



INDUSTRIAL KEYBOARDS & POINTING DEVICES

**MSi**

# COMPANY



Quality lasts longer...

## COMPANY PROFILE

NSI was established in 1986 as a privately owned company, its founder members having a long history of serving the European market for high quality switches and keyboards. The company mission is to provide highly engineered input devices, or "man-machine interfaces", for a wide variety of applications, including industrial, medical, naval and public domain.

NSI designs, manufactures and markets industrial keyboards and pointing devices as either standard products or tailored to meet specific customer requirements. All aspects of mechanical and electrical design are provided for by the in-house engineering department. Working closely with the customer from initial concept through to production, NSI ensures that the most appropriate specification is achieved. The sales support team consists of multi-lingual personnel with logistical and technical expertise to ensure a rapid response to customer enquiries.

NSI maintains a policy of continuous product improvement to assure the long term performance and quality of its products in even the most harsh operating conditions.



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## MAIN MARKETS

- General processing industry
- Food & pharmaceutical industries
- Paper-, glass- and steel industries
- Car assembly industry
- Machine building
- Measurement & test equipment
- Information kiosks
- Public access and banking terminals
- Entertainment industry
- Navigation control
- Medical equipment



## PRODUCT AND SALES FEATURES

- Robust rugged metal enclosures
- Sealing up to IP65/IP68
- Membrane keyboard technology with 1,4mm travel, tactile feel
- Short travel, tactile keyboards for improved data entry speed
- UV hardened fronts, chemical resistant
- Directly plug compatible to industry standard machines
- Major European and US layouts as standard or on request
- Vandalproof & waterproof pointing devices
- Competitive priced, local manufacturing & support
- Short response time to technical and commercial inquiries
- Quality products
- Custom design facilities

For pricing and availability, contact our local distributor.  
See the NSI distributor list on [www.nsi-be.com](http://www.nsi-be.com)

# GENERAL KEYBOARD SPECIFICATIONS

## MEMBRANE KEYBOARDS (KBM series)

- 5-layer membranes
  - Relatively long travel of 1,4 mm with distinctive tactile click
  - The higher pressure force (typ 4N) limits the data entry speed (not always a disadvantage for industrial applications)
  - Overall sealing up to IP65 static (opto-mechanical trackball)
  - Robust, field proven technology
- 
- Sealing : IP65
  - Switches feedback : tactile
  - Switch technol. : thermoformed, dome-type membrane
  - Switch travel : 1,4 mm.
  - Shielding type : 5-layer
  - Operating force : 4 N typ.
  - Switching life : > 6 million operations per switch
  - Surface : UV hardened polyester, chemical resistant
  - Metal parts : carriers (panel mount versions) : aluminium  
protection covers : stainless steel  
enclosures : steel with anti-corrosion treatment and industrial coating

## SHORT TRAVEL KEYBOARDS (KST series)

- Individual short travel switches mounted on a rigid PC board
  - Short travel of 0,3 mm with tactile feel
  - Lower pressure force (typ 2.5N) allowing a higher speed of data entry
  - Overall sealing up to IP67 (panel mount versions)
  - Lower set up charges and lead times for new country versions as only the front foil needs to be changed
- 
- Sealing : frontal IP67 for panel mount versions  
IP65 for enclosed versions
  - Switches feedback : tactile, positive click
  - Switch technol. : mechanical
  - Switch travel : 0,3 mm.
  - Operating force : 2.55N typ.
  - Switching life : > 3 million operations per switch
  - Overlay : polyester with key embossing
  - Metal parts : carriers (panel mount versions) : aluminium  
protection covers : aluminium  
enclosures : steel with anti-corrosion treatment and industrial coating.



## FOR ALL NSI KEYBOARDS

### Environmental and electrical specifications

- Operating temperature range : 0°C to + 60°C
- Storage temperature range : -25°C to + 65°C
- CE : compliant to EMC Directive 89/336/EEC for Electromagnetic Compatibility
- Low Voltage Directive 73/23/EEC not applicable for our keyboards.
- Supply voltage : via standard PC port (PS/2 or USB)
- Current drain : 60 mA typ. (with touchpad) or 200 mA (with trackball)

### Connectivity

- Output cables : shielded straight 1,6 m long
- PS/2 output via 6-pin mini DIN plug
- USB output via USB type A plug
- Use standardly available keyboard drivers corresponding with the country layout

Due to differences of the PS/2 mouse port specifications of the various PC manufacturers, we do recommend that our product should be tested on the final PC configuration and operating system prior to installing them in series.



Membrane



Short travel

# KEYBOARDS WITHOUT POINTER



## 36 KEY HANDHELD MEMBRANE KEYBOARDS

- IP65 sealed
- Very small outline : all major functions of a large MF keyboard in a small outline
- Function keys F1 to F16 + complete upper and lower case alphabet
- Easy recognition of the different functions due to 3 different legend colours corresponding with the mode-keys
- Front panel mount version with six M3 mounting studs
- Enclosed version : "Light-weight" handheld keyboard housed in a very robust and stylish ABS enclosure.
- Dimensions : panel mount 85 x 205 x 27,5 mm / enclosed : 105 x 210 x 60 mm

LAYOUT	PANEL MOUNT	ENCLOSED
n.a.	KBM36 F 1 xxx	KBM36 S 1 xxx

xxx = protocol output : PS/2 or USB

## 103 KEY COMPACT MEMBRANE KEYBOARDS



- IP65 sealed
- Small footprint with separate numeric pad
- Front panel mount version with six M4-threaded studs
- Enclosed version with robust steel housing
- Dimensions : panel mount 314 x 180 x 20 mm / enclosed 328 x 204 x 42

