

NSI

**INDUSTRIAL KEYBOARDS
& POINTING DEVICES**



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

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



80 KEY COMPACT SHORT TRAVEL KEYBOARD

- Sealing IP65
- 38mm industrial trackball, comfortable and precise, IP65 static sealing
- Compact dimensions
- All major key functions of a large MF keyboard via "Fn" key mapping
- Front panel mount version with twelve M3-threaded studs
- Enclosed version with steel housing
- Dimensions : panel mount : 325 x 150 x 30 mm / enclosed : 337 x 195 x 45 mm

| LAYOUT | PANEL MOUNT | ENCLOSED |
|-----------|-----------------------|-----------------------|
| US Qwerty | KSTM80 F 1 xxx | KSTM80 S 1 xxx |

xxx = protocol output : PS/2 or USB

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

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

xxx = protocol output : PS/2 or USB



Thumbstick with cursor control function

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

LED BACKLIT KEYBOARDS "DURALIGHT"

DURALIGHT 



LED "DURALIGHT" BACKLIT KEYBOARDS

NSI BLACK LINE

- Sealing IP65
- High brightness LED's with fibre optics
- Illumination of the key legends and contour, the trackball contour and even customer logo's or trademarks
- Low power LED's warrant for a long life
- No external power supply necessary, keyboard port power sufficient
- The illumination intensity is dimmable
- Integration of a 38 mm or 50 mm trackball with IP65 static sealing
- Short travel switches with low pressure and positive tactile feedback



COMPACT 80 KEY

- Compact dimensions
- All major key functions of a large multifunctional keyboard thanks to its "Fn" key mapping
- Integration of a 38 mm trackball
- Up/down dimming controlled by "Fn" key
- Front panel mount version with twelve M3-threaded studs
- Enclosed version with steel housing, IP65 sealed
- Also available as non-backlit version
- Dimensions : panel mount 347 x 163 x 40 mm / enclosed 337 x 195 x 45 mm

| LAYOUT | PANEL MOUNT | ENCLOSED |
|-----------|--------------------------|--------------------------|
| US Qwerty | KSTM80 F1 xxx-LED | KSTM80 S1 xxx-LED |

xxx = protocol output : PS/2 or USB



MULTIFUNCTIONAL 106 KEY

- 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 page 9
- Dimensions : panel mount 432 x 152 x 40mm / enclosed 475 x 215 x 57 mm

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

xxx = protocol output : PS/2 or USB

z = backlighting colour :
W = white (standard)
R = red

EL BACKLIT KEYBOARDS "NIGHTVISION"

NIGHT VISION 

105 KEY WITH ELECTRO-LUMINESCENT BACKLIGHT

NSI BLACK LINE



- 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 | KSTL106 F 1 xxx-BLEL | KSTL105 S 1 xxx-BLEL |
| German Qwertz | KSTL106 F 49 xxx-BLEL | KSTL105 S 49 xxx-BLEL |

xxx = protocol output : PS/2 or USB

Options

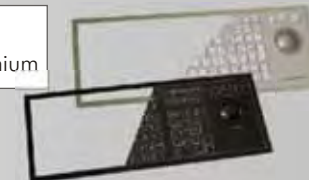
100~240VAC to 12VDC/15W POWER ADAPTER, table type supplied without the power cord (specific for each country)



ADT1512-T3 For EL Backlit keyboards

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

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



Example custom design



Example typical application

LASER TRACKBALL MODULES : X-Range



X13



X19



X25



X38



X50

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 : 0°C to +55°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 |

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 | TRACKBALL | OUTPUT | DAMPER RING | PTFE SEAL |
|-------------------|------------|-------------------|-------------------|-------------------|------------|-------------------|-------------------|
| 13 mm ball | Quadrature | X13-70021D | X13-70022D | 38 mm ball | Quadrature | X38-70021D | X38-70023D |
| | PS/2 & USB | X13-76021D | X13-76022D | | PS/2 & USB | X38-76021D | X38-76023D |
| 19 mm ball | Quadrature | X19-70021D | X19-70022D | 50 mm ball | Quadrature | X50-70021D | X50-70023D |
| | PS/2 & USB | X19-76021D | X19-76022D | | PS/2 & USB | X50-76021D | X50-76023D |
| 25 mm ball | Quadrature | X25-70021D | X25-70022D | | | | |
| | PS/2 & USB | X25-76021D | X25-76022D | | | | |

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

38 or 50 MM OPTICAL TRACKBALLS Former O-Range (types O38 & O50)

- Replaced by the L-range.
- Same mounting dimensions and dip switch setting as the L-range
- The visible difference is the red LED lighting
- Still available on request

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 11) with these differences :

Supply current : 40mA typical, 45mA maximum
 Temperature range : 0°C to +55°C (operation) / -40°C to + 85°C (storage)

| SPECIFICATIONS | L38 | L50 |
|----------------------------|---|---|
| Ball diameter (in mm) | 38,1mm | 19 mm |
| Weight | 100 grams | 30 grams |
| 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 |

