Storm

1000 Series
Vandal Resistant Keypads

Robust, attack resistant keypads for use in the most exposed and hostile public environments

- Rugged, reliable and responsive data entry
- Vandal resistant (20J BS EN 60068-2-75: 1997)
- Weather, water and dust resistant (IP65)
- All metal keytops and casing
- 4 key, 12 key and 16 key formats
- Permanent, high contrast, engraved keytop graphics
- Raised "home pip" on the "5" key
- Simple 'row and column' circuit matrix, terminated by a male, gold-plated, square pin, 0.1" (2.54mm) pitch connector with locking ramp
- Can be fixed to a flat surface or under panel mounted for a flush, low profile installation

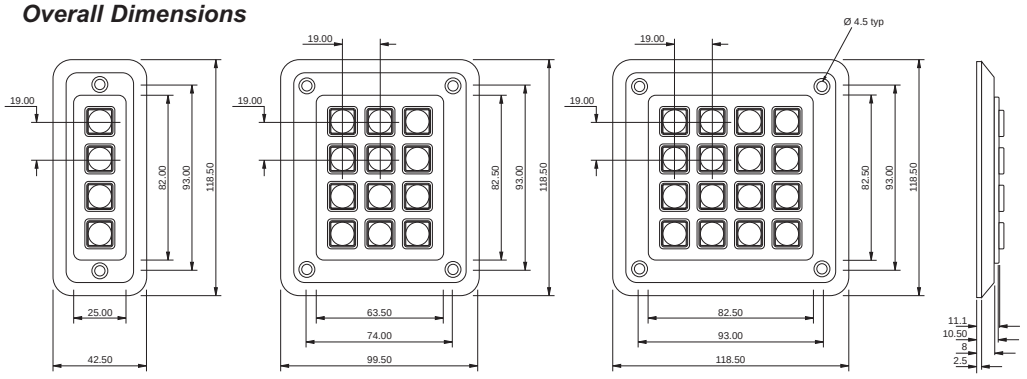
www.storm-interface.com

Storm

1000 Series vandal resistant keypads

A series of attack resistant keypads for use in the most hostile public environments. Designed and constructed to ensure rapid and reliable data entry in the most challenging applications, the Storm 1000 Series keypads are field proven and lab tested to survive hard use, abuse and vandalism. Ideal for use in a wide range of industrial, commercial and public applications.

Overall Dimensions



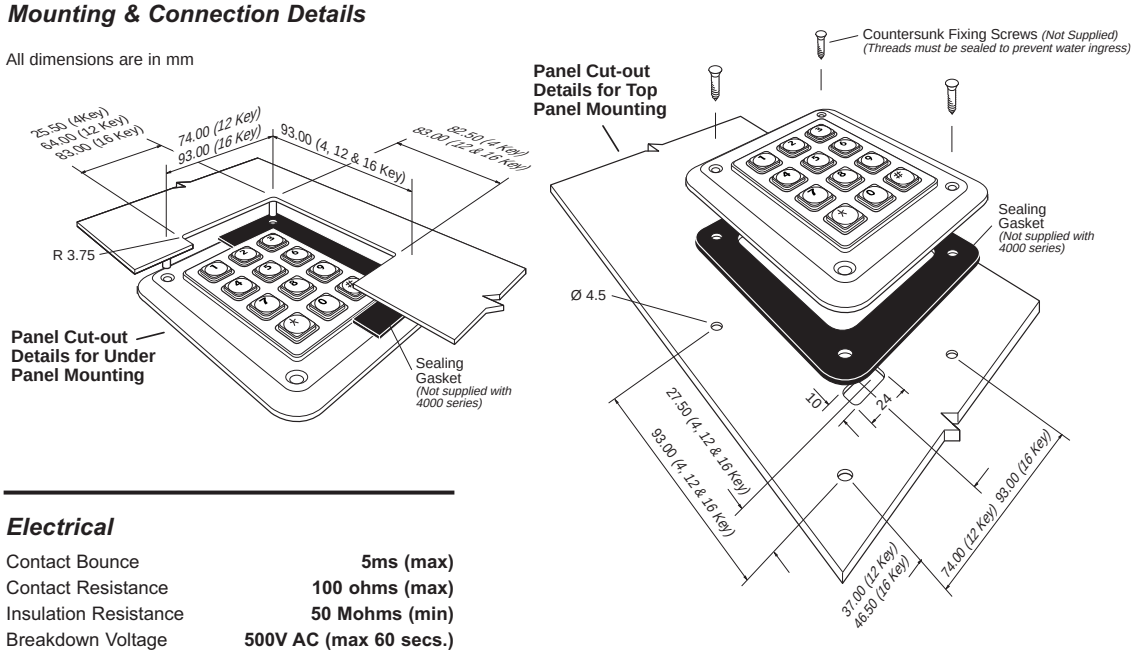
Part No.s
1K0421 (F1-F4)
1K0411(arrows)

1K12T1 (Tel. Format)
1K1201 (Calc. Format)

1K16T1 (Tel. Format)
1K1601 (Calc. Format)

Mounting & Connection Details

All dimensions are in mm



Connection Details for 4 Key Keypad

CONTACT CONNECTIONS

5 4 3 2 1
(As viewed from rear of keypad)

A 1
B
C
D
KEY LOCATION
(As viewed from front of keypad)

CONTACT MATRIX	
CONNEC. PIN	ROW/ COLUMN
1	common
2	D
3	C
4	B
5	A

Connection Details for 12 Key Keypad

CONTACT CONNECTIONS

8 7 6 5 4 3 2 1
(As viewed from rear of keypad)

A 1 2 3
B
C
D
KEY LOCATION
(As viewed from front of keypad)

CONTACT MATRIX	
CONNEC. PIN	ROW/ COLUMN
1	A
2	B
3	1
4	2
5	3
6	-
7	D
8	C

Connection Details for 16 Key Keypad

CONTACT CONNECTIONS

8 7 6 5 4 3 2 1
(As viewed from rear of keypad)

A 1 2 3 4
B
C
D
KEY LOCATION
(As viewed from front of keypad)

CONTACT MATRIX	
CONNEC. PIN	ROW/ COLUMN
1	A
2	B
3	1
4	2
5	3
6	4
7	D
8	C

Electrical

Contact Bounce	**5ms (max)**
Contact Resistance	**100 ohms (max)**
Insulation Resistance	**50 Mohms (min)**
Breakdown Voltage	**500V AC (max 60 secs.)**
Operating Voltage	**24V DC (max)**
Operating Current	**50mA (max)**

Mechanical

Operational Life	**4 million cycles (min) per key**
Keytop Travel	**1.4mm nominal**
Actuation Force	**180gms nominal**
Connector	**0.1" pitch, gold plated square pin, male connector with locking ramp**

Environmental

Water / Dust Sealed	**IP65 (when mounted to suitable enclosure)**
Operational Temperature	**-40°C to +100°C (Dry)**
Impact	**20 Joules via 50mm Ø steel impactor**

Material

Casing	**Chromed die-cast zinc**
Keytops	**Chromed die-cast zinc**
Keytop Legends	**Engraved**
Contact Circuit	**Gold on Nickel plated FR4**

Accessories

Item	Stock No.	Notes
PC Interface	4200-00[x]	RS232
Rear Casing Providing space for additional components or circuitry (12 key formats only)	RC12020[x]	Supplied complete with fixing hardware, sealing gaskets and fixing instructions.
Blank Keytops set of four	1K0000[x]	Supplied without keytop graphics. Suitable for engraving.
Privacy Shield Provides PIN / Entry Code security	1KFS020[x]	Supplied complete with fixing hardware, sealing gaskets and fixing instructions. 12 key only.

Designed & produced by
NIK Design
www.nikdesign.co.uk

1000-LIT-01 Rev 4
Nov 2008

Storm 1000 PLX Series Keypads

Tough keypads for exposed public applications

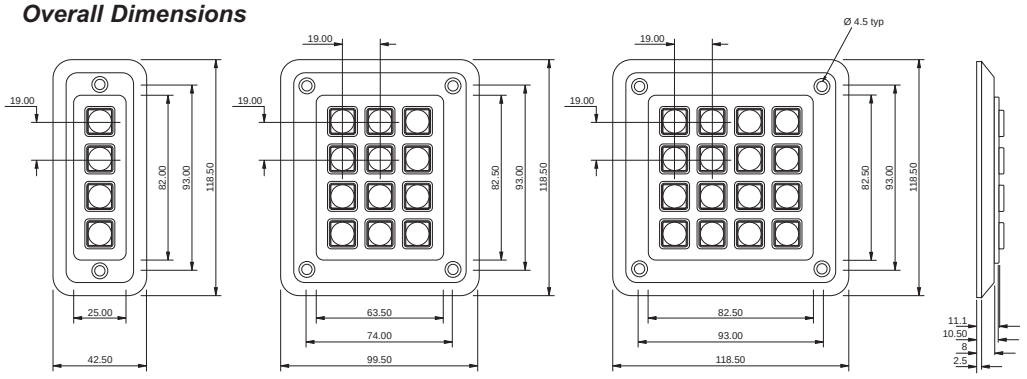
- Manufactured to survive hard use and abuse under extreme environmental conditions
- Rugged, reliable and responsive data entry
- Weather, water and dust resistant (IP65)
- All metal keytops
- 4,12 and 16 key formats
- Permanent, high contrast, engraved keytop graphics
- Raised "home pip" on the "5" key
- Simple 'row and column' circuit matrix, terminated by a male, gold-plated, square pin, 0.1" (2.54mm) pitch connector with locking ramp
- Can be fixed to a flat surface or under panel mounted for a flush, low profile installation

www.storm-interface.com

Storm
1000 PLX Series keypads

Ideal for use in applications where toughness and resistance to water and dust is required. PLX keypads are cased in a revolutionary super high-impact polymer, for resistance to abuse and attack. Chromed metal keytops are retained to provide keytop graphics with unsurpassable toughness and wear resistance.

