 68.08 | 1050  | 10.5       | 13.5 | 11            | 0.662 | 6.80           | 147 | 5              | 0.81 |
| -258                    | 24   | 5800    | 140                | 4812 | 695  | 235  | 11.6 | 69.62 | 1380  | 20.6       | 6.4  | 5.4           | 0.423 | 4.35           | 230 | 6.1            | 0.84 |
| -267                    | 24   | 6700    | 200                | 5521 | 974  | 264  | 15.0 | 64.01 | 1500  | 25.8       | 4.8  | 3.9           | 0.341 | 3.50           | 286 | 7.1            | 0.81 |
| -287                    | 24   | 8700    | 380                | 7108 | 1774 | 366  | 26.7 | 62.74 | 2000  | 44.7       | 2.8  | 2.2           | 0.262 | 2.69           | 371 | 7.0            | 0.79 |
| <b>DR385 Motor Data</b> |      |         |                    |      |      |      |      |       |       | <b>30W</b> |      | <b>Weight</b> |       | <b>Inertia</b> |     | <b>Cogging</b> |      |
| Item                    | Volt | No Load | Rated at Max. Eff. |      |      |      |      |       | Stall | Pmax       | Rt   | La            | Kt    | Ke             | Ks  | Tm             | Te   |
| Unit                    | V    | rpm     | mA                 | rpm  | mA   | g-Cm | W    | %     | g-Cm  |            |      |               |       |                |     |                |      |
| -120                    | 12   | 2000    | 140                | 1624 | 636  | 312  | 5.2  | 68.17 | 1660  | 8.5        | 4.3  | 4.5           | 0.629 | 6.45           | 155 | 1.9            | 1.05 |
| -136                    | 12   | 3600    | 220                | 3075 | 1296 | 350  | 11.1 | 71.06 | 2400  | 22.2       | 1.47 | 1.51          | 0.325 | 3.34           | 300 | 2.4            | 1.03 |
| -163                    | 12   | 6300    | 500                | 5390 | 3128 | 462  | 25.6 | 68.15 | 3200  | 51.8       | 0.55 | 0.48          | 0.176 | 1.80           | 554 | 3              | 0.87 |
| -225                    | 24   | 2500    | 100                | 2044 | 465  | 325  | 6.8  | 61.10 | 1780  | 11.4       | 11.8 | 12            | 0.890 | 9.14           | 109 | 2.5            | 1.02 |
| -237                    | 24   | 3700    | 140                | 3146 | 838  | 479  | 15.5 | 77.00 | 3200  | 30.4       | 5.4  | 5.8           | 0.687 | 7.05           | 142 | 2.0            | 1.07 |
| -252                    | 24   | 5200    | 220                | 4420 | 1282 | 525  | 23.8 | 77.46 | 3500  | 46.7       | 3    | 2.9           | 0.494 | 5.07           | 197 | 2.1            | 0.97 |
| -272                    | 24   | 7250    | 300                | 6342 | 2216 | 601  | 39.1 | 73.62 | 4800  | 89.3       | 1.47 | 1.51          | 0.314 | 3.22           | 311 | 2.6            | 1.03 |
| -291                    | 24   | 9100    | 400                | 7937 | 2879 | 639  | 52.1 | 75.38 | 5000  | 116.8      | 0.97 | 0.96          | 0.258 | 2.65           | 378 | 2.5            | 0.99 |
| <b>DR387 Motor Data</b> |      |         |                    |      |      |      |      |       |       | <b>40W</b> |      | <b>Weight</b> |       | <b>Inertia</b> |     | <b>Cogging</b> |      |
| Item                    | Volt | No Load | Rated at Max. Eff. |      |      |      |      |       | Stall | Pmax       | Rt   | La            | Kt    | Ke             | Ks  | Tm             | Te   |
| Unit                    | V    | rpm     | mA                 | rpm  | mA   | g-Cm | W    | %     | g-Cm  |            |      |               |       |                |     |                |      |
| -130                    | 12   | 2940    | 210                | 2541 | 1404 | 462  | 12.1 | 71.53 | 3400  | 25.7       | 1.3  | 1.4           | 0.387 | 3.97           | 252 | 1.5            | 1.08 |
| -142                    | 12   | 4160    | 300                | 3600 | 2092 | 485  | 17.9 | 71.43 | 3600  | 38.5       | 0.70 | 0.73          | 0.271 | 2.78           | 360 | 1.6            | 1.04 |
| -165                    | 12   | 6500    | 600                | 5732 | 4548 | 662  | 39.0 | 71.40 | 5600  | 93.5       | 0.3  | 0.3           | 0.168 | 1.72           | 581 | 1.8            | 1.00 |
| -232                    | 24   | 3200    | 150                | 2747 | 950  | 623  | 17.6 | 77.09 | 4400  | 36.2       | 4.5  | 5.0           | 0.779 | 7.99           | 125 | 1              | 1.11 |
| -248                    | 24   | 4800    | 200                | 4231 | 1658 | 711  | 30.9 | 77.67 | 6000  | 73.9       | 2.0  | 2.3           | 0.488 | 5.01           | 200 | 1.4            | 1.15 |
| -260                    | 24   | 6050    | 280                | 5361 | 2345 | 752  | 41.4 | 73.58 | 6600  | 102.5      | 1.3  | 1.4           | 0.364 | 3.74           | 267 | 1.7            | 1.08 |
| -272                    | 24   | 7220    | 320                | 6433 | 2792 | 763  | 50.4 | 75.23 | 7000  | 129.8      | 0.9  | 1.0           | 0.309 | 3.17           | 316 | 1.6            | 1.11 |

| Pin No. | Symbol |     |     |    | Coller of wire |                | Function                   | Standard condition                       |
|---------|--------|-----|-----|----|----------------|----------------|----------------------------|------------------------------------------|
| 1       | VM+    | CCW | GND | CW | Black          | #22 AWG UL3239 | Power of motor<br>(Enable) | DC10~30V MAX.<br>(Voltage speed control) |
| 3       | GND    |     | VM+ |    | Red            |                |                            |                                          |

The **DC-mode** driver operates in the same manner as brushed motor, power on to start, power off to stop, reverse polarity for reverse rotation, and adjusts voltage to speed control; Without changing the original electrical circuitry, a brushless motor can be used instead, extending the lifespan.