LAYOUT	PANEL MOUNT	ENCLOSED
US Qwerty	KBM103 F 1 xxx	KBM103 S 1 xxx
French Azerty	KBM103 F 33 xxx	KBM103 S 33 xxx
German Qwertz	KBM103 F 49 xxx	KBM103 S 49 xxx

xxx = protocol output : PS/2 or USB

## 102 KEY COMPACT SHORT TRAVEL KEYBOARD



- IP67 sealed
- Short travel switches with low pressure and positive tactile feedback
- Front panel mount version with twelve M4-threaded studs
- Dimensions : 349 x 152 x 28 mm

LAYOUT	PANEL MOUNT	ENCLOSED
US Qwerty	KST102 F 1 xxx	n.a
Cyrillic	KST102 F 7 xxx	
Belgian Azerty	KST102 F 32 xxx	
French Azerty	KST102 F 33 xxx	
German Qwertz	KST102 F 49 xxx	

xxx = protocol output : PS/2 or USB

# KEYBOARDS WITH TRACKBALL



## 26 KEY "HANDHELD" MEMBRANE KEYBOARD

- Sealing IP65
- With 38mm solid state laser optical trackball with removable ball (cleaning facility for harsh environments)
- Numeric and function keys
- Control keys via "Fn" Mode
- Front panel mount version with six M3 mounting studs
- Enclosed version housed in a stylish, robust ABS enclosure
- Dimensions : panel mount : 85 x 205 x 33 mm / enclosed : 105 x 210 x 60 mm

LAYOUT	PANEL MOUNT	ENCLOSED
N.a.	KBMT26 F 1 xxx	KBMT26 S 1 xxx

xxx = protocol output : PS/2 or USB



## 36 KEY "COMMANDER" SHORT TRAVEL

- Sealing IP65
- 36 numeric, function and control keys
- Compact 25 mm industrial grade trackball, IP65 static sealing
- Fast and comfortable access of the most important machine commands
- Front panel mount version with eight M3-threaded studs
- Enclosed version with robust ABS housing
- Dimensions : panel mount : 182 x 135 x 25 mm / enclosed : 212 x 165 x 27 mm

LAYOUT	PANEL MOUNT	ENCLOSED
N.a.	KSTC36 F 1 xxx	KSTC36 S 1 xxx

xxx = protocol output : PS/2 or USB



## 101 KEY "ECOMUNDO" KEYBOARD

- Sealing IP68
- Economical and ecological design
- Best performance/cost ratio
- Long life, sustainable materials.
- World-wide industrial use by concept and cost.
- Multi-functional layout with separate numeric-, cursor- and control keypads.
- Use of 25 mm industrial laser-type trackball enables a completely waterproof unit
- Removable trackball ring/ball for ease of maintenance in very dusty environments
- Dimensions : panel mount : 355 x 165 x 27 mm / enclosed : 363 x 170 x 37 mm

EcoMundo<sup>®</sup>

LAYOUT	PANEL MOUNT	ENCLOSED
US Qwerty	KBCT101F1	KBCT101S1

US Qwerty layout, USB output

# KEYBOARDS WITH TRACKBALL

## 106 KEY MEMBRANE KEYBOARDS WITH 38 OR 50 MM BALL



- IP65 sealed
- Front panel mount version with eight M4-threaded studs. Metal cover on the rear side protects the mechanical- and electrical components
- Enclosed version with compact, robust steel enclosure  
The KBMT106S will fit into 19" rack drawers (1HU)
- Dimensions : KBMT106F: 396 x 180 x 44/32 mm / KBMT106S: 410 x 204 x 42 mm  
KBLT106F: 396 x 180 x 60/47 mm / KBLT106S: 410 x 204 x 65 mm

### KEYBOARD WITH 38 MM BALL

LAYOUT	PANEL MOUNT	ENCLOSED
US Qwerty	KBMT106 F 1 xxx	KBMT106 S 1 xxx
French Azerty	KBMT106 F 33 xxx	KBMT106 S 33 xxx
Spanish Qwerty	KBMT106 F 34 xxx	KBMT106 S 34 xxx
German Qwertz	KBMT106 F 49 xxx	KBMT106 S 49 xxx

### KEYBOARD WITH 50 MM BALL

LAYOUT	PANEL MOUNT	ENCLOSED
US Qwerty	KBLT106 F 1 xxx	KBLT106 S 1 xxx
French Azerty	KBLT106 F 33 xxx	KBLT106 S 33 xxx
Spanish Qwerty	KBLT106 F 34 xxx	KBLT106 S 34 xxx
German Qwertz	KBLT106 F 49 xxx	KBLT106 S 49 xxx

xxx = protocol output : PS/2 or USB

## 105 KEY SHORT TRAVEL KEYBOARDS WITH 50 MM BALL



KSTL105F  
with optical trackball

KSTL105S with mechanical trackball

- Panel mount version : IP67 sealed with 50 mm optical waterproof trackball fourteen M3-threaded studs
- Enclosed version : IP65 sealed with 50 mm mechanical trackball, steel housing
- Option : covering bezels for the KSTL105F keyboard, see page 9
- Dimensions : KSTL105F: 432 x 152 x 45 mm / KSTL105S: 475 x 215 x 57 mm