Overall Dimensions



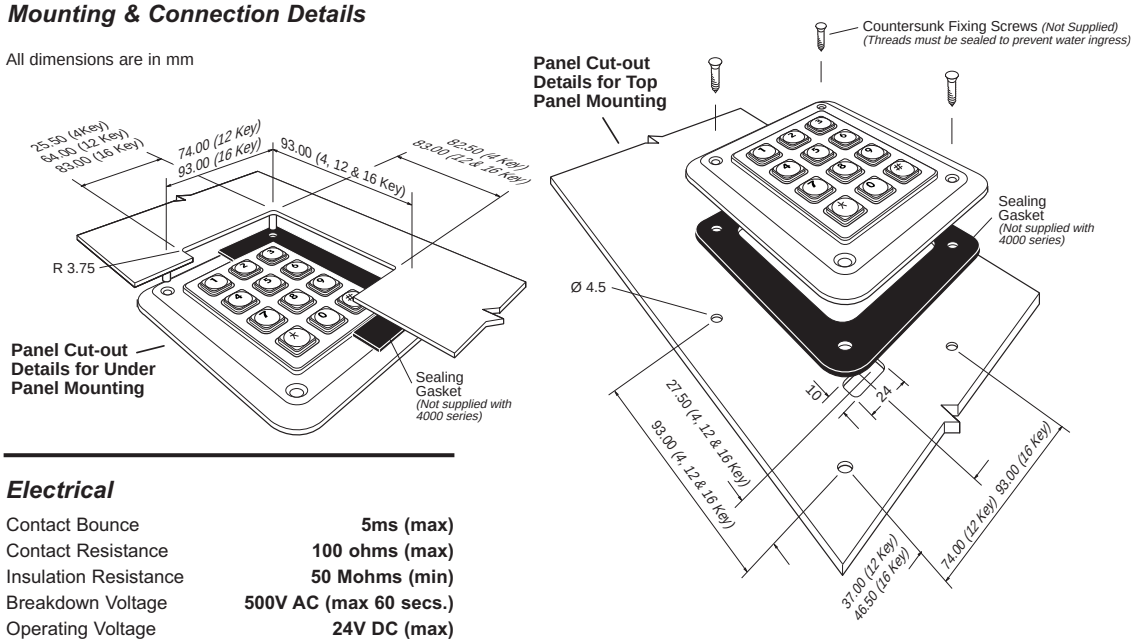
Part No.s
PLX0422 (F1-F4)
PLX0412 (← ↓ ↑ →)

PLX12T2 (Tel. Format)
PLX1202 (Calc. Format)

PLX16T2 (Tel. Format)
PLX1602 (Calc. Format)

Mounting & Connection Details

All dimensions are in mm



Electrical

Contact Bounce	**5ms (max)**
Contact Resistance	**100 ohms (max)**
Insulation Resistance	**50 Mohms (min)**
Breakdown Voltage	**500V AC (max 60 secs.)**
Operating Voltage	**24V DC (max)**
Operating Current	**50mA (max)**

Mechanical

Operational Life	**4 million cycles (min) per key**
Keytop Travel	**1.4mm nominal**
Actuation Force	**180gms nominal**
Connector	**0.1" pitch, gold plated square pin, male connector with locking ramp**

Environmental

Water / Dust Sealed	**IP65 (when mounted to suitable enclosure)**
Operational Temperature	**-40°C to +100°C (Dry)**
Impact	**20 Joules via 50mm Ø steel impactor**

Material

Casing	**Super High Impact Polymer (black)**
Keytops	**Chromed die-cast zinc**
Keytop Legends	**Engraved**
Contact Circuit	**Gold on Nickel plated FR4**

Connection Details for 4 Key Keypad

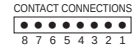
CONTACT CONNECTIONS

(As viewed from rear of keypad)

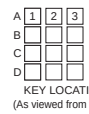
CONTACT MATRIX	
CONNEC. PIN	ROW/ COLUMN
1	common
2	D
3	C
4	B
5	A

Connection Details for 12 Key Keypad

CONTACT CONNECTIONS



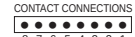
(As viewed from rear of keypad)



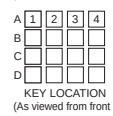
CONTACT MATRIX	
CONNEC. PIN	ROW/ COLUMN
1	A
2	B
3	1
4	2
5	3
6	-
7	D
8	C

Connection Details for 16 Key Keypad

CONTACT CONNECTIONS



(As viewed from rear of keypad)



CONTACT MATRIX	
CONNEC. PIN	ROW/ COLUMN
1	A
2	B
3	1
4	2
5	3
6	4
7	D
8	C

Accessories

Item	Stock No.	Notes
PC Interface	4200-00[x]	RS232
Rear Casing Providing space for additional components or circuitry (12 key formats only)	RC12020[x]	Supplied complete with fixing hardware, sealing gaskets and fixing instructions.
Blank Keytops set of four	1K0000[x]	Supplied without keytop graphics. Suitable for engraving.
Privacy Shield Provides PIN / Entry Code security	1KFS020[x]	Supplied complete with fixing hardware, sealing gaskets and fixing instructions. 12 way only.

Whilst every effort is made to ensure details are correct at time of print, specifications are subject to change without notice.

CE

BSI REGISTERED FM 39602
UKAS QUALITY MANAGEMENT 003

Designed & produced by
NIK Design
www.nikdesign.co.uk

PLX-LIT-01 Rev 4
Nov 2008

Storm Interface

2000 SERIES

Robust Keypads

Rapid, responsive and reliable keypads for industrial use

- *Weather, water and dust resistant (IP65)*
- *Vandal resistant (20J BS EN 60068-2-75: 1997)*
- *Raised "home pip" on the "5" key*
- *High contrast keytops*
- *4, 12 and 16 key formats*

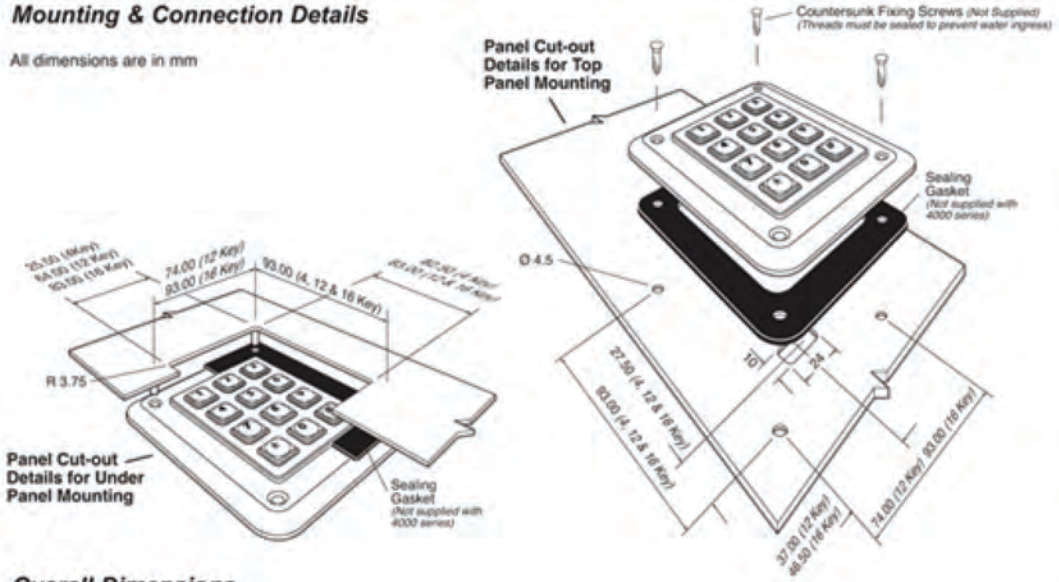
www.storm-interface.com

2000 Series robust keypads for harsh industrial use

Storm 2000 Series ruggedized Keypads are ideal for use in harsh industrial environments. They are constructed to survive in exposed, wet or dirty environments. Available in 4, 12 and 16 key configurations, these robust keypads can be fixed to the surface of a host enclosure or located beneath an aperture in a panel. Keys move with a positive "over-centre" action to provide a responsive tactile dynamic and reliable data entry. This excellent tactile response combined with a home pip and high contrast keytop characters make these keypads accessible for those with visual impairment.

Mounting & Connection Details

All dimensions are in mm



Connection Details for 4 Key Keypad

CONTACT CONNECTIONS

5 4 3 2 1

(As viewed from rear of keypad)

A 1
B
C
D

KEY LOCATION

(As viewed from front of keypad)

CONTACT MATRIX	
CONNEC. PIN	ROW/ COLUMN
1	common
2	D
3	C
4	B
5	A

Connection Details for 12 Key Keypad

CONTACT CONNECTIONS

8 7 6 5 4 3 2 1

(As viewed from rear of keypad)

A 1 2 3
B
C
D

KEY LOCATION

(As viewed from front of keypad)

CONTACT MATRIX	
CONNEC. PIN	ROW/ COLUMN
1	A
2	B
3	1
4	2
5	3
6	-
7	D
8	C

Connection Details for 16 Key Keypad

CONTACT CONNECTIONS

8 7 6 5 4 3 2 1

(As viewed from rear of keypad)

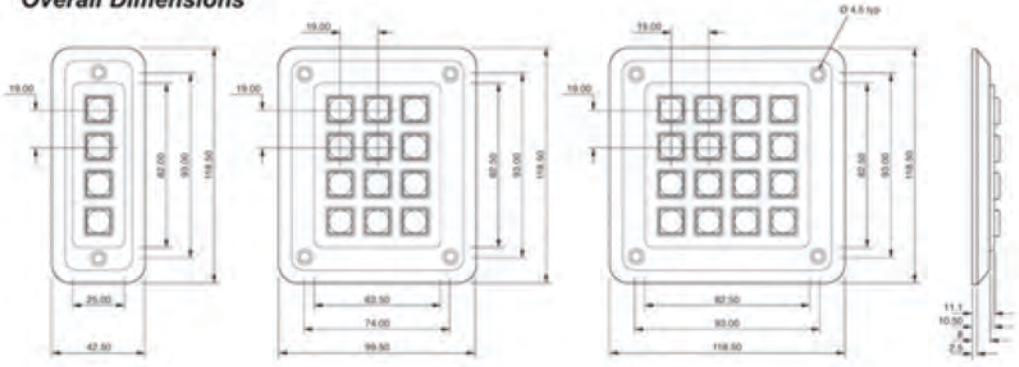
A 1 2 3 4
B
C
D

KEY LOCATION

(As viewed from front of keypad)

