



desktop version



panel mount

- 104 full travel backlit keys
- IP65 sealing
- ergonomic 38mm trackball

MIL-SPEC RUGGED KEYBOARD WITH ERGONOMIC RUGGED TRACKBALL

The MKBE104 is a rugged keyboard with integrated rugged trackball, designed to meet MIL-STD-810G / MIL-STD-461G standards for critical applications. With a high-spec rubber dome key mechanism, 10 million actuations, and illuminated keys, it ensures durability and visibility in low-light environments. Backlighting is BUS powered over USB, customizable via PWM signal. The QWERTY layout is customizable, and the aluminium construction provides robustness and protection. The integrated trackball module utilizes patented optical technology and IP rated mechanical switches, offering precise cursor control. It can withstand extreme conditions and is washable and sterilizable. Customize the MKBE104 with options for NVIS backlighting, key layout, and more.

MAIN FEATURES

- Designed to meet MIL-STD-810G / MIL-STD-461G
- IP65 sealed
- Backlit, waterproof, full travel switches with excellent tactile feedback
- High reliability key switch mechanisms
- Rugged 38mm diameter ball for precise cursor control (no scroll wheel)
- Infra-red optical navigation technology
- Anti-vibration feature
- Rugged aluminium machined enclosure, matt black
- Electrical Output: USB
- High level of corrosion resistance
- Rugged Amphenol electrical connection system
- Panel mount and desktop versions available
- Customization possible
- Manufactured to ISO 9001 quality system

BACKLIGHTING

- The default backlighting system is powered by the USB port
- The backlight intensity can be controlled by using the "Fn" key + the UP / DOWN arrow keys.
- The backlight light levels can also be controlled over USB communication

ORDER INFO

COUNTRY LAYOUT	PANEL MOUNT	DESKTOP VERSION
US Qwerty	MKBE104N0001USB	MKBE104S0001USB
Cyrillic Qwerty	MKBE104N0007USB	MKBE104S0007USB
Belgium Azerty	MKBE104N0032USB	MKBE104S0032USB
Swedish Qwerty	MKBE104N0046USB	MKBE104S0046USB
German Qwertzu	MKBE104N0049USB	MKBE104S0049USB
Korean Qwerty	MKBE104N0082USB	MKBE104S0082USB
Turkish Qwerty	MKBE104N0090USB	MKBE104S0090USB



Other lay-outs and languages on request.
USB output over Amphenol connector.

Optional cables: A029-80-03 Optional USB output cable with Amphenol connector, 3 m

GENERAL TECHNICAL SPECIFICATIONS KEYBOARD

MECHANICAL

Weight	1100 grams (+/- 10%) (desktop / panelmount)
Enclosure material / finish	Aluminium 6082-T6 - Surtec 650 treatment, according to MIL-DTL-5541 Type II Classe 3 - 2K epoxy primer Black Layer thickness 30µm +/- 10µm Adhesion testing according to DIN EN ISO 2409 - 2K poly urethane finishing layer RAL 9005 30% gloss Layer thickness 30µm +/- 10µm Gloss according to DIN 67530/ ISO2813 (measurement angle 60°) Adhesion testing according to DIN EN ISO 2409
Fastener material	A4 / 316 Stainless steel
Key switch actuation force	0.49N – 0.97N
Key switch lifetime	10,000,000 actuations
Key switch travel	3.0mm [0.1"] Nominal
Switch contact technology	Rubber dome / carbon pill
Keycap material / finish	POM / sprayed black and laser etched
Keycap Legend colour	White

ELECTRICAL

Output	USB 2.0 (Full Speed)
Supply voltage	+4.4V +5.25V D.C
Supply current	100mA (nonbacklit), 250mA (typical), 400mA (backlit maximum)
Output connector	Amphenol TVP00ZN-09-35PN (6-way circular connector)
Mating output connector	Amphenol TV06ZN0935SN (6-way circular socket).
Cable requirement	As per USB 2.0 full speed cable requirements
Maximum cable length	5 metres
PCB protection	Acrylic conformal coating

