Cursor Controls

Cursor Controls

WHERE WE ARE

Cursor Controls Ltd
Conroi House
Brunel Drive
Newark
Nottinghamshire
NG24 2EG
UK

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WHO WE ARE

The Inventor of the Trackball

1943 - Original 'Trackerball' produced by Marconi for military radar

1984 - Commercial applications included

1990 - Sold by Marconi to GEC Plessey

1995 - Sold by GEC Plessey and became a stand-alone company - 'The Trackerball Company'

2000 - Bought by Cursor Controls Ltd.

COMPANY PROFILE

Private Company (2 shareholders)

Currently employ ~30 people

Turnover $6 million per annum

90% export

Part of $20 million group

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COMPANY MISSION STATEMENT

To be the 'first choice' Trackball supplier to Industry

STRATEGY

To offer 'Industry Best' standards in:

- Manufacturing
- Deliveries
- Quality
- Customer Service
- Value for Money
- Range

This is achieved through CCL's core flexibility – maintained by ownership of all IP, Mechanical and Electrical R&D/Engineering Resources and key Manufacturing Processes.

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INDUSTRY BEST – MANUFACTURING

PCB Manufacturing

Fully ESD Safe PCB Area

Through Hole and Surface Mount Lines

Humidity Controlled Storage

Mechanical Assembly

Cell and Flow Line Production

Electronic Barcoded Assembly Instructions

Unique Fully Automated Test Platforms

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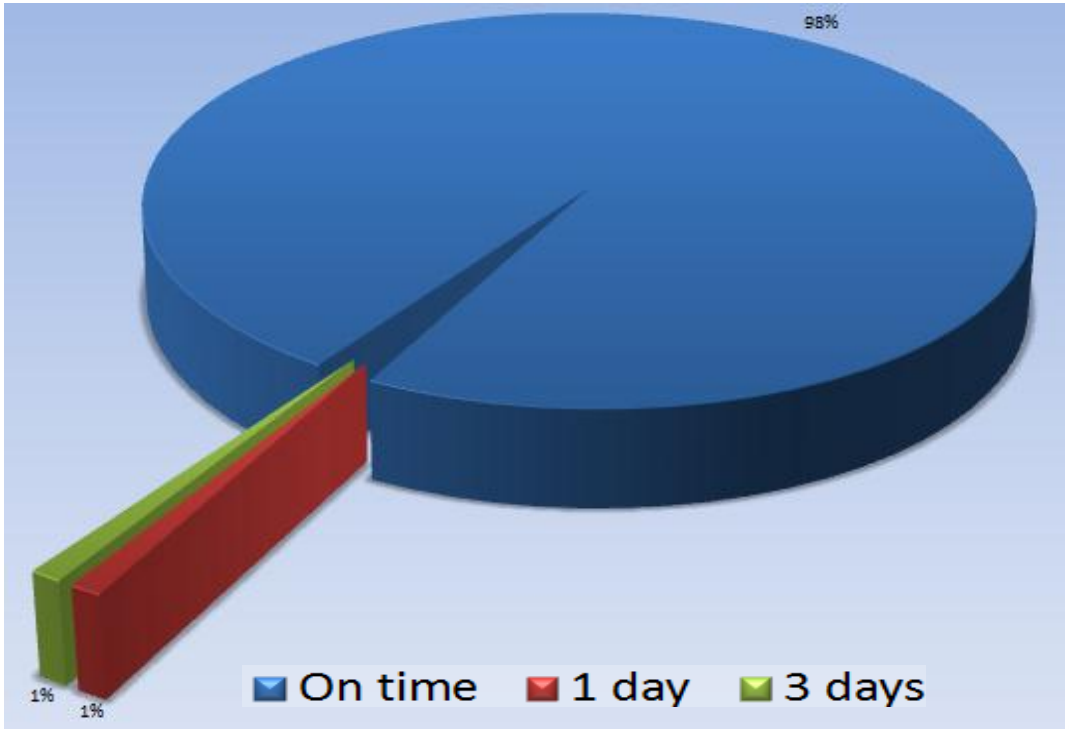
INDUSTRY BEST – DELIVERIES & QUALITY



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INDUSTRY BEST – CUSTOMER SERVICE

A skilled Sales Team with significant industry experience and unrivalled dedication to customer support.