CONTACT MATRIX	
CONNEC. PIN	ROW/ COLUMN
1	A
2	B
3	1
4	2
5	3
6	4
7	D
8	C

Overall Dimensions



Electrical

Contact Bounce	5ms (max)
Contact Resistance	100 ohms (max)
Insulation Resistance	50 Mohms (min)
Breakdown Voltage	500V AC (max 60 secs.)
Operating Voltage	24V DC (max)
Operating Current	50mA (max)

Mechanical

Operational Life	4 million cycles (min) per key
Keytop Travel	1.4mm nominal
Actuation Force	180gms nominal
Connector	0.1" pitch, gold plated square pin, male connector

Environmental

Water / Dust Sealed	IP65 (when mounted to suitable enclosure)
Operational Temperature	-25°C to +85°C (Dry)

Material

Casing	General Service Polymer (black)
Keytops	General Service Polymer (translucent)
Contact Circuit	Gold on Nickel Plated FR4

Part Numbers

2K04110[X]
4 key Pad - Cursor
2K04210[X]
4 Key Pad - Function
2K12010[X]
12 Key Pad - Calculator
2K12T01[X]
12 Key Pad - Telephone
2K16010[X]
16 Key Pad - Calculator
2K16T10[X]
16 Key Pad - Telephone

www.storm-interface.com

Storm Interface

3000 SERIES
Illuminated Keypads

Responsive, illuminated keypads for low-light applications

- *Reliable data entry in outdoor or indoor locations*
- *High contrast keytops with integral white light LED illumination*
- *Robust construction for use in extreme, wet or dirty environments*
- *Responsive tactile keys*
- *4, 12 and 16 key formats*

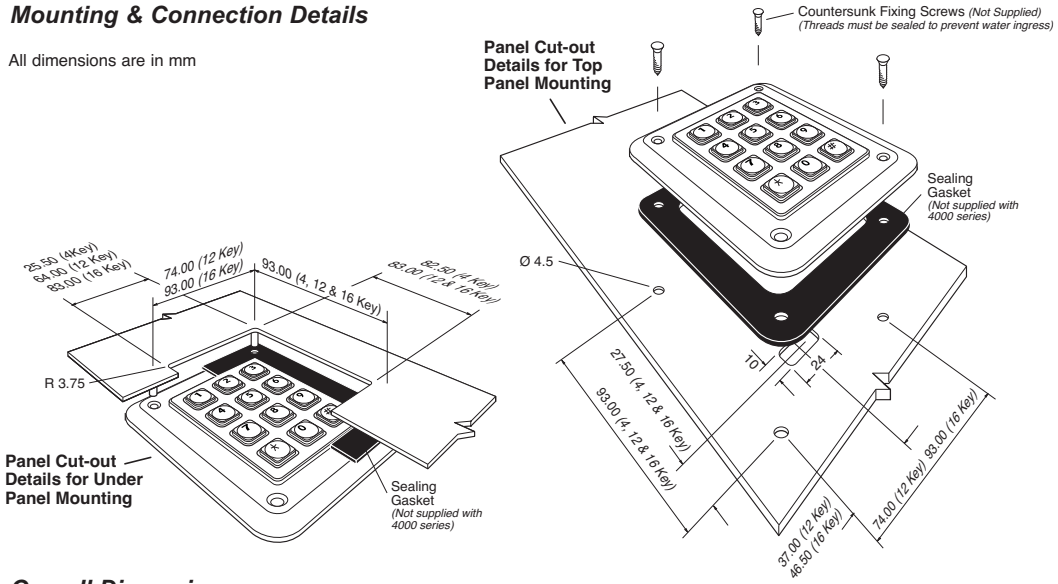
www.storm-interface.com

3000 Series Illuminated Keypads for low-light applications

Storm 3000 Series Illuminated Keypads are ideal for use in dark or dimly lit applications. They are constructed to survive in exposed, wet or dirty environments. Available in 4, 12 and 16 key configurations, these robust keypads can be fixed to the surface of a host enclosure or located beneath an aperture in a panel. Keys move with a positive "over-centre" action to provide a responsive tactile dynamic and reliable data entry. This excellent tactile response combined with a home pip and high contrast keytop characters make these illuminated keypads accessible for those with visual impairment.

Mounting & Connection Details

All dimensions are in mm



Connection Details for 4 Key Keypad

CONTACT CONNECTIONS

7 6 5 4 3 2 1

(As viewed from rear of keypad)

KEY LOCATION

(As viewed from front of keypad)

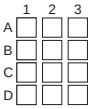
CONTACT MATRIX	
CONNEC. PIN	ROW/ COLUMN
1	Cathode
2	Common
3	D
4	C
5	B
6	A
7	Anode

Connection Details for 12 Key Keypad

CONTACT CONNECTIONS

10 9 8 7 6 5 4 3 2 1

(As viewed from rear of keypad)



KEY LOCATION

(As viewed from front of keypad)

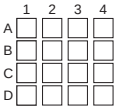
CONTACT MATRIX	
CONNEC. PIN	ROW/ COLUMN
1	Cathode
2	A
3	B
4	1
5	2
6	3
7	–
8	D
9	C
10	Anode

Connection Details for 16 Key Keypad

CONTACT CONNECTIONS

10 9 8 7 6 5 4 3 2 1

(As viewed from rear of keypad)

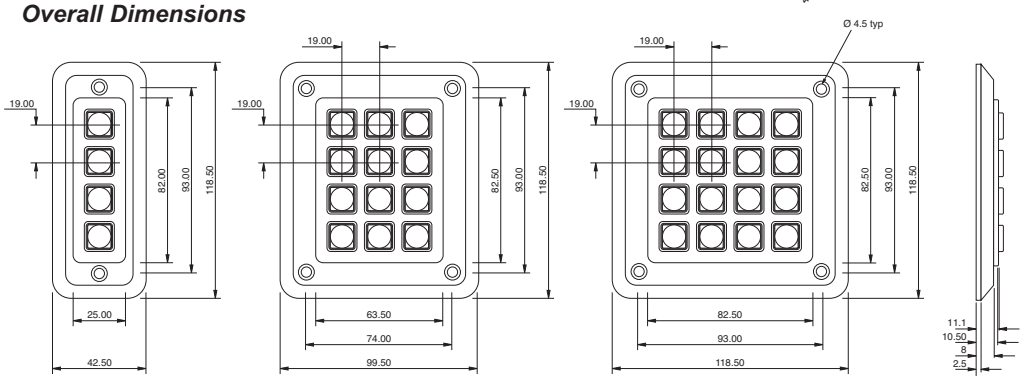


KEY LOCATION

(As viewed from front of keypad)

CONTACT MATRIX	
CONNEC. PIN	ROW/ COLUMN
1	Cathode
2	A
3	B
4	1
5	2
6	3
7	4
8	D
9	C
10	Anode

Overall Dimensions



Part No.s
3K0421 (F1-F4)
3K0411 (← ↓ ↑ →)

3K12T1 (Tel. Format)
3K1201 (Calc. Format)

3K16T1 (Tel. Format)
3K1601 (Calc. Format)

Electrical

Contact Bounce	**5ms (max)**
Contact Resistance	**100 ohms (max)**
Insulation Resistance	**50 Mohms (min)**
Breakdown Voltage	**500V AC (max 60 secs.)**
Operating Voltage	**24V DC (max)**
Operating Current	**50mA (max)**

Mechanical

Operational Life	**2 million cycles (min) per key**
Keytop Travel	**1.4mm nominal**
Actuation Force	**180gms nominal**
Connector	**0.1" pitch, gold plated square pin, male connector**

LED Specification

White Backlight **current limited to n x 20mA @Vf**
Vf = 3.5V (typical), 4.2V (max)
Reverse voltage, Vr = 5V (max)

Environmental

Water / Dust Sealed	**IP54 (when mounted to suitable enclosure)**
Operational Temperature	**-10°C to +85°C (Dry)**

Material

Casing	**General Service Polymer (black)**
Keytops	**General Service Polymer (translucent)**
Contact Circuit	**Gold on Nickel Plated FR4**

Part Numbers

3KLW04110[x]
4 Key Pad – Cursor

3KLW04210[x]
4 Key Pad – Function

3KLW12010[x]
12 Key Pad – Calculator

3KLW12T10[x]
12 Key Pad – Telephone

3KLW16010[x]
16 Key Pad – Calculator

3KLW16T10[x]
16 Key Pad – Telephone

Accessories

4200-00[x]
RS232 Encoder Interface

Series Resistor Values

Use correct resistor to prevent damage to LEDs

4 way Connect +V via Series Resistor to Pin 7				12 way Connect +V via Series Resistor to Pin 10				16 way Connect +V via Series Resistor to Pin 10			
applied voltage	series resistor (ohms)	min resistor wattage	nominal current per led (mA)	applied voltage	series resistor (ohms)	min resistor wattage	nominal current per led (mA)	applied voltage	series resistor (ohms)	min resistor wattage	nominal current per led (mA)
12	110	0.75	19	12	36	2.20	20	12	27	3.00	20
10	82	0.75	20	10	27	2.00	20	10	20	2.50	20
9	68	0.50	20	9	24	1.50	19	9	18	2.00	19
7.5	51	0.50	20	7.5	18	1.00	19	7.5	13	1.50	19