GENERAL TECHNICAL SPECIFICATIONS TRACKBALL

MECHANICAL

Weight	285g +/- 10%
Body/shell	Material: Aluminium 6060-T6 Finish: Black powder coating – Corro-Coat PE Series 5091 (RAL9005) Pre-treatment: Surtec 650
Fastener and fixture material	A4 Stainless steel
Trackball module revision	002

Ball size / material	Ø38.1mm (1.5"), Epoxy resin
Ball colour	Metallic grey
Ball tracking force	20-40 grams – PTFE seal
Ball seal material/colour	PTFE / Grey
Ball load	100N (10Kg) maximum downward pressure for 2 minutes @ 20°C
Resolvable ball speed	30 IPS (inches per second)
Tracking engine	Infra-red optical navigation technology
Removable ring material/colour	PC / ABS, black

Switch manufacturer/Part No.	2 x ITW / 59-111
Switch actuation force	3N Nominal
Switch travel	2.3mm nominal
Switch lifetime	1,000,000 cycles

ELECTRICAL

Protocol	USB only
Supply voltage	4.4V to 5.25V DC
Supply current	100mA Max.
Trackball resolution	850 counts per ball revolution @ 1 IPS (inches per second) +/- 10% 1700 counts per ball revolution @ 5 IPS (inches per second) +/- 10%
Output connector	12-way Molex connector (53261-1271) or supplied 1.9m cable with USB A type plug
Mating Connector	Molex housing / crimps (21021-1200/50058-8100) or USB B type plug socket

CONNECTION DETAILS

Connection is made to the MKBE104 keyboards by means of a single 6-way MIL-DTL-38999 Series III circular connector.
Details output connector:

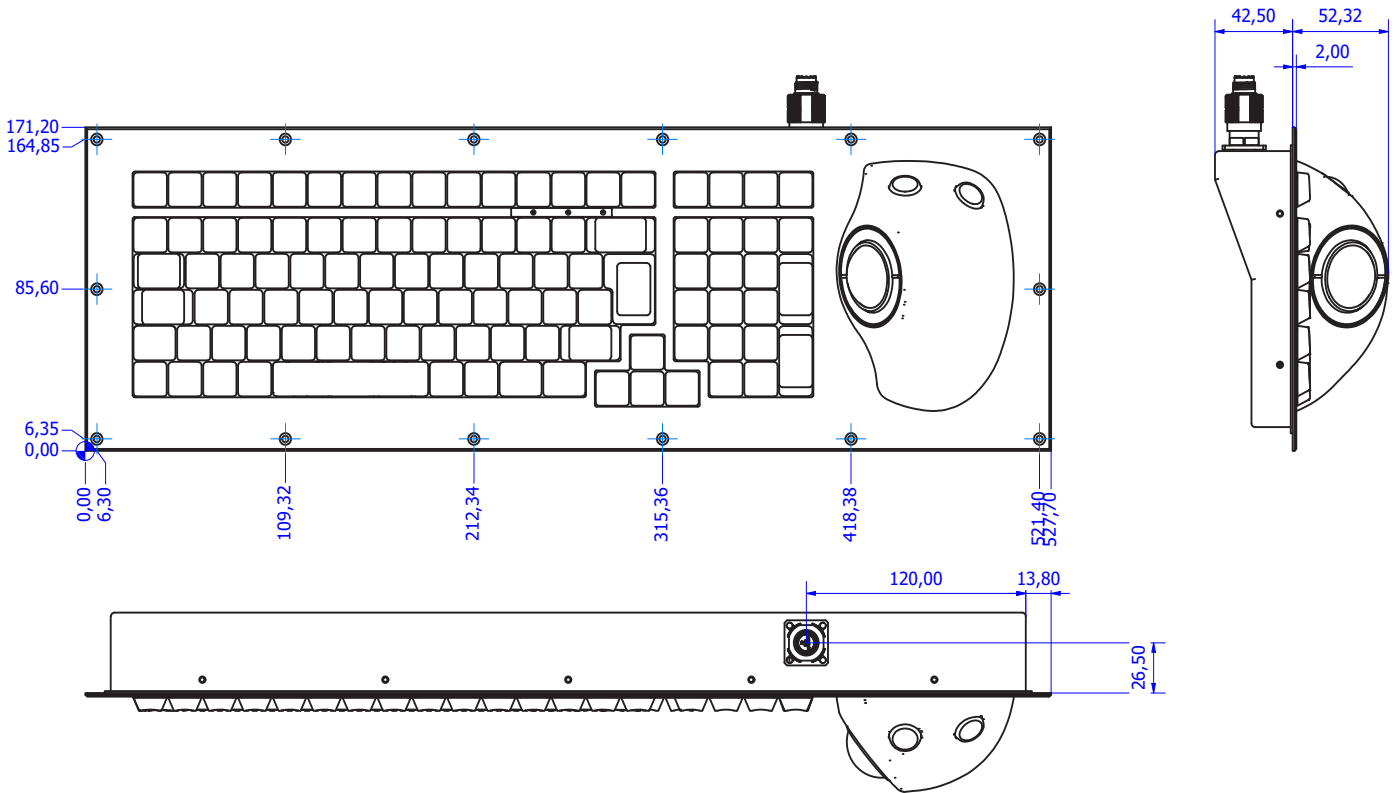
Description	6 way circular connector
Manufacturer	Amphenol (or equivalent)
Part No	TVP00ZN-09-35PN
Mating Connector	TV06ZN-09-35SN or equivalent