LAYOUT	PANEL MOUNT	ENCLOSED
US Qwerty	KSTL105 F 1 xxx	KSTL105 S 1 xxx
Cyrillic	KSTL105 F 7 xxx	KSTL105 S 7 xxx
Belgian Azerty	KSTL105 F 32 xxx	KSTL105 S 32 xxx
French Azerty	KSTL105 F 33 xxx	KSTL105 S 33 xxx
German Qwertz	KSTL105 F 49 xxx	KSTL105 S 49 xxx

xxx = protocol output : PS/2 or USB

# KEYBOARDS WITH OTHER POINTER



## 26 KEY "HANDHELD" MEMBRANE KEYBOARD WITH THUMBSTICK

- Sealing IP65
- With solid state "hall effect" thumbstick
- Numeric and function keys
- Control keys via "Fn" Mode
- Front panel mount version with six M3 mounting studs
- Enclosed version housed in a stylish, robust ABS enclosure
- Dimensions : panel mount : 85 x 205 x 33 mm / enclosed : 105 x 210 x 60 mm



Thumbstick with cursor control function

LAYOUT	PANEL MOUNT	ENCLOSED
N.a.	KBTS26 F 1 xxx	KBTS26 S 1 xxx

xxx = protocol output : PS/2 or USB

## 106 KEY MEMBRANE KEYBOARDS WITH TOUCHPAD



- Sealing IP65
- Operation of the touchpad is possible at all mounting angles
- Front panel mount version with eight M4-threaded studs. Metal covers on the backside protect the mechanical- and electrical components
- Enclosed version with a compact, robust steel enclosure, IP65 sealed  
The KBSP106S will fit into 19" rack drawers (1HU)
- Dimensions : panel mount : 396 x 180 x 32 mm / enclosed : 410 x 204 x 42 mm

LAYOUT	PANEL MOUNT	ENCLOSED
US Qwerty	KBSP106 F 1 xxx	KBSP106 S 1 xxx
French Azerty	KBSP106 F 33 xxx	KBSP106 S 33 xxx
Spanish Qwerty	KBSP106 F 34 xxx	KBSP106 S 34 xxx
German Qwertz	KBSP106 F 49 xxx	KBSP106 S 49 xxx

xxx = protocol output : PS/2 or USB

## 105 KEY SHORT TRAVEL KEYBOARDS WITH TOUCHPAD



- Frontal IP67 sealed
- Front panel mount version with fourteen M3-threaded studs
- Enclosed version with steel housing, IP65 sealed
- Option : covering bezels for the KSTP105F keyboard, see page 9
- Dimensions : panel mount : 432 x 152 x 28 mm / enclosed : 475 x 215 x 57 mm

LAYOUT	PANEL MOUNT	ENCLOSED
US Qwerty	KSTP105 F 1 xxx	KSTP105 S 1 xxx
Cyrillic	KSTP105 F 7 xxx	KSTP105 S 7 xxx
Belgian Azerty	KSTP105 F 32 xxx	KSTP105 S 32 xxx
French Azerty	KSTP105 F 33 xxx	KSTP105 S 33 xxx
German Qwertz	KSTP105 F 49 xxx	KSTP105 S 49 xxx

xxx = protocol output : PS/2 or USB

For complete technical specifications and dimensional/mounting details, see our website.

# BACKLIT KEYBOARDS

## 2 TECHNOLOGIES

EL = Electro Luminescence "Nightvision"

- EL lamp as one piece component
- Even light intensity over complete keyboard surface
- External power needed
- Expected useful life approx. 20.000 hours
- Illumination intensity will gradually degrade over life
- Illumination of large surfaces possible
- Lamp saving options required to extend useful life
- Choice of backlighting colours limited by EL lamp

vs.  
vs.  
vs.  
vs.  
vs.  
vs.  
vs.  
vs.

LED "Duralight"

- High brightness Led's with fiber light guides
- Dot illumination diffused by polyester overlay
- No external power needed; power keyboard port is sufficient
- Low power Led's warrant for an extended life; typ. 50.000 hours
- Stable light intensity over entire life
- Large surfaces require several lighting segments
- Long life inherent to Led technology
- Backlighting colours defined by overlay and/or Led colour

**NSI** BLACK LINE



Example custom design

## ELECTRO-LUMINESCENT "NIGHTVISION" KEYBOARDS

### NIGHT VISION



### 105 KEY EL BACKLIT KEYBOARDS

- IP65 sealing
- 8-level dimmable backlighting by pressing one defined key
- Automatic day/night sensor controls the on/off setting of the backlight
- Automatic day/night luminosity setting of the "numlock" and "capslock" Led's.
- Backlit legends, key edges and trackball contour
- MF layout with short travel tactile keys
- Integrated 50mm large industrial trackball, IP65 static sealing
- Mechanically reinforced backlighting source for prolonged life
- External +12VDC power supply for backlight
- Front panel mount version with fourteen M3-threaded studs
- Enclosed version with steel housing, IP65 sealed
- Dimensions : panel mount 432 x 152 x 40mm / enclosed 475 x 215 x 57 mm

LAYOUT	PANEL MOUNT	ENCLOSED
US Qwerty	KSTL105 F 1 xxx-BLEL	KSTL105 S 1 xxx-BLEL
German Qwertz	KSTL105 F 49 xxx-BLEL	KSTL105 S 49 xxx-BLEL

xxx = protocol output : PS/2 or USB

### Option


ADT1512-T3 100~240VAC to 12VDC/15W POWER ADAPTER  
supplied without the power cord



# BACKLIT KEYBOARDS

## LED "DURALIGHT" KEYBOARDS



DURALIGHT 



### Options

COVERING BEZEL in blank or blackened aluminium for top panel mount applications for all 105 & 106 key short travel keyboards