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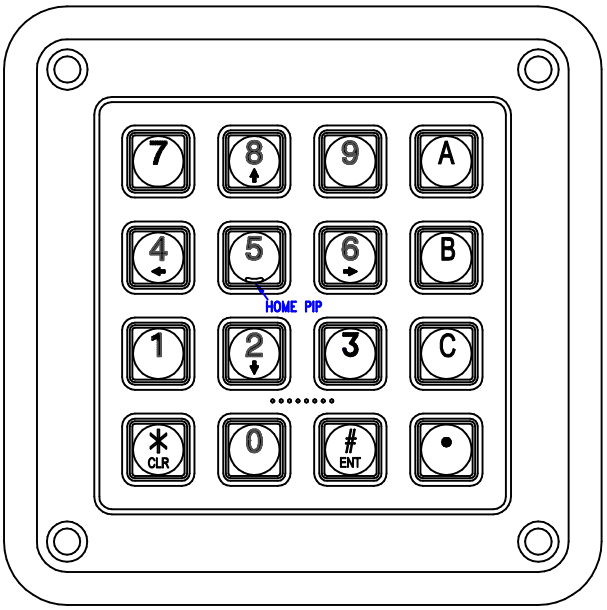
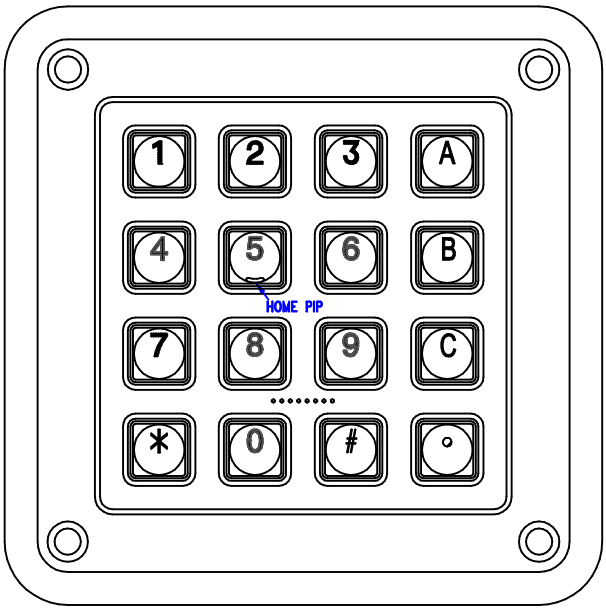
3KLW-LIT-01 Rev 2 Feb 2013

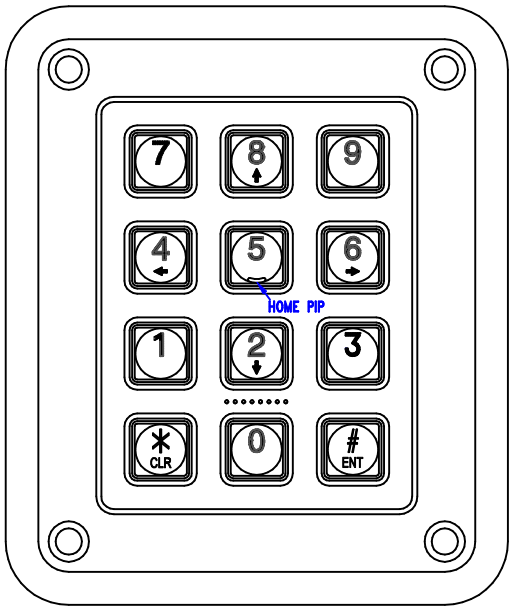
FM 39602



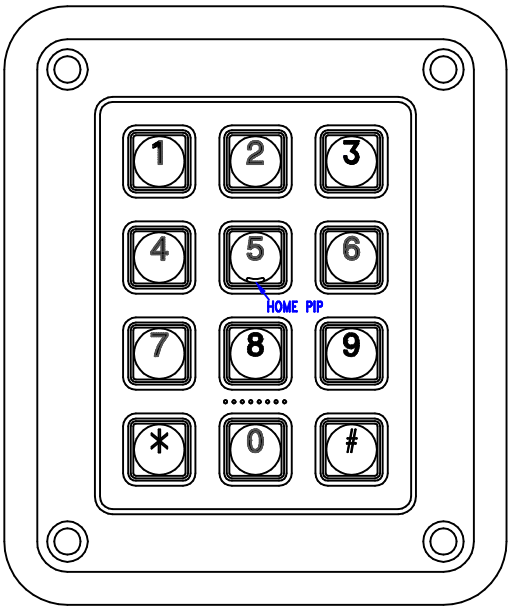
STD 16-WAY KEYPAD LAYOUT
CALCULATOR



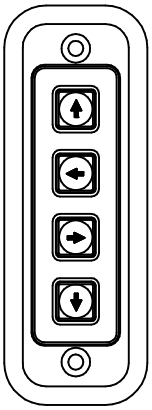
STD 16-WAY KEYPAD LAYOUT
TELPHONE



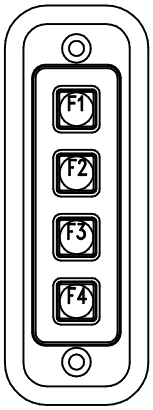
STD 12-WAY KEYPAD LAYOUT
CALCULATOR



STD 12-WAY KEYPAD LAYOUT
TELPHONE



STD 4-WAY KEYPAD LAYOUT
CURSOR



STD 4-WAY KEYPAD LAYOUT
FUNCTION

Storm Graphic Series Keypads

Tough keypads with 'snap-on' keytops for custom graphics

- Rugged, reliable and responsive data entry
- Available with optional integrated LED illumination of keytops and keytop characters
- Keytop colours and graphics can be configured to suit almost any application
- Sealed against water and dust to IP54 specification
- 4,12 and 16 key formats
- Can be fixed to a flat surface or under panel mounted for a flush, low profile installation
- Extensive library of keytop graphics and colour tiles available
- Custom keytop graphics can be created and fitted 'on-site'

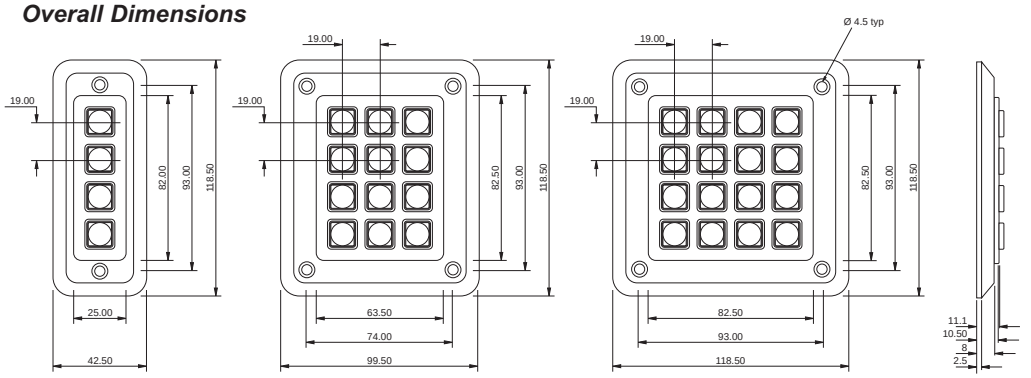
www.storm-interface.com

Storm

K Range Graphic Series Keypads

STORM Graphic Series Keypads feature keytop legends that can be configured or customised without dismantling the keypad. The unique 'snap on' keytop cover encapsulates a polymer legend tile. The legend tiles can be selected from an extensive library of standard characters or symbols to suit many applications. Alternatively custom keytop graphics can be created using laser printed acetate film or screen printed polymer film. Keytop colours can also be customised by backing the transparent legend film with a second, coloured tile. When pressed into place the impact resistant keytop provides a permanent tamper resistant lens. The keytop cover protects the encapsulated legends from wear, physical damage, water ingress and unauthorised removal. These field proven keypads are ideal for use in a wide range of industrial and commercial applications. Also available with optional integrated LED illumination of keytops and keytop graphics, making these keypads suitable for use in dark or subdued lighting conditions.

Overall Dimensions



Part No.s
GS04020[x] (Black) GS12020[x] (Black) GS16020[x] (Black) [x] denotes packaging variant

Connection Details for 4 Key Keypad

CONTACT CONNECTIONS
5 4 3 2 1
(As viewed from rear of keypad)

A 1
B
C
D

KEY LOCATION
(As viewed from front of keypad)

CONTACT MATRIX	
CONNEC. PIN	ROW/ COLUMN
1	common
2	D
3	C
4	B
5	A

Connection Details for 12 Key Keypad

CONTACT CONNECTIONS
8 7 6 5 4 3 2 1
(As viewed from rear of keypad)

A 1 2 3
B
C
D

KEY LOCATION
(As viewed from front of keypad)

CONTACT MATRIX	
CONNEC. PIN	ROW/ COLUMN
1	A
2	B
3	1
4	2
5	3
6	-
7	D
8	C

Connection Details for 16 Key Keypad

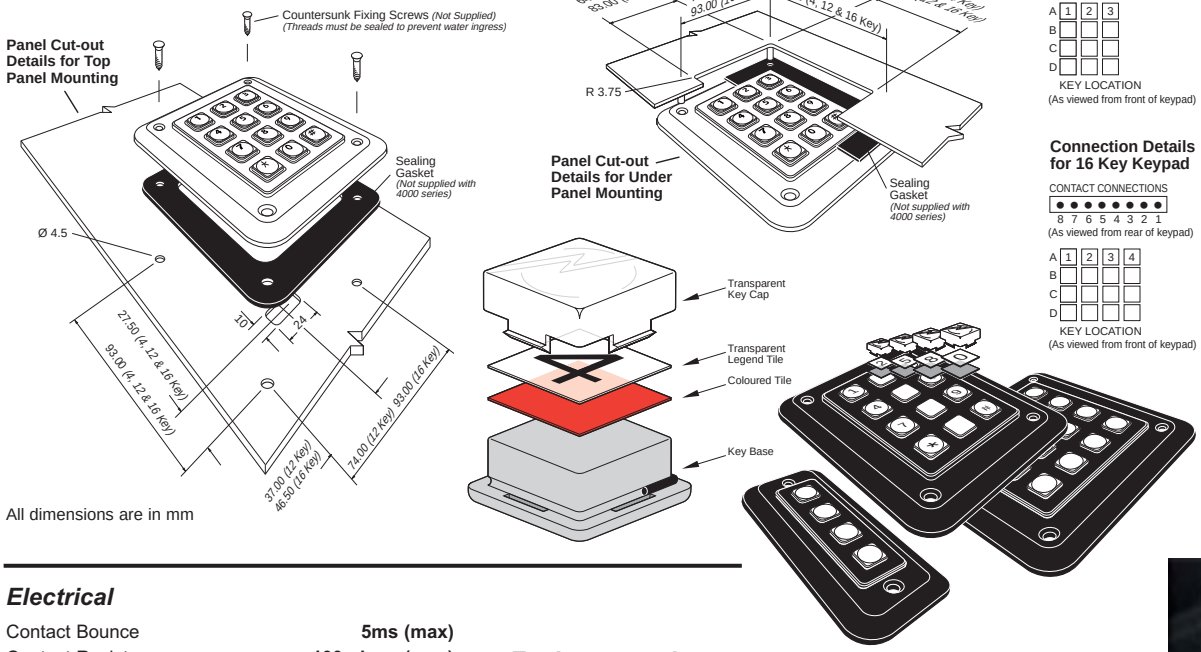
CONTACT CONNECTIONS
8 7 6 5 4 3 2 1
(As viewed from rear of keypad)