PIN	USB
1	VCC
2	D-
3	D+
4	0V
5	Do not connect
6	EARTH

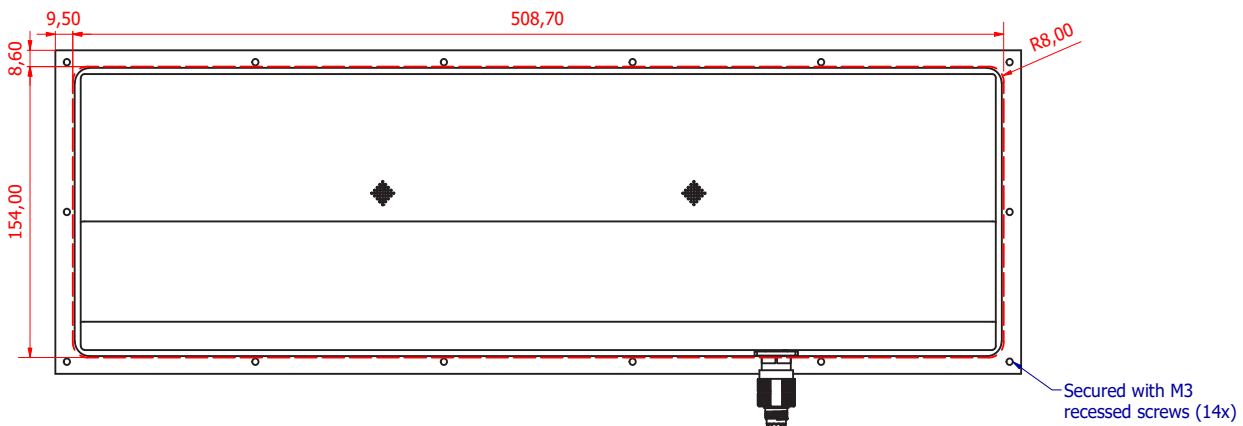


DIMENSIONAL DRAWING

PANEL MOUNT



Proposed cutout



Dimensions that aren't indicated, can be found in the STEP file

Desi
J. W

DIMENSIONAL DRAWING

DESKTOP