Average reaction time for initial response to customer enquiries:

LESS THAN 24 HOURS

Detailed response to quality/technical queries:

WITHIN 48 HOURS

RMA/RMC repairs completed and returned:

WITHIN 2 WEEKS OF RECEIPT

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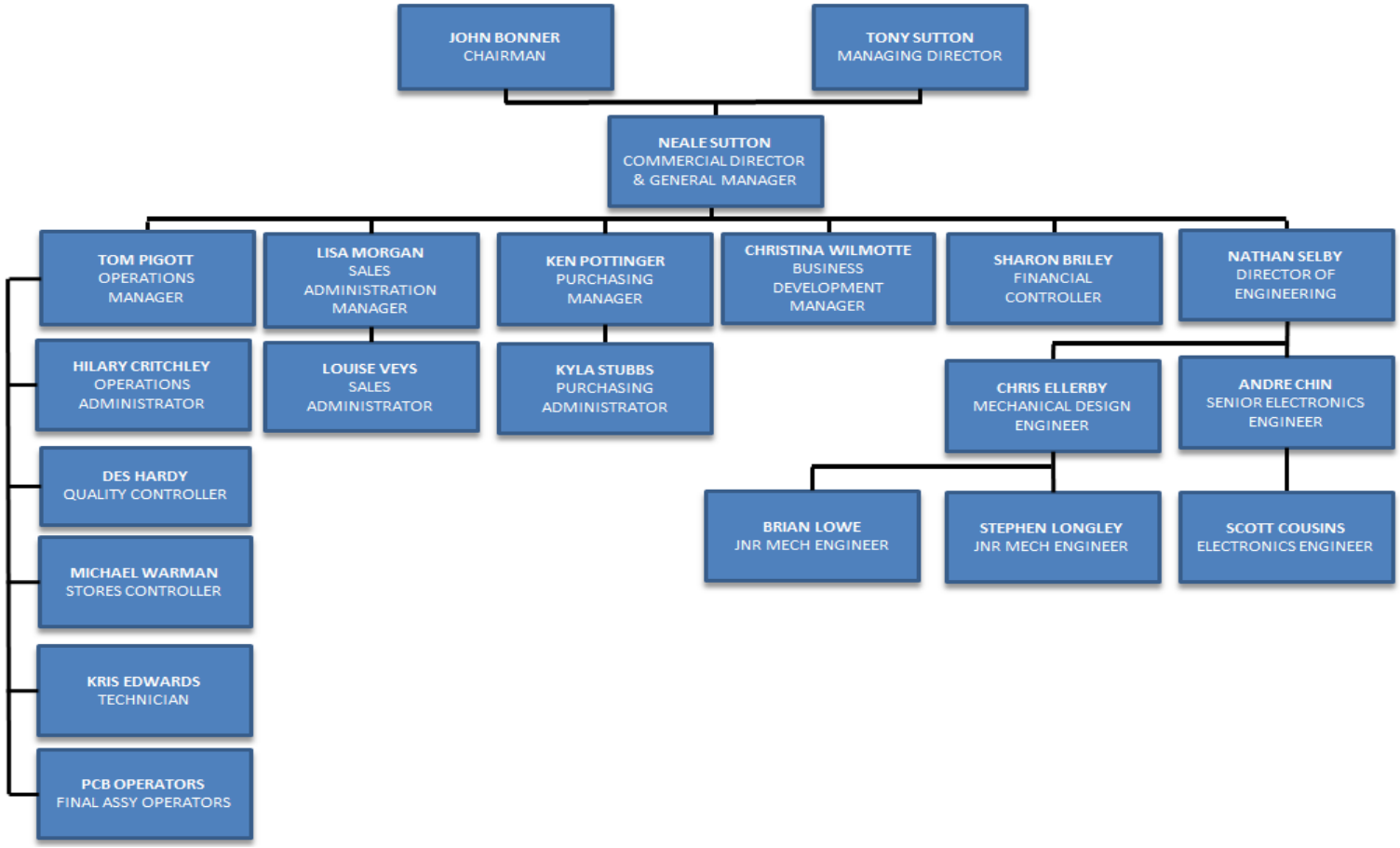
INDUSTRY BEST – The Team



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INDUSTRY BEST – RANGE

RANGE OVERVIEW

CCL boast the most comprehensive range of Trackballs in the world.