A 1 2 3 4
B
C
D

KEY LOCATION
(As viewed from front of keypad)

CONTACT MATRIX	
CONNEC. PIN	ROW/ COLUMN
1	A
2	B
3	1
4	2
5	3
6	4
7	D
8	C

Mounting & Connection Details



All dimensions are in mm

Electrical

Contact Bounce	**5ms (max)**
Contact Resistance	**100 ohms (max)**
Insulation Resistance	**50 Mohms (min)**
Breakdown Voltage	**500V AC (max 60 secs.)**
Operating Voltage	**24V DC (max)**
Operating Current	**50mA (max)**

Mechanical

Operational Life	**2 million cycles (min) per key**
Keytop Travel	**1.4mm nominal**
Actuation Force	**180gms nominal**
Connector	**0.1" pitch, gold plated square pin, male connector**

Environmental

Water / Dust Sealed	**IP54 (when mounted to suitable enclosure)**
Operational Temperature	**-20°C to +60°C (Dry)**

Material

Casing	**General Service Polymer (black or mid grey)**
Keytops	**General Service Polymer (transparent)**
Contact Circuit	**Gold on Nickel plated FR4**

For details of available STORM Graphic Series keytop character sets, please request the legend tile character library, document ref. GFX-LEG1-01

Whilst every effort is made to ensure details are correct at time of print, specifications are subject to change without notice.

CE

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Designed & produced by
NIK Design
www.nikdesign.co.uk

GFX-LIT-01 Rev 4
Nov 2008

storm®

Legend Tile Character Library

Keytop legend character options for STORM Graphic Series keypads

GRAPHIC SERIES

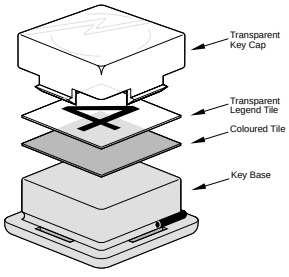
Keytop Assembly Instructions

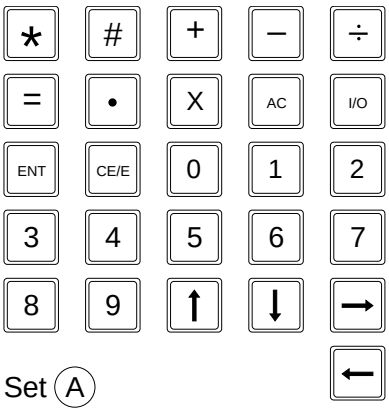
Graphic Series keypads are supplied with the key bases fitted. Each key position can be customised without dismantling the keypad. Keytop legend options can be selected from a library of standard symbols, characters or background colours. Alternatively, customised keytop graphics can be created using laser printed acetate film or screen printed polymer film. The total thickness of the coloured tile and legend tile should not exceed 0.4mm. *(Please note, paper is not recommended as the printed graphics may degrade if exposed to moisture / condensation.)*

1 Orientate the keypad correctly by checking the connector position on the underside of the keypad.

2 Load each key position in turn. First locate the legend tile into the transparent key cap, then locate the coloured tile (see diagram). **Before snapping the transparent key cap, including legend and customer tile, into position ensure that the legend tile's position, orientation and alignment are correct.**

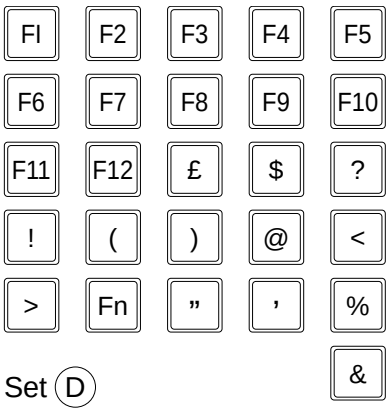
Please note, if it is necessary to remove the transparent key cap a suitable tool or pliers should be used. Once removed the key cap should not be re-used; spare key caps and bases are available in sets of 4, part number GS0000.





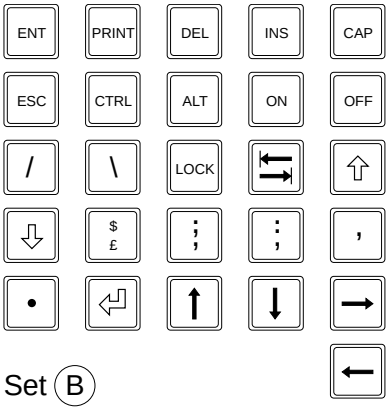
Set (A)

Black Characters
Transparent Background Part No. GSA0T20



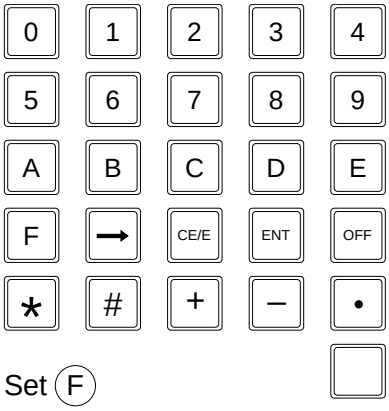
Set (D)

Black Characters
Transparent Background Part No. GSD0T20



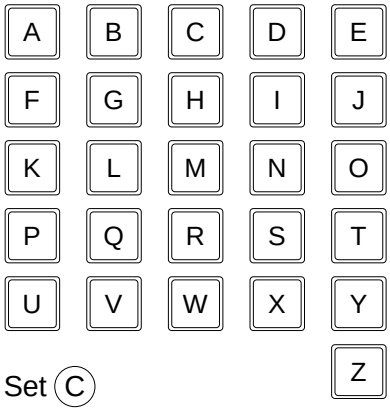
Set (B)

Black Characters
Transparent Background Part No. GSB0T20



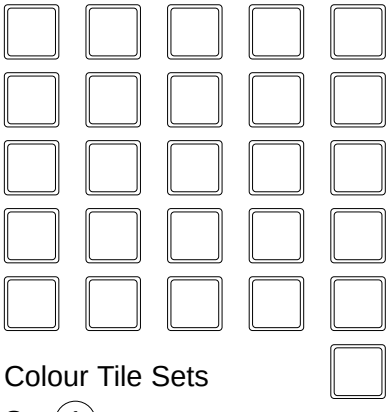
Set (F)

Black Characters
Transparent Background Part No. GSF0T20



Set (C)

Black Characters
Transparent Background Part No. GSC0T20



Colour Tile Sets

Set (1) Opaque White Part No. GS10T20

Set (2) Opaque Grey Part No. GS20T20

Set (3) Opaque Red Part No. GS30T20

Set (4) Opaque Green Part No. GS40T20

Set (5) Opaque Blue Part No. GS50T20

Set (6) Opaque Yellow Part No. GS60T20

Fonts & character sizes may differ from those shown.

GFX-LEG1-01
Issue 1 – Jun 98

In a dirty world...

Storm
700/900 Series

Keytop legend tiles can be configured to suit individual applications.

Storm 700/900 Series keypads are intended for use in wet or dirty environments. These modular keypads are designed to withstand the ingress of liquids and other contaminants; manufactured to survive the rigours of modern industrial use.

Storm 900 Series keypads feature selective dual colour illumination of keytops and keytop characters.

Storm
700/900 Series

Tough keypads for tough environments.

Tel 02.33.61.16.26 - Fax 02.26.26.10.09
ELITALIA
WWW.ELITALIAWEB.IT - INFO@ELITALIAWEB.IT

Storm 700/900 Series – Sealed & Rugged Keypads

In demanding or hostile environments, a keyboard operator must be confident that data can be entered quickly and accurately. With this objective the keys move with a positive over-centre action ensuring rapid and reliable data entry even in the most extreme conditions.

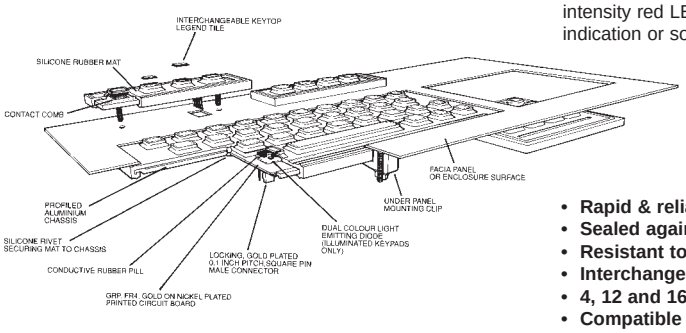
Storm 700 & 900 Series keypads are supplied in 4, 12, 16, and 36 key configurations. The keypad's unique modular design enables combinations of keypads to be used in the construction of more complex keypanel layouts. This design feature is especially useful when the keypads are used in conjunction with the Storm Universal Keypad Encoder.

The exceptional reliability of Storm keypads is achieved by an ingenious but simple method of construction. A moulded rubber mat is secured around a rigid circuit plate providing its own environmental seal. Storm keypads have been successfully tested after submersion under 1 metre of water for periods in excess of 1 hour. This was achieved without using gaskets or sealing compounds of any kind.

Interchangeable keytop legend tiles allow the selection of keytop graphics to suit any particular application. A comprehensive range of keytop legend tiles, are available from your local Storm supplier.