- |        |                                       |
|--------|---------------------------------------|
| CFR-01 | Covering bezel in blank aluminium     |
| CFR-02 | Covering bezel in blackened aluminium |



## BLACK LINE

### 38 KEY COMMANDER LED KEYBOARD

- Sealing IP65
- 38 numeric, function and control keys
- 38 mm industrial grade trackball, IP65 static sealing
- Fast access to the most important machine commands
- Two dedicated keys for up/down dimming
- Front panel mount version with eight M3-threaded studs
- Enclosed version with robust ABS housing
- Also available as non-backlit version
- Dimensions : panel mount : 191 x 135 x 36 mm / enclosed : 221 x 165 x 45 mm

LAYOUT	PANEL MOUNT	ENCLOSED
US Qwerty	KSML38 F1 xxx-zLED	KSML38 S1 xxx-zLED

xxx = protocol output : PS/2 or USB      z = backlit colour : W = white (standard) or R = red

### 106 KEY MULTIFUNCTIONAL LED KEYBOARD

- Multi-functional layout with separate numeric-, function- and control key pads
- Integration of a large and precise 50mm industrial trackball
- Two dedicated keys for up/down dimming
- Intelligent intensity setting of "Numlock" and "Capslock" LEDs
- White backlighting as standard (other colours on request)
- Front panel mount version with fourteen M3-threaded studs
- Enclosed version with steel housing, IP65 sealed
- Option : covering bezel, see below
- Dimensions : panel mount 432 x 152 x 40mm / enclosed 475 x 215 x 57 mm

Standard, non-certified version

LAYOUT	PANEL MOUNT	ENCLOSED
US Qwerty	KSML106 F1 xxx-zLED	KSML106 S1 xxx-zLED

xxx = protocol output : PS/2 or USB      z = backlit colour : W = white (standard) or R = red

### IEC 60945 CERTIFIED MARINE KEYBOARD

This 106 key backlit keyboard is also available as a IEC 60945 certified marine keyboard. This version is tested for use with Solas Marine applications (f.i ECDIS) and has a Certificate of Conformity fully compliant with IEC 60945 fourth edition.



IEC 60945 certified version

LAYOUT	PANEL MOUNT	ENCLOSED
US Qwerty	KSML106 F0001-W-MC1	KSML106 S0001-W-MC1

US Qwerty layout, USB output, white backlighting

# LASER TRACKBALL MODULES

## Laser - X-range



X13



X19



X25



X38



X50

### DIFFERENT TRACKBALL MODULES (pages 10 - 11 - 12 - 13)

X-range : latest generation, state-of-the-art, laser trackballs giving added advantages over the formerly existing optical series. Waterproof IP68 sealed.

Z-range : 3 rd axis solution for zoom and scroll function. Based on the X-range. Sealing IP40.

L-range : laser optical trackballs using a laser beam sensing the ball's movement. This L-series is mechanically backwards compatible to the GK- series.

GK-range : conventional opto-mechanical range of industrial trackballs. Sealing up to Ip65.

### "X-RANGE" 13 MM, 19 MM, 25 MM, 38 MM AND 50 MM LASER TRACKBALLS

- Sealing to IP68
- Removable ball for ease of cleaning
- Solid state sensing technology, laser tracking engine
- Smooth operation in rugged environments
- Ability to wash down, decontaminate, and sterilise
- Various top plate configurations
- Increased high speed tracking
- Increased resolution options
- Reduced power consumption
- Custom connector options possible
- Best performance/cost ratio for new OEM designs requiring waterproof sealing
- Output: PS/2 & USB or Quadrature



### General technical specifications

Ball material	: Epoxy resin, metallic light grey ball
Housing material	: Polycarbonate / ABS
Ball rotation	: Continuous and reversible any direction
Resolvable ball speed	: 40 Inches/sec.
Mounting Position	: All angles
Sealing gasket	: Cellular silicone
Supply voltage	: 4.4V to 5.25V D.C.
Supply current	: 23mA typical, 25mA maximum
Temperature range	: -10°C to +60°C (operation) / -40°C to + 85°C (storage)
Relative humidity	: 10%-95% non-condensing
Vibration	: 5g, 10-500Hz, 1 octave/min, 10 sweep cycles
Mechanical lifetime	: 1 million ball revolutions

SPECIFICATIONS	X13	X19	X25	X38	X50
Ball diameter (in mm)	12,7 mm	19 mm	25 mm	38 mm	50,8 mm
Weight	15 grams	30 grams	40 grams	90 grams	150 grams
Tracking force	10 gr. nom.-damp.ring 10-30 gr.- rubber seal	10 gr. nom.-damp.ring 30-60 gr.- rubber seal	20 gr. nom.-damp.ring 20-40 gr.- rubber seal	20 gr. nom.-damp.ring 30-80 gr.- PTFE seal	20 gr. nom.- damp.ring 30-80 gr.- PTFE seal
Ball load	50 N	100N	100N	100N	200N
Resolution (counts/revol.)	300 - 600	425 - 800	650 - 1300	900 -1800	1200 -2400

# LASER TRACKBALL MODULES

Halo backlit on X-range



X50 with backlit option

Laser - Z-range



Z25



Z38



Z50

## HALO BACKLIT FEATURE ON X-RANGE LASER TRACKBALLS

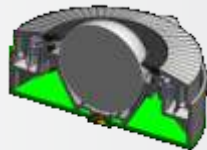
- Illuminated ring around the ball
- Available with X25, X38 and X50
- Various backlit colours