This is achieved by providing:

- **Tracking Engines** Diverse tracking engine options – Mechanical, Optical and Laser Tracking
- **Sealing** Various sealing techniques & technologies – from IP40 to IP68
- **Protocols** Comprehensive range of electrical outputs
- **Mounting** Various options on mounting arrangement
- **Ball Options** Diverse ball options with customization service
- **Ball Sizes** Largest range of ball sizes
- **Backlight options** Range of backlight colours
- **Additional Functionality** Z-Axis Control
- **Unique Features** Anti-Vibration, Complete Customisation

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RANGE - TRACKING ENGINES

MECHANICAL	P, K, R and F-RANGE	
	P = Panel	(e.g. P38-560420)
	K = Keyboard	(e.g. K34-104138
	R = Desktop	(e.g. R60-163310)
	F = Specialised	(e.g. F60-55331)
OPTICAL	O-RANGE	
	O = Optical Technology	(e.g. O50-76021D)
INFRARED	L-RANGE	
	L = Infrared Technology	(e.g. L50-76021D)
LASER	X & C-RANGE	
	X = Laser Tracking technology	(e.g. X38-76023D)

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RANGE – MECHANICAL TRACKING

MECHANICAL

Panel Range – P16, P25, P38, P50, P55, P60, P75 etc….






Keyboard Range – K34, K35, K38



Desktop Range – R50, R55, R60



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MECHANICAL OPTIONS

- Ball sizes available: 16, 25, 34, 35. 38, 50, 55, 60 and 75mm

- All ball sizes can be used with any material
    - Phenolic Resin
    - Polyester Resin
    - Epoxy Resin
    - Stainless Steel

- Sealing up to IP65

- Backlit ball options

- Optional mounting arrangements (panel, keyboard, desktop)

- Anti-vandal options, backlight ball

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RANGE – ‘O’ RANGE AND ‘L’ RANGE

OPTICAL

- Red LED Optical Range – O38 and O50
- Infra-Red LED Optical Range – L38 and L50

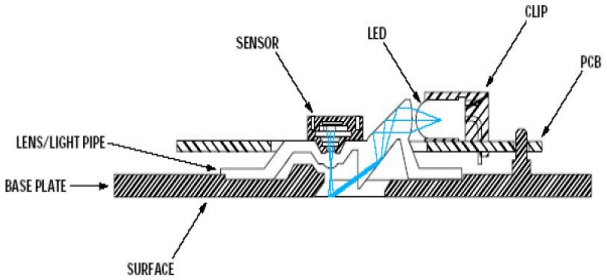
RANGE – ‘O’ RANGE AND ‘L’ RANGE

HOW IT WORKS

- An optical trackball uses a small sensor which has a small red light-emitting diode (LED) that bounces light off the ball surface onto a complimentary metal oxide semiconductor (CMOS) sensor

- The ball requires a pattern for tracking purposes

- No moving parts required – solid state sensing



The CMOS sensor sends each image to a digital signal processor (DSP) for analysis & detects patterns in the images and see how those patterns have moved since the previous image. Based on the change in patterns over a sequence of images, the DSP determines how far the ball has moved & sends the corresponding coordinates to the main microcontroller on the trackball main card

Sequential Image A at t – 0.0ms

Sequential Image B at t – 0.67ms

Common features can be identified in the two images above. The sensor registers that these featured have moved a distance down & to the left in 0.67ms

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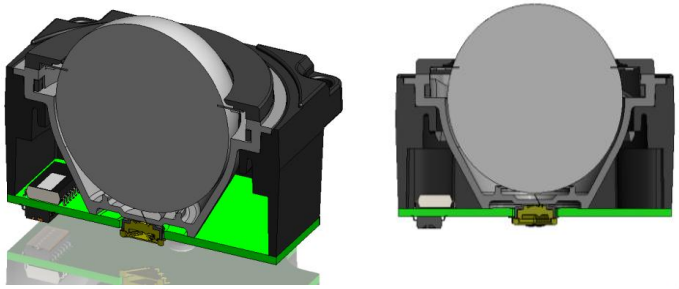
RANGE - X-RANGE

X-RANGE

- Single Sensor Laser Doppler Tracking – solid state sensing with no moving parts (other than the ball)
- Retro-Fittable to existing P, O and L Ranges
- Patented IP68 Full Sealing
- Ball as standard (Bayonet Style Removable Ring)
- Improved Ingress Protection Feature
- Reduced Power Requirement
- Increased Functionality
- Increased Flexibility – Fully Customisable
- Reduced Cost



Standard Range:

X13 X19 X25 X38 X50

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Z-RANGE

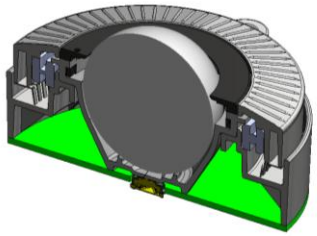
- Uses X-Range Modular chassis
- Available in 3 new packages