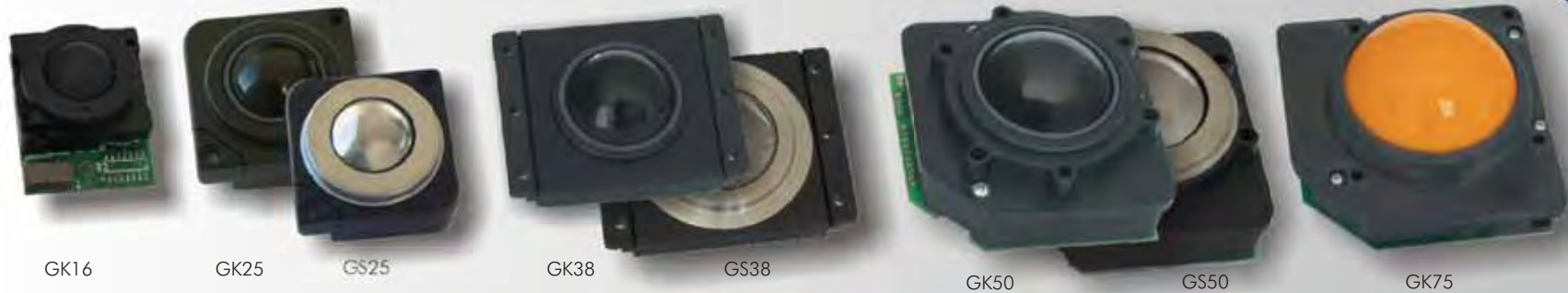
Accessories for all trackball modules

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 | IP68 SHORT TRAVEL SWITCH |
|---|---|
| AV0630D940  | 1 KEY AV1681  |
| | 3 KEY AV3681  |

| 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 | |

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

Specifications push button switches

Sealing : IP65

Travel : 1,3mm

Operating force : 4N typ

Material : stainless steel, brushed

Mechanical life : 1 mil cycles min

Contacts : gold plated

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

Combo PS/2 & USB output

VANDALPROOF TRACKBALL UNITS

WITH IP65 PUSHBUTTON SWITCHES



TSA50F2

TSA50F2-BT1

- Laser optical technology, IP68 sealing
- 50 mm epoxy resin "metallic" light grey ball, L50 type
- Maintenance free as there are no moving parts except for the ball
- Withstands impacts on the top of over 20 Joules
- Stainless steel for the best resistance in salty or greasy environments
- For all harsh or hostile environments, indoor and outdoor
- Combo PS/2 & USB output
- Dimensions : panel mount 100 x 116 x 40 mm / enclosed 200 x 120 x 63 mm

Versions

With IP65 pushbutton switches, types TSA50F2

Panel mount versions, optional black topplate

With IP68 short travel switches, types TSA50x8

Panel mount or enclosed version, completely IP68 sealed

With removable ball, type TSW50F5

Removable ball and adjustable tracking force

Self-draining and flush through options

Three IP67 rated push button switches

WITH IP68 SHORT TRAVEL SWITCHES



TSA50F8

TSA50S8
dim.: 200 x 120 x 63 mm

Technical specifications

Sealing : see text above

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 : 0°C to +55°C

Storage temp. range : -40°C to +85°C

Specifications short travel switches

Sealing : IP68

Travel : 0,5 mm

Operating force : 4N typ

Material : stainless steel, brushed

Mechanical life : 3 mil cycles min

Contacts : stainl. steel dome on gold

SELF-DRAINING & REMOVABLE BALL



TSW50F5

| VANDALPROOF TRACKBALL | PANEL MOUNT | ENCLOSED |
|---------------------------------|---------------------|----------------|
| with IP65 pushbutton switches | TSA50 F2 | |
| option black topplate | TSA50 F2-BT1 | |
| with IP68 short travel switches | TSA50 F8 | TSA50S8 |
| with removable ball | TSW50 F5 | |

Combo PS/2 & USB output

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

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

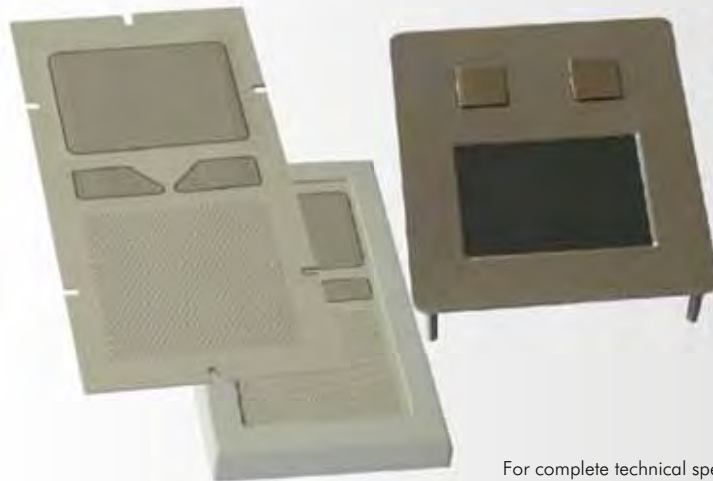
TRACKBALL & TOUCHPAD UNITS



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

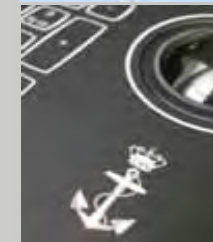
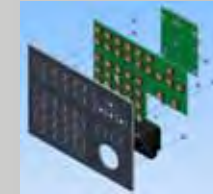


Examples custom designs

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°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

NSI

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The company reserves the right to alter without prior knowledge the specifications or design of any standard product or service.