Add suffix to the X25/ X38 / X50 type  
 HOOB = Blue  
 HOOG = Green  
 HOOR = Red  
 HOOW = White

## "Z-RANGE" 25 MM, 38 MM AND 50 MM LASER TRACKBALLS WITH THIRD AXIS

- Sealing to IP40
- Z-axis control wheel for scroll/zoom capability
- Provides same functionality as mouse scroll wheel or rotary encoder
- Removable ball
- 3 mounting points – optimised for panel switch proximity
- Ball bearing supported Z-axis
- Smooth operation in rugged environments
- Various top plate configurations available
- Custom connector options available
- Allows complete customisation
- Ideal for applications where feel is critical
- Output: PS/2 & USB or Quadrature



**IMPORTANT !** No cables are supplied with the laser trackball modules. They can be ordered separately. See detailed datasheets on our website for more information.

TRACKBALL	OUTPUT	DAMPER RING*	RUBBER SEAL**	PTFE SEAL**
<b>X-range</b>				
13 mm ball	Quadrature PS/2 & USB	X13-70021D X13-76021D	X13-70022D X13-76022D	
19 mm ball	Quadrature PS/2 & USB	X19-70021D X19-76021D	X19-70022D X19-76022D	
25 mm ball	Quadrature PS/2 & USB	X25-70021D X25-76021D	X25-70022D X25-76022D	
38 mm ball	Quadrature PS/2 & USB	X38-70021D X38-76021D		X38-70023D X38-76023D
50 mm ball	Quadrature PS/2 & USB	X50-70021D X50-76021D		X50-70023D X50-76023D
<b>Z-range</b>				
25 mm ball	Quadrature PS/2 & USB	Z25-10021D-D Z25-16021D-D	Z25-10022D-D Z25-16022D-D	
38 mm ball	Quadrature PS/2 & USB	Z38-10021D-D Z38-16021D-D		Z38-10023D-D Z38-16023D-D
50 mm ball	Quadrature PS/2 & USB	Z50-10021D-D Z50-16021D-D		Z50-10023D-D Z50-16023D-D

\*Damper ring : consists of 4 contact points damping the ball movement.

\*\*Rubber / PTFE seal : complete ring between ball and top plate damping the ball movement and avoiding most of the dust to enter the ball compartment. Rubber material is used for small ball diameters, PTFE for larger ball diameters.

# LASER OPTICAL TRACKBALL MODULES : L-Range



L38



L50



## 38 OR 50 MM LASER OPTICAL TRACKBALL MODULES

- Sealing to IP68
- Solid state sensing technology laser tracking engine
- Smooth operation in rugged environments
- 3 versions - Free running ball : minimal ball tracking force
  - Fixed friction/scrapper ring : slightly increased ball tracking force
  - Removable ball
- Custom connector options possible
- Self draining and back flushing features
- Retro-fittable into existing OEM designs
- Output: PS/2 & USB or Quadrature

No cables are supplied with the laser optical trackball modules. They can be ordered separately.

Versions with draining possible.

See detailed datasheets on our website for more information.

## General technical specifications

Same technical specification as X-range trackballs (page 10) with these differences :

Supply current : 40mA typical, 45mA maximum

Temperature range : 0°C to +60°C (operation) / -40°C to + 85°C (storage)

SPECIFICATIONS	L38	L50
Ball diameter (in mm)	38,1mm	50,8 mm
Weight	100 grams	150 gr. / 210 gr. (removable ball)
Tracking force	5 gr. nom. / free running 80 gr. nom. / fixed friction 5-100 gr. nom. / remov. ball	10 gr. Nom. / free running 80 gr. nom. / fixed friction 10-160 gr. nom. / remov. ball
Ball load	200N	200N
Resolution (counts/revol.)	800	800 - 1200

TRACKBALL	OUTPUT	FREE RUNNING	FIXED FRICTION	REMOVABLE BALL plastic ring	REMOVABLE BALL Alu-ring
38 MM BALL	Quadrature	L38-70020D	L38-70021D	L38-7002AD	L38-70024D
	PS/2 & USB	L38-76020D	L38-76021D	L38-7602AD	L38-76024D
50 MM BALL	Quadrature	L50-70020D	L50-70021D	L50-76024D	
	PS/2 & USB	L50-76020D	L50-76021D	L50-76024D	

## ACCESSORIES FOR ALL TRACKBALL MODULES

Switches : We can offer IP65 pushbutton switches or IP68 short travel switches separately. They can be connected to all our trackball modules (laser and conventional) as external "mouse button" switches.