25

38

50

- Offers 3rd Axis Control Ring for applications requiring increased functionality
- Provides same functionality as mouse scroll wheel or rotary encoder
- Cost Effective
- Removable Ball
- 3 Mounting Points – optimized for panel switch proximity
- Allows Complete Customization:
  - Ring Texture (soft touch options)
  - Ring Torque
  - Mounting Flexibility
  - Resolution Options
  - Ring Profile
  - Backlight Options
  - Ball Sealing Options
  - High quality; smooth bearing – ideal for applications where feel is critical



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RANGE COMPARISON

	ADVANTAGES	DISADVANTAGES
Mechanical	Low Cost Reliable/Robust 60+ yrs on the market Any ball colour/material	Limited Sealing (to IP65) Limited Serviceability Fixed Chassis Design
O-Range	Sealing to IP68 Variable resolution Serviceability Cost Flash Programmable	Requires ball pattern Emitted red light High current consumption
L-Range	Sealing to IP68 Variable resolution Serviceability No visible LED light Flash Programmable	Requires some ball pattern
X-Range	All advantages of L-Range Complete customization Features (Halo, backlight, Z-Axis) Cost Reduced power consumption	Certain ball characteristics required

RANGE – SEALING

SEALING

- A trackball is generally mounted in an enclosure or panel – IEC 60529 relates to protection of enclosures

- The rating provided to the trackball determines its ability to seal against water and dust only

- The rating is provided using 2 numerals IP XX – for example IP 68

	FOREIGN BODIES FIRST DIGIT		LIQUIDS SECOND DIGIT
0	No protection	0	No protection
1	Protected against solid objects greater than 50mm (e.g. accidental touch by hands)	1	Protection against vertically falling drops of water (e.g. condensation)
2	Protected against solid objects up to 12mm (e.g. fingers)	2	Protection against direct sprays of water up to 15 degrees from vertical
3	Protected against solid objects greater than 2.5mm (e.g. tools and wires)	3	Protection against direct sprays of water up to 60 degrees from vertical
4	Protected against solid objects greater than 1mm (e.g. small tools and wires)	4	Protection against water sprayed from all directions - limited ingress permitted
5	Protected against dust, limited ingress (e.g. no harmful deposit)	5	Protected against low pressure jets of water from all directions - limited ingress permitted
6	Totally protected against dust	6	Protected against high pressure jets of water (use on ship deck) - limited ingress permitted
		7	Protected against the effects of immersion between 15cm and 1m
		8	Protected against long periods of immersion under pressure

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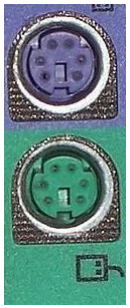
RANGE – PROTOCOLS

PROTOCOLS

- The movement generated by the encoding system (e.g. photodiode, optical sensor or laser sensor) can be packaged as serial information and sent in the form of the following protocols:

  - USB (2.0)
  - PS/2
  - RS232
  - SUN
  - Custom Serial



Sun microsystems

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RANGE – SUMMARY

THE MOST COMPREHENSIVE RANGE OF TRACKBALLS IN THE WORLD

- Engines	Mechanical, Optical and Laser
- Sealing	IP40 to IP68
- Protocols	Quadrature, PS/2, USB, RS232, Sun
- Mounting	Panel, Keyboard and Desktop
- Ball Options	Backlit, Bi-Colour, Stainless steel and Removable
- Ball Sizes	13, 16, 19, 25, 34, 35, 38, 50, 55, 60 and 75mm

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LATEST DEVELOPMENTS

NEXT GENERATION, LEADING EDGE DEVELOPMENTS

- PATENTED ANTI-VIBRATION Solution
- HALO BACKLIGHT
- MILITARY RANGE
- SWITCH PLATE RANGE
- INTEGRATED & ERGONOMIC SOLUTIONS
- IP68, BACKLIT SCROLLWHEEL MODULES

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NEXT GENERATION

ANTI VIBRATION FEATURE

Existing Solutions:

- Increased Ball Torque - relies on seal applying increased pressure to the ball to ensure no movement is allowed during vibration incidents

  Disadvantage: significantly impacts on the 'feel' of the unit and makes small movements very difficult

- Software Filter – looks for movements typically output during incidents of vibration & 'filters'/ignores them from communicated cursor movement