Storm keypads are available in non-illuminated (700 Series) and illuminated (900 Series) versions.

The keypads can be easily mounted to a flat surface or can be located beneath a suitable aperture in a fascia panel.



STORM 900 Series (illuminated)
4, 12 and 16 key formats only

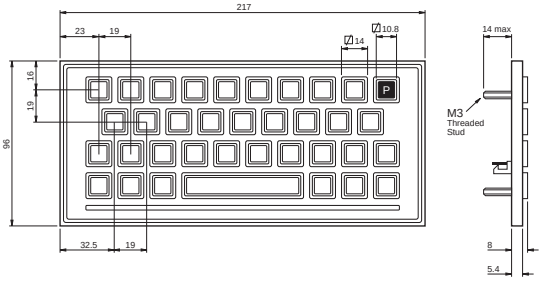
Using the impressive refractive properties of silicone rubber, and the latest developments in surface mount technology, individual keytops can be illuminated by twin diode, two colour LEDs.

The keypad's surface can be lit with a low level green illumination. This provides clearly legible keytop graphics and a visual indication of the keypads operational boundaries. In addition, individual keytops can be selectively lit with a high intensity red LED providing positive status indication or software controlled "user prompts".

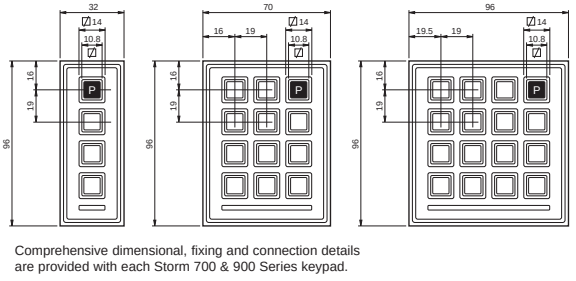
- **Rapid & reliable data entry**
- **Sealed against fluids, dust & corrosives**
- **Resistant to vibration & shock**
- **Interchangeable keytop legends**
- **4, 12 and 16 key formats in both series**
- **Compatible with the STORM keypad encoder**

DIMENSIONS

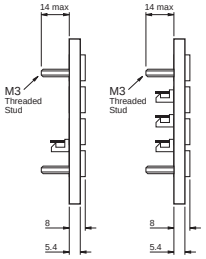
Storm 700 Series



Storm 700/900 Series



Storm 700 Series | Storm 900 Series



All dimensions are in millimetres.

Comprehensive dimensional, fixing and connection details are provided with each Storm 700 & 900 Series keypad.

A comprehensive range of interchangeable keytop legend tiles, for use with Storm 700 & 900 Series keypads, are availble from your local Storm supplier.

ACCESSORIES FOR USE WITH STORM 700/900 SERIES KEYPADS

Item	Part Number	Description
STORM Keypad Encoder	40000001	Keypad interface for STORM 700/900 Series & K Range keypads. PC XT or AT, PS2 and ASCII RS232/432 data formats configurable via an 8 way DIL switch.
Legend Tile Set	70X00101 90X00101 (X denotes type, "A to K")	**A:** 0 - 9, ←, →, ↑, ↓,*, #, +, -, ÷, =, ., X, AC, I/O, ENT, CE/C, SP. **B**: ←, →, ↑, ↓, ENT, PRINT, DEL, INS, CAP, ESC, CTRL, ALT, ON, OFF, \, /, LOCK, ⇧, ⇥, ⇩, $£, :, ;, ', ., ↵, SP. **D**: FI TO F12, £, $, ?, !, (,), @, <, >, Fn, ", ', %, &, SP. **F:** 0 - 9, →,A - F, CE/C, ENT, OFF, *, #, +, -, ., blank, SP. **C:** "A TO Z" **E:** Blank **J:** French symbols **K:** German symbols
Under Panel Mounting Clips	7004CL01	1 pair for 4 key keypad, 2 pairs for 12/16 key keypads & 3 pairs for 36 key keypad.

SPECIFICATION & OPERATIONAL PERFORMANCE

ELECTRICAL

Contact Bounce	5ms (max)
Contact Resistance	100 ohm (max)
Insulation Resistance	50 Mohms (min) at 480V DC
Breakdown Voltage (to case)	500V AC (max 60 seconds)
Operating Voltage	24V DC (max)
Operating Current	50 mA (max)
LED Drive Current (900 Series only)	20 mA typ 25mA (max)
LED Drive Voltage Single Diode (900 Series only)	3.3V typ
LED Drive Voltage Twin Diode (900 Series only)	2.2V typ

MECHANICAL

Operational Life	2 million cycles (min)
Keytop Travel	1.5mm nominal
Actuation Force	160gms typical
Sealing Torque	0.14 - 0.16 Nm
Connector	Locking 0.1" pitch gold-plated square pin connector suitable for use with Molex 2695/6471 or 7720S series or similar female connectors

MATERIAL

Keypad Surface	Engineering grade silicone rubber
Keypad chassis	Coated non-ferrous metal
Contact Circuit	Gold on nickel plated FR4 PCB

ENVIRONMENTAL

Water Sealed	BS5490 Class IP67 / EC529 Class IP67 when panel mounted
Humidity	90% RH at 40°C (104°F 10 day (max) - Non-condensing
Operational Temperature	900 Series only: -25°C to +85°C (-13°F to +185°F) 700 Series only: -55°C to +125°C (-67°F to +257°F)

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CE

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Designed & produced by **NIK Design** www.nikdesign.co.uk

700-LIT-01 Rev 4 Nov 2008

Storm Interface

Legend Tile Library

for 700 and 900 Series Keypads

A set

*	#	+	—	÷
=	•	X	AC	I/O
ENT	CE/C	0	1	2
3	4	5	6	7
8	9	↑	↓	→
				←

B set

ENT	PRINT	DEL	INS	CAP
ESC	CTRL	ALT	ON	OFF
\	/	LOCK	⇆	⇧
⇧	$ £	; :	: ;	,
•	↵	↑	↓	→
				←

C set

A	B	C	D	E
F	G	H	I	J
K	L	M	N	O
P	Q	R	S	T
U	V	W	X	Y
				Z

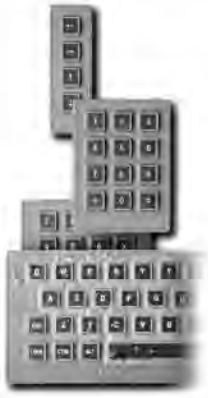
D set

F1	F2	F3	F4	F5
F6	F7	F8	F9	F10
F11	F12	£	$	?
!	(	)	@	<
>	Fn	"	'	%
				&

E set

F set

0	1	2	3	4
5	6	7	8	9
A	B	C	D	E
F	→	CE/C	ENT	OFF
*	#	+	—	•



Ordering Details

Stock No.	Description
70[x]0010	700 Series Legend Tile Set
90[x]0010	900 Series Legend Tile Set

x denotes the legend set A-F

Storm Interface

FM 39602

700-900-TILE-01
Issue 1 - January 2008

BSI REGISTERED FM 39602 UKAS QUALITY MANAGEMENT 003

www.storm-interface.com

Storm

EZ-Access Keypads

Software navigation keypads for people with mobility or sensory impairments

- *Standard, intuitive navigation keys*
- *Rugged construction for deployment in unattended, public-use kiosks*
- *Sealed against liquids and dust (IP65) to allow washing and disinfecting with most common cleaning agents*
- *USB compatible version available*
- *For use in Section 508 compliant systems (accessibility standard)*
- *Vandal Resistant (20 Joules impact)*
- *Overall dimensions: 104.5mm x 118.5mm x 17.5mm*
- *Can be panel-mounted or deployed as a stand-alone, table-top device*

www.storm-interface.com

EZ® ACCESS KEYPAD - Installation Instruction

SPECIFICATIONS

Vandal Resistant ……	20 Joules Impact	Panel Cutout ……..	109.5 mm x 95.5 mm R 5mm corners(tols ± 0.2 mm)
Weather Resistant……	IP65	Operating Temp ……..	-20ºC to +60ºC
Panel Mount Gasket included		Responsive key action……	travel 1.5 mm, actuation force 200 gm
Key Life ……	4 million cycles	Large Buttons for clarity and ease of use	

Matrix Version has 0.1" square pins (compatible with Molex KK® housing) USB Version has 2.5m Cable UL Recognized Component

The keypad has EZ Access buttons to support accessibility features. The colors and shapes make them readily identifiable by both sight and touch. The buttons are spaced so people who have difficulty with reach and motion can use them. The five common buttons are :

- **EZ-Help button** - A blue, diamond shaped button with a large white question mark at it's centre. The EZ-Help button is used to gain help on any of the elements on the screen or on the device overall. Pressing this button and any other button will activate the button help feature (or layered help if pressed repeatedly). Pressing this button alone will trigger layered help for the context.
- **Back button** - Its shape is rectangular with an arrow tip pointing left. The button is white in color with the words 'BACK' in its middle. This button allows users to quickly and conveniently return or go back to previous screens or menus - or to pop up if hierarchical menus are used.
- **Down and Up buttons** - These yellow, triangle-shaped buttons provide a way for users to move up and down through the items in the virtual list.
- **Action button** - This is a round, green button . After moving to an actionable item in the virtual list, users can press this button to activate it.

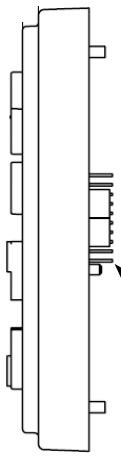
Other implementations use the 8 button keypad, with buttons for Next, Home/Main Menu, and End.