IP65 PUSHBUTTON SWITCH

AV0630D940

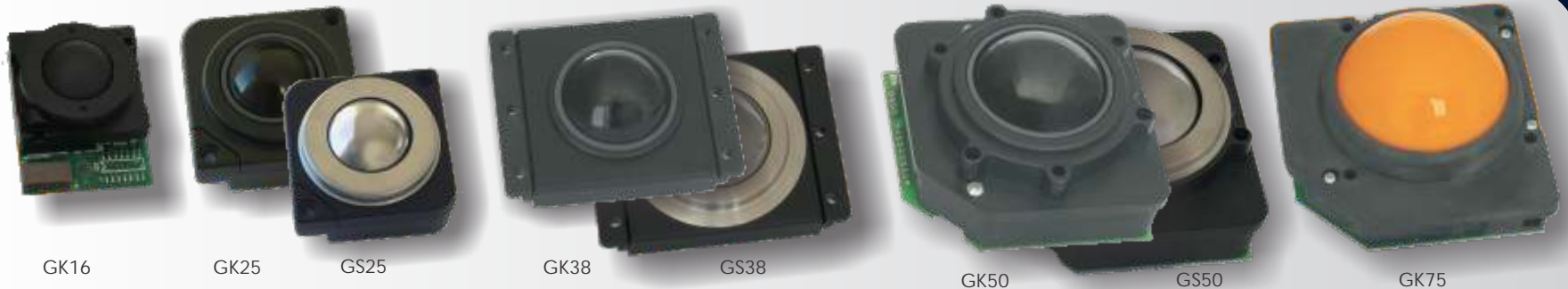


IP68 SHORT TRAVEL SWITCH

1 KEY AV1681  
3 KEY AV3681



# CONVENTIONAL TRACKBALL MODULES : GK-Range



## 16 MM, 25 MM, 38 MM, 50 MM AND 75 MM CONVENTIONAL OPTO-MECHANICAL TRACKBALL MODULES

- Sealing up to IP65
- Opto-mechanical encoder technology
- Robust/rugged construction
- Stainless steel shafts
- Phenolic resin, polyester or stainless steel balls
- High quality bearings
- Output: PS/2 & USB or Quadrature

### General technical specifications

Ball material	: Phenolic resin or stainless steel
Housing material	: Polycarbonate / ABS
Temperature range	: -10°C to +60°C (operation) -25°C to + 80°C (storage)
Relative humidity	: 95% non-condensing
Vibration	: 5G, 5-2KHz any plane

SPECIFICATIONS	GK16	GK25	GS25	GK38	GS38	GK50	GS50	GK75
Sealing grade	none, IP40	IP65 static	IP65 static	IP65 static	IP65 static	IP65 static	IP54	none, IP40
Ball diameter (in mm)	16 mm	25 mm	25 mm	38,1 mm	38,1 mm	50,8 mm	50,8 mm	76,2 mm
Weight	20 grams	80 grams	100 grams	100 grams	300 grams	270 grams	700 grams	650 grams
Maximum mounting angle	30°	90°	90°	90°	90°	90°	30°	30°
Tracking force	10 gr. nom.	50 gr. nom.	65 gr. nom.	50 gr. nom.	65 gr. nom.	50 gr. nom.	100 gr. nom.	30 gr. nom.
Resolution (pulses/revol.)	117	150	150	241	241	155	155	265
Lifetime - ball revolutions	>=5 million	>=2 million	>=2 million	> 2 million	> 2 million	> 2 million	> 2 million	>= 6 million

### Connection : cables are included

Trackball Quadrature output supplied with interconnection cable.

Trackball PS/2 output supplied with shielded cable 1,6m long with 6 pin mini DIN plug and cable to connect up to 3 external switches.

Trackball USB output supplied with shielded cable 1,6 m long, USB type A connector and cable to connect up to 3 external switches.

OUTPUT	16 MM BLACK BALL	25 MM BLACK BALL	25 MM STEEL BALL	38 MM BLACK BALL	38 MM STEEL BALL	50 MM BLACK BALL	50 MM STEEL BALL	75 MM YELLOW (OR BLACK) BALL
Quadrature	-	GK25-5002	GS25-5002	GK38-4002	GS38-4002	GK50-4002	GS50-4002	-
PS/2 output	GK16-1502	GK25-5502	GS25-5502	GK38-4502	GS38-4502	GK50-4502	GS50-4502	GK75-1502(B)
USB output	GK16-1602	GK25-5602	GS25-5602	GK38-4602	GS38-4602	GK50-4602	GS50-4602	GK75-1602(B)

# VANDALPROOF TRACKBALL UNITS

## 25 MM TRACKBALLUNIT

dim.: 82 x 67 x 25 mm



## 38 MM TRACKBALLUNIT

dim.: 100 x 78 x 40 mm



## 50 MM TRACKBALLUNIT

dim.: 116 x 100 x 40 mm



- Opto-mechanical technology, IP65 sealing
- Highly robust, vandalproof and all metal construction
- Panel mount units
- Carrier plate made of brushed stainless steel
- Stainless steel ring protecting the trackball sealing
- Anti-vandal stainless steel switches IP65 sealed.
- Designed for harsh industrial applications, kiosk consoles, internet terminals, navigation controls, food industry, etc...
- Combo PS/2 & USB output

### Versions

With black phenolic resin ball - TBSxx

IP65 static sealed

25, 38 or 50 mm diameter

For highest resistance to hostile impacts and to scratches

With stainless steel ball - SBSxx

IP65 static sealed, except SBS50 (IP54)

25, 38 or 50 mm diameter

For styling, complete stainless steel appearance

### Technical specifications

Sealing : all IP65 static (ball in rest), except SBS50 (IP54)

Carrier plate : brushed stainless steel

Cable : shielded cable, straight 1,6 m long

Lifetime : > = 2 million ball revolutions

Impact : 25mm & 38mm units, fitted with anti-vandal backplate : 10J  
50mm units : 20J

Tracking force : nom. 50 grams (TBSxx series)

nom. 65 grams (SBS25, SBS38)

nom. 100 grams (SBS50)

Operating temp. range : -10°C to +60°C

Storage temp. range : -25°C to +80°C

	25 MM BALL	38 MM BALL	50 MM BALL
Black ball	TBS25 F2	TBS38 F2	TBS50 F2
option black toppl			TBS50 F2-BT1
Stainless steel	SBS25 F2	SBS38 F2	SBS50 F2