  Disadvantage: causes a loss of accuracy with intended small(single pixel) movements, typically associated with Medical Applications

CCL A-V SOLUTION

- New, Unique Development - International Patent Pending
- Universal Feature - available on 38 & 50mm Mechanical and Laser L & X-Range) units
- Low Cost Option
- Developed during workshop with leading Medical Device manufacturer to overcome unintentional movement caused by speaker vibrations
- Inputs only intended movement when user's hand is in contact with the ball
- Adjustable sensitivity – works with gloves
- Suitable for a wide variety of applications – Medical, Marine, Aviation
- Ideal for vibrational environments where accuracy is crucial

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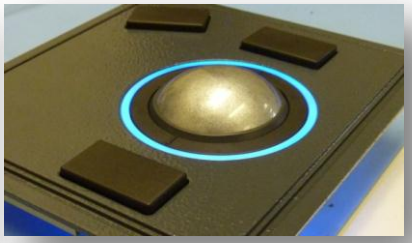
NEXT GENERATION

HALO BACKLIGHT FEATURE

- Available with X25, X38 and X50
- Ideal for low level light environments where a backlit ball would be too obtrusive
- Complete flexibility with colour choice – custom colours available (using RGB mixing)

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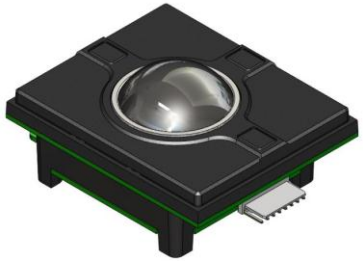
NEXT GENERATION

INTEGRATED & ERGONOMIC SOLUTIONS

- VALUE ADD INTEGRATED MODULES
- CUSTOMISED SOLUTIONS for aviation and marine applications
- FEATURE A RANGE OF PRODUCT OPTIONS – integrated switches, backlighting, scroll wheel, finger navigation
- PANEL MOUNT AND DESKTOP SOLUTIONS



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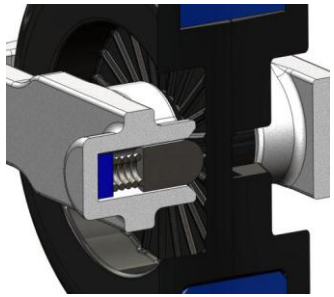
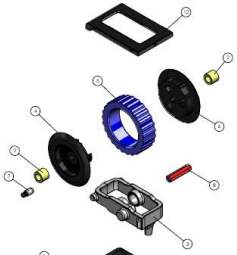
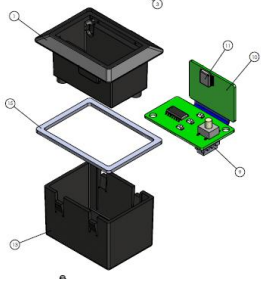
NEXT GENERATION

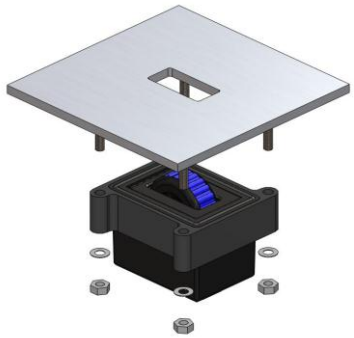
IP68, BACKLIT SCROLLWHEEL MODULES

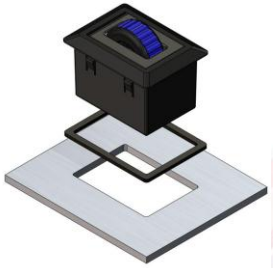
- COMPACT SOLUTION OFFERING FULLY FUNCTIONAL SCROLL WHEEL WITH IP68 SEALING
- AVAILABLE WITH INDENTED RATCHET OR SMOOTH DAMPENED ROTATION
- INCLUDES SWITCH INPUT
- OPTIONAL BACKLIGHT
- RANGE OF WHEEL DESIGNS
- AVAILABLE AS REAR OR TOP PANEL MOUNT











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NEXT GENERATION

EXTENDED MILITARY RANGE

- NEW UNIT SIZES – F38, F50, F60 & F75
- MODULAR CONSTRUCTION TO ALLOW FOR EASY CUSTOMISATION
- RUGGED CONSTRUCTION
- MODULAR SWITCH BLOCK FOR COST EFFECTIVE PANEL LAYOUT ADJUSTMENT
- CCL A-V SOLUTION INTEGRATED AS STANDARD