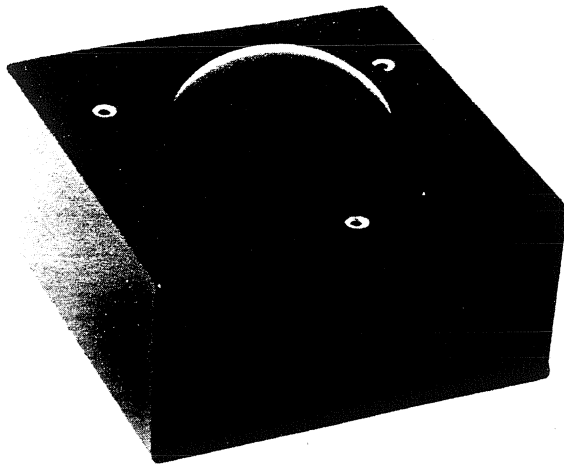


Technical Bulletin: *Dynapar* brand Series 200 Trackballs



Bulletin Number: 701748

Revision Level: C

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Manufactured by:

Danaher Controls
1675 Delany Road
Gurnee, IL 60031-1282
Phone: 847.662.2666
Fax: 847.662.6633

Application Assistance 1.800.234.8731

SERIES 200 Trackballs are an economical solution to providing accurate X/Y cursor positioning for computer graphics terminals. Replacing conventional joysticks and their A to D conversion electronics to achieve digital outputs, the Series 200 delivers direct digital outputs configured as direction decoded pulses or quadrature square wave that are CMOS/TTL compatible. The LS200 version in the series provides for 3 optional external switch inputs and delivers a serial binary output with RS232C or CMOS/TTL interface.

SERIES 200 Trackballs are sized to be keyboard or panel mounted, or used for standalone and remote applications. They are ideal for business and personal computers, CAD/CAM, video games, graphic terminals, radar monitor systems or anywhere man/machine X/Y interface is required.

With a 2" ball, a mere 3.25" square and a slim 1.5" depth, the Series 200 is a space saving alternative to the mouse or bit pad.

SPECIFICATIONS

Electrical

Interface:

LD200 or LQ200: CMOS/TTL
LS200: RS232C or CMOS/TTL

Resolution (PPR): 192 ±5%

Output Signal:

LQ200: Quadrature Square Waves
LD200: 5-10µsec Pulses, Direction Decoded
LS200: Serial Binary (See Format Description, Trackball Application Reference page 9.17)

Input Power:

RS232C: +5VDC @ 100 mA max. and +12VDC @ 30 mA max. and -12VDC @ 30 mA max.
CMOS/TTL: +5VDC @ 100 mA max.

Output Driver:

RS232C: SN75150
CMOS/TTL: "1" 3.0V min. @ 3 mA source
"0" 0.4V max. @ 3 mA sink

Connector (Socket): 8 Pin telephone modular, locking female

Mating Plug: 8 Pin telephone modular, locking male (not furnished with unit)

Accessory Cable: To order 6 foot cable with mating plug, specify Dynapar No. CA104888-72

Mechanics

Weight: 8.0 oz. max. (230 gm)

Bail: Thermoset Phenolic, 2" dia. black (51mm)

Tracking Force: 1.5 oz. max., 0.7 oz. typ. (20gm); with internal ring seal: 1 to 4 oz.

Ball Load: 25 lbs. max. downward (11.4 Kg)

Ball Rotation: Continuous & reversible any direction

Ball Speed: 200 RPM maximum

Housing Material: ABS (Cyclac KJT) Black

Transducers: Photo-optical Encoders with LEDs

Mounting Position: Horizontal to 30° rear elevation

Environmental

Temperature:

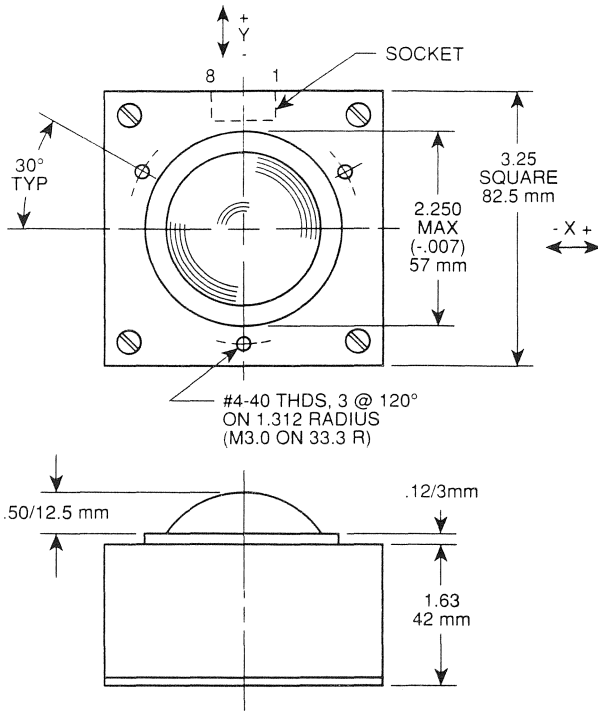
Storage: -25°C to +60°C
Operating: +5°C to +50°C

Electrical Connections

PIN	LQ200	LD200
1	Y _B	-Y
2	Y _A	+Y
3	+5VDC	+5VDC
4	N/C	N/C
5	X _B	-X
6	X _A	+X
7	Ground	Ground
8	Ground	Ground

PIN	LS200	
	RS232C	CMOS/TTL
1	S1	S1
2	S2	S2
3	+5VDC	+5VDC
4	+12VDC	N/C
5	-12VDC	N/C
6	Output	Output
7	S3	S3
8	Ground	Ground

Approximate Dimensions (inches/mm)



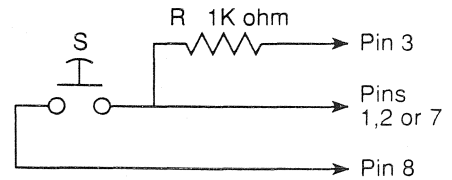
Ordering Information

Output/Waveforms	Model No.
Quadrature	LQ200-192-50
Direction Decoded	LD200-192-50
Serial/RS232C	LS200-192-A0
Serial/(CMOS/TTL)	LS200-192-B0

Optional Metric Mounting: M3 metric mounting holes on a 33.3 radius are available by inserting an "M" in the model no. For example: to order a LQ200-192-50 with metric mounting holes, specify LQ200M-192-50.

Optional Teflon™ Ring Seal: The Series 200 Trackballs can include an internal Teflon™ ring seal to keep out dirt and dust particles and to inhibit extraneous ball movement. To order, change the last digit of the model no. from 0 to 1. For example, to order an LQ200-192-50 with an internal Teflon™ ring seal, specify LQ200-192-51.

Electrical Connections (Switch Inputs)



Note: To ensure adequate immunity in heavy industrial environments a ferrite core (Fairrite p/n 0443164131 or equivalent) should be used in conjunction with the mating cable.

Output Waveforms