Combo PS/2 & USB output

# VANDALPROOF LASER TRACKBALL UNITS

## TSX50 LASER UNITS

dim.: 116 x 100 x 40 mm



dim.: 200 x 120 x 63 mm

- Laser technology trackball modules with inherent IP68 sealing
- 50mm epoxy resin, "metallic" light grey ball, X50 type
- Removable top ring for easy cleaning of ball compartment
- Stainless steel for best resistance in salty or greasy environments
- For harsh or hostile environments, indoor or outdoor
- Front panel mounting and enclosed versions
- Combo PS/2 & USB output

Available in 9 different versions as standard :

- Front panel mounting \* :  
 studs (M4, 25mm long) or holes (for countersunk M4 screws)  
 IP65 pushbuttons or IP68 short travel switches  
 blank stainless steel carrier or matt blackened stainless steel carrier
- \* most cross combinations are possible (see ordering info below)
- Enclosed version :  
 Completely made of blank stainless steel with IP68 stainless steel buttons

### Technical specifications

Sealing front panel versions : IP65 or IP68 (used switch dependant)  
 and silicone panel sealing supplied

Sealing enclosed version : completely IP68

Carrier plate : brushed stainless steel

Cable : shielded cable, straight 1,6 m long

Lifetime : >= 2 million ball revolutions

Impact : >= 20 Joules

Tracking force : nom. 50 grams

Operating temp. range : -10°C to +60°C

Storage temp. range : -25°C to +80°C



## SELF-DRAINING & REMOVABLE BALL

dim.: 116 x 100 x 40 mm

- Removable ball and adjustable tracking force
- Self-draining and flush through options
- Three IP67 rated push button switches
- Mounted on a blackened stainless steel carrier plate

SELF DRAINING TRACKBALL  
 TSW50F5

Combo PS/2 & USB output

TSX50 LASER TRACKBALL	IP65 PUSHBUTTON SWITCHES	IP68 SHORT TRAVEL SWITCHES
Front panel mount with studs		
Blank carrier	TSX50F2	TSX50F8
Matt blackened carrier	TSX50F2-BT1	TSX50F8-BT1
Front panel mount with holes		
Blank carrier	TSX50N2	TSX50N8
Matt blackened carrier	TSX50N2-BT1	TSX50N8-BT1
Enclosed		
Blank carrier		TSX50S8

# BACKLIT "CHAMELEON" TRACKBALLS

## BACKLIT "CHAMELEON" TRACKBALLS



- IP65 sealed trackball, switches and panel (silicon seal added)
- Full backlighting of ball and switches in up to 7 different colours
- Colours selectable internally (fixed) or remotely (dynamic)
- Illumination intensity can be dimmed internally (fixed) or remotely (dynamic)
- Illumination power directly from mouse port, no extra power supply
- Proven industrial grade 50mm large trackball, epoxy resin, translucent
- Tracking force : nom. 50 gr.
- Operating temp. range : -10°C to +60°C
- Storage temp. range : -25°C to +80°C
- PS/2 & USB combo output
- Dimensions : 100 x 116 x 40 mm

Two basic versions are available :

- with aluminium carrier plate, two short travel switches and dark polyester overlay : TCL50F1
- with stainless steel carrier plate and two long travel stainless steel switches : TCS50F4

POLYESTER OVERLAY

STAINLESS STEEL CARRIER

TCL50F1

TCS50F4

combo PS/2 & USB output

For colour and intensity settings and for technical drawings, see datasheet on our website.

# DESKTOP OFFICE TRACKBALLS

## DESKTOP OFFICE TRACKBALLS



- Free running, unsealed IP40
- Professional desktop trackballs housed in strong ABS enclosures
- Large balls of 57(R55) or 63 mm (R60)
- Precise and accurate pointer control
- General office or CAD/CAM use or in clean industrial areas
- Dimensions : 115 x 200 x 70 mm (R55), 146 x 184 x 73 mm (R60)

57MM BALL

63 MM BALL

R55-163330

R60-163350

combo PS/2 & USB output

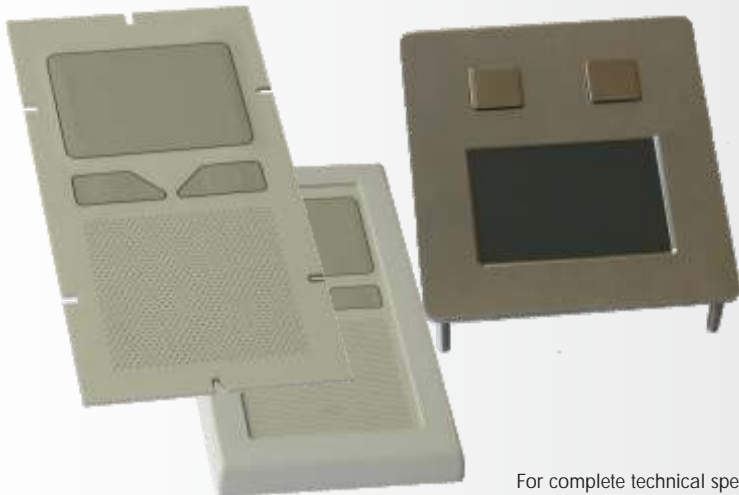
# TRACKBALL & TOUCHPAD UNITS



TBM34N1 for back panel mounting



TBL50F1 for front panel mounting



## 38 MM OR 50 MM TRACKBALL UNITS

- IP65 static sealing
- 38 or 50 mm ball diameter for the highest precision in cursor control
- Self-adjusting PTFE seal of the trackballs
- Aluminium carrier plates covered by UV hardened, chemical resistant polyester
- Steel enclosures, industrially coated
- Lifetime: > 2 million ball revolutions
- Tracking force : nom. 50 grams
- Operating temperature range : -10°C to +60°C
- Storage temperature range : -25°C to +65°C
- Switches : tactile, thermoformed dome-type; 1,4mm travel (TBM34x)  
Short travel switches, 0,3 mm travel (TBL50x )
- Combo PS/2 & USB output
- Dimensions 38 mm trackball : panel mount 92,5 x 180 x 25 mm / enclosed 106 x 204 x 42 mm
- Dimensions 50 mm trackball : panel mount 108 x 192 x 45 mm / enclosed 118 x 204 x 60 mm