EZ® and EZ Access® are registered trademarks of the University of Wisconsin For further information about EZ Access go to www.trace.wisc.edu/ez

LAYOUT - 5 KEY

LAYOUT - 8 KEY

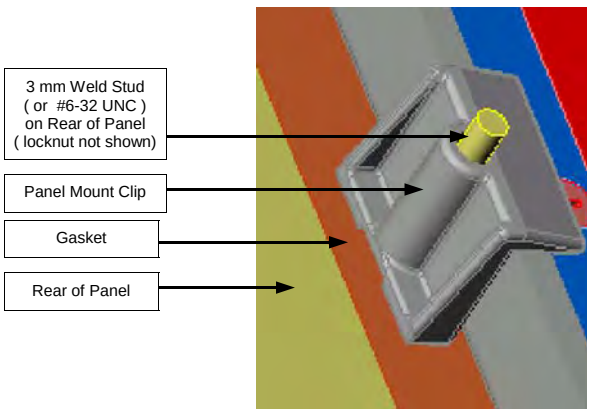
MATRIX VERSION
SIDE VIEW & CONNECTION DETAILS



CONTACT MATRIX AS SEEN FROM REAR

PIN	ROW / COLUMN
10	NOT USED
9	R3
8	R4
7	NOT USED
6	C3
5	C2
4	C1
3	R2
2	R1
1	NOT USED

REAR VIEW SHOWING PANEL CLIP ARRANGEMENT



OUTPUTS - MATRIX & USB VERSIONS

MATRIX (Row/ Column)	LEGEND	TACTILE IDENTIFIER	KEY COLOR	USB (Keycode)	Description
R1C1	<<	<	BLACK	F23	Home/Menu
R1C2	**?**	▪	**BLUE**	**F17**	**EZ-Help**
R1C3	>>	>	RED	F24	End
R2C1	**BACK**		**WHITE**	**F21**	**Back**
R2C3	NEXT		WHITE	F22	Next
R3C2		^	**YELLOW**	**F18**	**Up**
R4C2		v	**YELLOW**	**F19**	**Down**
R4C3			**GREEN**	**F20**	**Action**

ORDERING DETAILS

Stock No	*Item*
EZ08-21001[x}	*EZ-ACCESS 8 KEY MATRIX KEYPAD*
EZ08-22201[x]	*EZ-ACCESS 8 KEY USB KEYPAD*
EZ05-21001[x]	*EZ-ACCESS 5 KEY MATRIX KEYPAD*
EZ05-22201[x]	*EZ-ACCESS 5 KEY USB KEYPAD*
6000-MK00[x}	*PANEL MOUNT CLIPS*

Mounting Details Page 1 of 1
EZK-XX-08KT Rev 1 Oct 2008

Whilst every effort is made to ensure details are correct at time of print, specifications are subject to change without notice.

FM 39602

EZ® and EZ Access® are registered trademarks of the University of Wisconsin. To ensure correct function and maximum accessibility by those with sensory or mobility impairment, these EZ Access keypads are specifically designed for use with appropriate software as part of an approved EZ Access Implementation.

www.storm-interface.com
Storm Interface is a trading name of Keymat Technology Ltd

Storm 6000 Series Keypads

Numeric data entry in exposed public environments

- Rugged, reliable and responsive data entry
- Vandal resistant (20J BS EN 60068-2-75: 1997)
- Weather resistant (IP65)
- Large buttons for clarity and ease of use
- Permanent, high contrast, laser engraved keytop graphics
- 4 row x 4 column matrix circuit format
- Suitable for use by those with mobility or sensory impairments
- Raised tactile symbols on coloured function keys
- Raised "home pip" on the "5" key
- Overall dimensions: 124.0 mm x 118.5 mm (excluding interface pod on rear face)

www.storm-interface.com

Storm

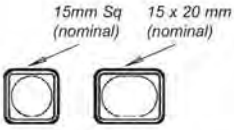
6000 Series keypad for public environments

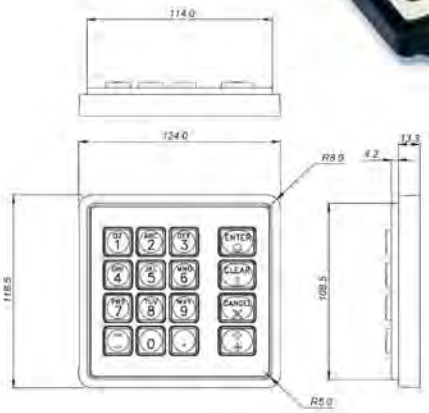
UK Keypad Layout

USA Keypad Layout

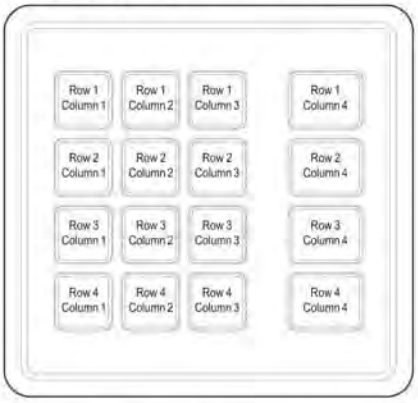
Function Key Colours

CANCEL	**Red**	?	**Blue**
CLEAR	**Yellow**	ENTER	**Green**





Matrix Keypad Connections



Contact Matrix

PINS	ROW / COLUMN
1	Not used
2	Tamper
3	R1
4	R2
5	C1
6	C2
7	C3
8	C4
9	R4
10	R3
11	NC
12	Tamper
13	Not used

Contact Connections *(viewed from rear of keypad)*

PINS	•	•	•	•	•	•	•	•	•	•	•	•	•	•
PIN NO.	13	12	11	10	9	8	7	6	5	4	3	2	1	

CONTACT CIRCUIT SPECIFICATION

Contact	
Operating Voltage	**24V dc (max)**
Operating Current	**50 mA (max)**
Circuit Resistance (when contact closed)	**<500 Ohms**

Specifications

Vandal Resistant	**20J BS EN 60068-2-75:1997**
Weather Resistant	**IP65**
Large Buttons for clarity and ease of use	**15mm square**
Function Key Buttons	**15mm x 20mm**
Responsive key action	**travel 1.5mm, actuation force 130gm**
High contrast laser engraved graphics	**designed to meet with current ADA and DDA recommendations**
Raised tactile symbols on function keys	**designed to meet with current ADA and DDA recommendations.**
Panel Cutout	**109.5 x 115.0 x R 5mm corners (tols ± 0.2mm)**
Operating Temp	**-20°C to +60°C**
Matrix Output	**(Order cables separately)**

Meets CE and UL requirements for Product Safety

Meets CE and FCC requirements for EMC

Plug compatible with 420 Series RS232 Encoder

Panel Mount Gasket included

Stock No.	Item
6000-21001[x]	Keypad 6000 Series 16 way Matrix Output, UK layout
6000-21002[x]	Keypad 6000 Series 16 way Matrix Output, USA layout

Accessories [x] denotes packaging variant

Stock No.	Item
6000-MK00[x]	Mounting Clips Underpanel for 6000 Series
4200-00[x]	Encoder 420 Series, RS232, No Cable, Plug-in

6000 Series Application/Engineering Manual – free download from www.keymat.com

Whilst every effort is made to ensure details are correct at time of print, specifications are subject to change without notice.

c UL us
UL File reference: E230121

CE

Designed & produced by **NIK Design**
www.nikdesign.co.uk

FM 39602

Storm

5000 Series
Integrated Keypads

Integrated keypads with optional display for industrial or public environments

- Rugged, reliable and responsive data entry
- Optional RS-232 keypad encoder and display driver are available seperatly
- Vandal Resistant (20J BS EN 60068-2-75: 1997)
- Available with high impact polymer or chromed metal keys
- Hardened stainless steel face plate
- Can be supplied with an (optional) 20 character x 4 line illuminated LCD display
- Card reader/writer options available seperatly
- Easily and securely installed
- Weather sealed for outdoor use

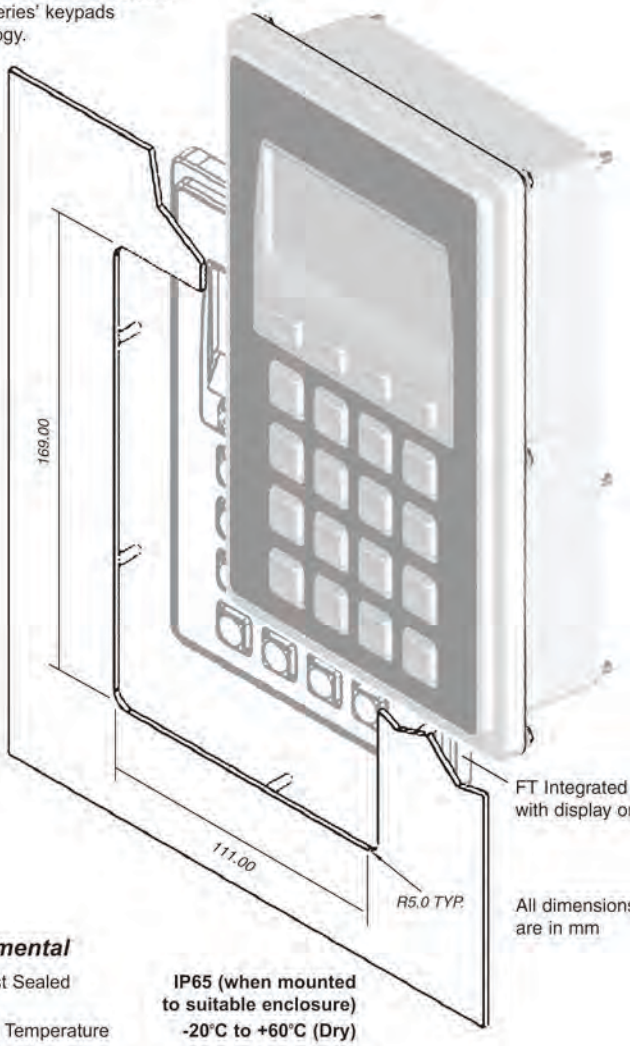
www.storm-interface.com

Storm
5000 Series Integrated Keypads

Developed for use in a wide range of industrial and commercial applications, this integrated keypad with optional display is ideal for use in exposed, hostile or public environments. The display type can be specified to suit most applications. The optional LCD display module is securely located behind a coated, scratch resistant, water sealed polycarbonate window. Generous provision is made for the location of interface and encoding circuitry on the rear face of the Keypad.

The FT Integrated keypad can also be specified with the unique Storm 'Graphics' keytop technology. These innovative keytops enable customisation of keytop characters and colours (even in low quantities). Please refer to the Storm K Range 'Graphics Series' keypads datasheet for more information about Storm's 'Graphics' keytop technology.

