

Cyber One

Versatile, active force feed-back encoder for inter-active HMI controls, splash proof

Features

- Pre-set feels or direct, real-time torque control
- 8 to 64 detents, end-stop, spring effect, vibration feels and more
- With push button and RGB backlit illumination
- 384 CPR (clocks per revolution) encoder output
- UART control input
- 24 VDC supply, 1.9 A peak current consumption
- Ø36 x 40 mm body size (behind front panel)
- -20 to +70°C, splash proof (IP54)

Possible Customization

- Pre-set feels
- Individual knobs (accessory)

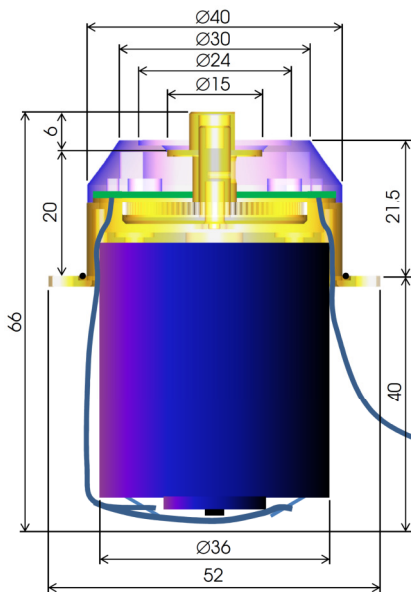
Applications

- Medical (respirators, imaging, monitors, lab)
- Cockpit (commercial vehicles, farming, construction)
- Industrial (tool machines, process controls)
- Entertainment (light & sound, studio)

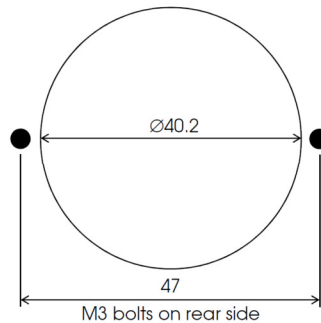


RoHS (2011/65/EU)

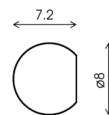
Dimensions (mm)



Front Panel Cut-out:



Shaft shape:

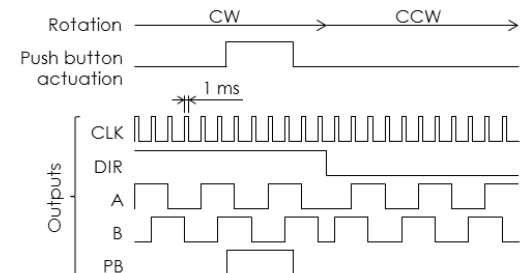


Pin Allocation and Output Timing

Pin Allocation

- | | |
|---------------|-------------------|
| # 1 – +24 VDC | # 5 – UART in |
| # 2 – +24 VDC | # 6 – Clk (A) |
| # 3 – GND | # 7 – Dir (B) |
| # 4 – GND | # 8 – Push button |

Output Timing



Description

Cyber One is a versatile, force feed-back encoder with push button function and RGB backlit illumination. The innovative product is ideal for many applications requiring real-time process feed-back.

The firmware offers various pre-set "feels", including 8 to 64 detents, artificial end-stop, spring return, vibration and many more. Cyber One's electro magnetically generated output torque can also be directly (real-time) controlled in the range of 0 to 6 Ncm. The supply voltage requirement is 24 VDC with a maximum current consumption of 1.9 A. The included flat cable with AMP MicroMatch connector incorporates a UART control interface and outputs a high resolution encoder signal providing 384 CPR (clocks per revolution). The splash proof construction is flanged by two M3 screws (not included) to mount the unit to the front panel (rear side) and offers a robust 8 mm D-shape stainless steel shaft.

Specifications

Mechanical Rating

Encoder resolution:.....384 CPR (clocks per revolution), 4 RPM max.
 Switching torque:.....0 to 6 Ncm (+/- 10%, over temperature range and life), 10 Mio. revolutions life (at 1'000 RPM max.)
 Push button:.....6 N force, 1.5 mm travel, 1 Mio. actuations life (over temperature range, at 2 Hz max.)
 Connector:.....8 positions AMP MicroMatch

Electrical Rating

Supply voltage:.....24 VDC +/-10%
 Current consumption:.....1.9 A max. (full stall, 24 VDC, room temperature, backlit illumination off)
 I/O logic level:.....5 VDC
 PWM switching frequency:.....16 kHz
 UART input:.....38.4k baud, 1 byte non-inverted, even parity, 1 stop bit.
 (When sending commands to UART input please maintain a 30 ms minimum interval time).

Control Commands

Pre-set Feels:

Feel	Command	Feel	Command
1 16 detents, soft	120dec	21 Spring force to left; short	140dec
2 16 detents, medium	121dec	22 Spring force to left; long	141dec
3 16 detents, strong	122dec	23 Spring force to right; short	142dec
4 16 detents, self-spinning	123dec	24 Spring force to right; long	143dec
5 24 detents, soft	124dec	25 Vibration fast	144dec
6 24 detents, medium	125dec	26 Vibration slow	145dec
7 24 detents, strong	126dec	27 Custom 1	146dec
8 24 detents, self-spinning	127dec	28 Custom 2	147dec
9 32 detents, soft	128dec	29 Custom 3	148dec
10 32 detents, medium (default)	129dec	30 Custom 4	149dec
11 32 detents, strong	130dec	31 Custom 5	150dec
12 32 detents, self-spinning	131dec	32 Custom 6	151dec
13 48 detents, soft	132dec	33 Custom 7	152dec
14 48 detents, medium	133dec	34 Custom 8	153dec
15 48 detents, strong	134dec	35 Custom 9	154dec
16 48 detents, self-spinning	135dec	36 Custom 10	155dec
17 End-stop left	136dec	37 Custom 11	156dec
18 End-stop right	137dec	38 Custom 12	157dec
19 Spring force to center; short	138dec	39 Custom 13	158dec
20 Spring force to center; long	139dec	40 Custom 14	159dec

Direct Torque Control:

Torque	Command
Left; min. to max. (16 steps)	200dec (min.) to 215dec (max.)
Right; min. to max. (16 steps)	220dec (min.) to 235dec (max.)
Blank (no torque)	236dec

LED Control and Output Mode:

Function	Command	Explanation
RGB Color	0dec to 90dec	- 0 (default) to 89 (see RGB spectrum below) - 90 is white
Brightness	100dec to 103dec	100 is off (default), 101 is lowest, 103 is highest brightness
Output mode	110dec 111dec	Clk & Dir output (default) A & B quadrature output
RGB Spectrum		

Materials and Finishes

Main frame:.....Zinc die-cast, matt chrome plated
 Shaft:.....Stainless steel
 Illuminated cover:.....Polycarbonate, transparent, UV resistant
 Front panel O-ring:.....NBR70

Environmental Rating

Temperature ranges:.....-20 to +70°C max. (operating and storage)
 IP sealing:.....IP54

Packaging:.....Single piece packed (antistatic bag)

Ordering Code

CBRONE-1