BALL	PANEL MOUNT	ENCLOSED
38mm trackball	TBM34 N1	TBM34 S1
50mm trackball	TBL50 F1	TBL50 S1

Combo PS/2 & USB output

## TOUCHPAD UNITS

- IP65 sealing (SPM55x) / IP68 sealing (SPS55x)
- "Field Distortion Technology" (capacitive working principle) to sense the presence of the finger
- Not pressure sensitive, a light touch is sufficient, tracking your fingertip
- Aluminium carrier plates covered by UV hardened, chemical resistant polyester for the SPM55x
- Stainless steel carrier for the SPS55F8
- Tracking speed : max. 250 mm/sec
- Sensing area : 55 x 39 mm
- Operating temperature range : -10°C to +60°C
- Storage temperature range : -20°C to +60°C
- Switches : short travel switches, 0,3 mm travel (SPM55x)  
short travel switches, 0,5 mm travel (SPS55x)
- Combo PS/2 & USB output
- Dimensions TBM34x touchpad : panel mount 92,5 x 180 x 30 mm / enclosed 106 x 204 x 42 mm
- Dimensions SPS55x touchpad : panel mount 100 x 116 x 40 mm

TOUCHPAD	PANEL MOUNT	ENCLOSED
Polyester layer	SPM55 N1	SPM55 S1
Stainless steel layer	SPS55 F8	n.a.

Combo PS/2 & USB output

# CUSTOM DESIGNS



Examples custom designs

NSI has all necessary mechanical and electrical design facilities available in order to meet specific customer requirements. Examples of some of our custom made industrial keyboards and pointing devices are shown here.

Custom designs include a large choice in :

- Sizes of panels
- Front layer colours
- Panel and housing materials
- Panel colours and finishing
- Ball colours
- Sealing grades
- Switching technology
- Key arrangements
- Country layout versions
- Output protocols
- Cabling
- Industrial trackballs
- Touchpads
- Joysticks
- TouchStyks
- Backlit trackballs
- Backlit keyboards
- Etc.



# EXTENDED TEMPERATURE

## ENSITE

# ENSITE

Environmental Simulation Testing

Some NSI products can be offered with extended temperature range (down to  $-40^{\circ}\text{C}$ ) on demand.

These products are individually tested and approved by ENSITE, the test division of NSI. It was founded in 2005 to meet the need for environmental testing on NSI products.

This need arose from the increasing demand for keyboards and pointing devices operational at low temperatures or tropical climates (high relative humidity).

The foundation of Ensite enables NSI to extend its product range in accordance with the needs of its customers.

Ensite also keeps its facilities available for the realisation of temperature and climatic testing by order of third parties.



# EXAMPLES OF SPECIAL PRODUCTS



## Challenges

- Compact, vehicle mount keyboard without pointing device.
- Waterproof IP65
- Special key codes
- Competition with low-cost industrial keyboard

## Solutions provided

- Fully customised short travel keyboard (PCB, front, carrier)
- Customised ABS enclosure
- Customised programming



## Challenges

- Replacement of customers old style membrane keyboard with trackball
- Limited engineering budget

## Solutions provided

- Standard short travel keyboard (KSTL105), with customised front sheet and customers' logo
- Customised software for trackball and keyboard encoder



## Challenges

- Replacement of old technology keyboard
- XT - protocol

## Solutions provided

- Customised encoder (XT-protocol)
- Tailormade membrane to fit existing cut-out

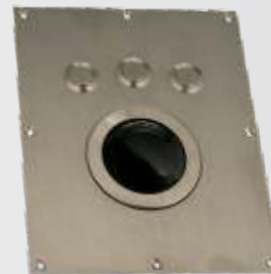


## Challenges

- Supercompact (67 keys on 118 x 222 mm)
- Integrated trackball

## Solutions provided

- Full membrane small size keys
- 25 mm trackball



## Challenges

- Replace existing trackball unit
- extended temperature range (-25°C to +70°C operating)

## Solutions provided

- TBS50F2 with custom frontplate
- Tested for extended temperature range and approved by ENSITE

## LEVELS OF CUSTOMIZATION

- Light Customization
  - Change in front of the membrane (legends, colours, logo,...)
  - Other colour for housing
  - Small changes in carrier plate for panel-mount versions
- Medium Customization
  - Change in membrane (other keymatrix).
  - Change in metal work
- Complete Customization
  - Custom membrane (keymatrix, dimension, backlight,...)
  - Custom housing (dimensions, colours, ...)
  - Custom carrierplate
  - Custom keyboardinterface
  - Custom pointing device & interface

A computer keyboard is shown in the upper right corner, tilted. Below it, a mouse is visible in the lower left corner. The background is a vibrant blue with dynamic, glowing light streaks that create a sense of motion and technology. The website address 'WWW.NSI-BE.COM' is printed diagonally across the middle of the image.

WWW.NSI-BE.COM



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