- **Weather and vandal resistant for outdoor and unsupervised public environments**
- **Optional 20 Character x 4 Line, illuminated LCD display (LCD Graphic or Vacuum Fluorescent displays available)**
- **Rapid, responsive and reliable data entry**
- **Stainless Steel front plate**
- **Available with High Impact Polymer or Chromed Metal keys**
- **Easily and securely installed in vending machines, car-wash controllers, public telephones, ticketing machines, gasoline pumps and car-parking control equipment.**



FT Integrated Keypad with display only

All dimensions are in mm

Electrical

Contact Bounce	**5ms (max)**
Contact Resistance	**100 ohms (max)**
Insulation Resistance	**50 Mohms (min)**
Breakdown Voltage	**500V AC (max 60 secs.)**
Operating Voltage	**24V DC (max)**
Operating Current	**50mA (max)**

Environmental

Water / Dust Sealed	**IP65 (when mounted to suitable enclosure)**
Operational Temperature	**-20°C to +60°C (Dry)**

Mechanical

Operational Life	**4 million cycles (min) per key**
Keytop Travel	**1.4mm nominal**
Actuation Force	**180gms nominal**
Connector	**0.1" pitch, gold plated square pin, male**

Material

Chassis	**Super High Impact Polymer (black)**
Front Panel	**Stainless Steel**
Keytops	**Chromed die-cast zinc**
Keytop Legends	**Engraved**
Contact Circuit	**Gold on Nickel plated FR4**

Mounting Dimensions

Shortened Configuration (no card reader)
165.00 +/- 0.5mm x 108.50 +/- 0.5mm
Underpanel mount requires cutout
169.00+/- 0.5mm x 111.00 +/- 0.5mm

Accessories [x] denotes packaging variant

Item	Stock No.	Notes
Mounting kit for Shortened Configuration	FTMK010[x]	Includes gasket and frame
PC Interface	4200-00X	RS232

c UL us
UL File reference: E230121

CE

Designed & produced by **NIK Design**
www.nikdesign.co.uk

5000-LIT-01 Rev 4
Nov 2008

FM 39602

Storm

5000 Series
Toughened Display Bezel

For menu driven applications in the toughest environments

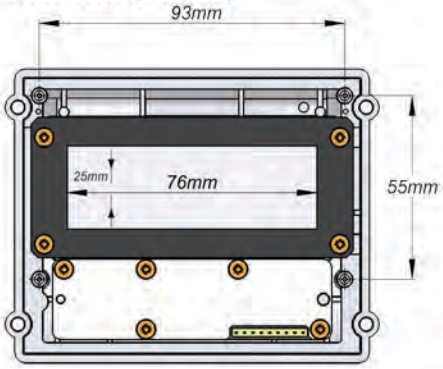
- Impact resistant 10J BS EN 60068-2-75: 1997)
- Weather sealed for outdoor use
- Clear, scratch resistant, anti-reflective display window
- Responsive menu navigation and option select keys
- Under-panel fixing through panel thickness of up to 2mm
- Supplied complete with panel gasket
- Resistant to petrochemicals and most commonly used cleaning agents
- -20°C (dry) to +60°C (bezel only – display temp range specified according to application)
- Accomodates most LCDs with mounting centers at 93 x 55mm
- Available with or without optional 122 x 32 dot graphic LCD or 4 x 20 character LCD

www.storm-interface.com

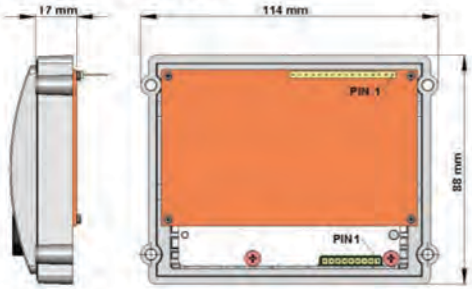
Storm

5000 Series – Toughened Display Bezel

Rear View (No LCD)



Overall Dimensions

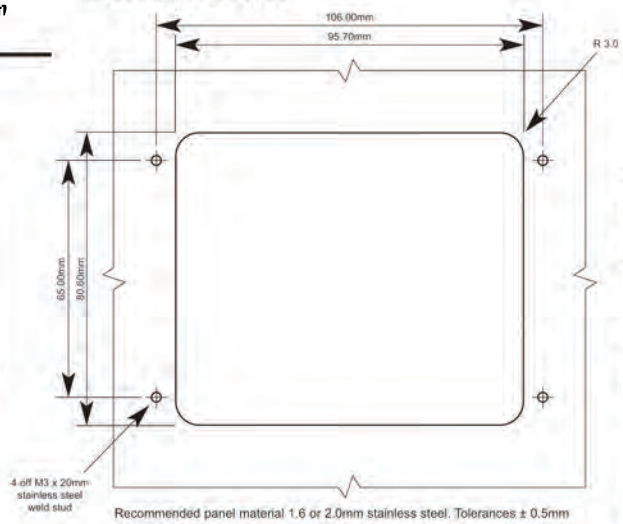


WINDOW VIEW AREA IS 76 mm x 25 mm
LCD MOUNTING CENTERS AT 93 mm x 55 mm
USE M2.2 SCREW FOR LCD FIXING

Unit with LCD fitted

Position 1	Position 2	Position 3
R1C1	R1C2	R1C3

Host Panel Cutout



Recommended panel material 1.6 or 2.0mm stainless steel. Tolerances ± 0.5mm

Matrix Keypad Connections

Contact Connections *(viewed from rear of keypad)*

PINS	•	•	•	•	•	•	•	•	•
PIN NO.	9	8	7	6	5	4	3	2	1

Contact Matrix

PINS	ROW / COLUMN
7	C1
6	C2
5	C3
3	R1

Installation

1. Prepare host panel and connection cable(s).
   For keypad use Molex 2695 Connector 5 way (PN22-01-2051) or 9 way (PN 22-01-2091).
   For LCD use PN 22-01-2161.
2. Fit the supplied gasket over the 4 weld studs on the rear of the host panel.
3. Slide the display bezel over the studs and secure with M3 Nyloc Nuts or similar.

Specifications

Responsive menu navigation and option select keys	
Matrix Output to 0.1" square pins	**compatible with Molex KK Housing**
Overall Size	**110 mm wide x 88 mm high**
Optional backlit 4 line x 20 character LCD fitted with a single row of 16 0.1" square pins LCD Operating Voltage +5V to +9V (see note *)	**Powertips PC2004-A–LRU-H**
Panel Mount Gasket included	
Responsive key action	**travel 1.5 mm (nominal) force 130 gm (nominal)**
Panel Cutout	**96 mm x 81 mm**
Operating Temp	**-20°C to +60°C**
Switch Rating	**24 V dc (Max), 50 mA (Max)**
Contact Resistance	**100 Ohms (Max)**

Ordering Details [x] denotes packaging variant

Item	Stock No.
Display Bezel 3 Key	5001-20010[x]
Display Bezel 3 Key with 4 x 20 chararcter display	5001-20020[x]

Note*: LCD Rating – Temperature Compensation
An LCD operating voltage varies at different temperatures. The operating voltage must rise as temperature lowers or the contrast will degrade. Conversely, the operating voltage must fall as the temperature rises or the contrast will degrade. A temperature compensation circuit is required to control the input voltage as the temperature changes.

For Connection Information for LCD see:
Powertip PC 2004-A Datasheet for 4 x 20 Character LCD

c UL us
UL File reference: E230121
Designed & produced by NIK Design www.nikdesign.co.uk
500 XX 08XT Rev 4 Oct 2012
FM 39602

420 Series RS232 Encoder for Keypad Applications - Installation Instruction

Storm 420 Series Encoders allow interfacing between a Storm keypad and host system using the RS232 communications protocol. This model will also drive a 4 line x 20 character LCD display. For additional information download the 420 Encoder Application / Engineering Manual from www.storm-interface.com

SPECIFICATIONS

Input Power …….. 5V dc ± 0.25 V , regulated supply
RS232 Output ……. (via 6 pin Molex 2.54mm (.100") Pitch KK®)

Overall Size W 89mm x L 66mm x H 32mm
Mounting Centres at 73.5mm x 43.2mm

Drives Powertips 80 Character LCD Display
(uses Hitachi HD44780U LCD-II Controller/Driver)

Direct connection for underpanel fixing ……. 12, 16, 20 way Storm Keypads
Ribbon Cable needed for top panel fixing 4, 12 ,16 way Storm Keypads

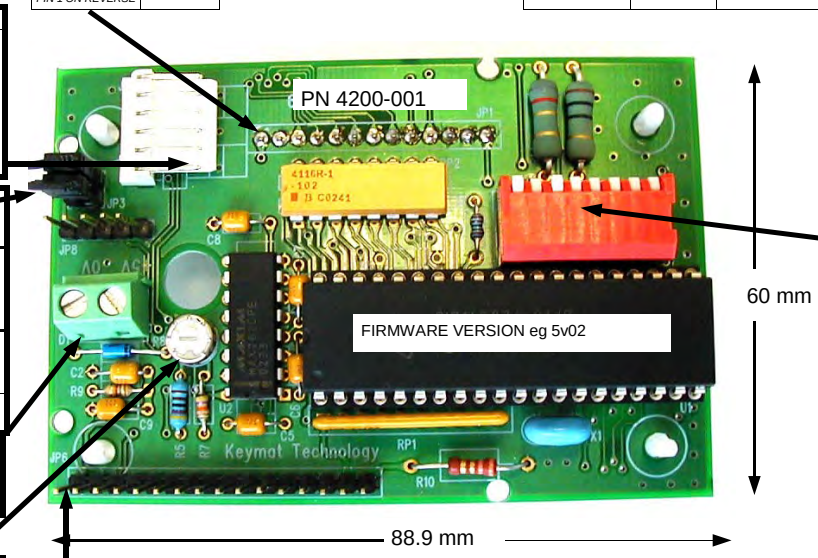
Display Controls :
On host system : Ctrl + L - clears the display, Ctrl + C toggles cursor on and off

Keypad Connector (on reverse of pcb)	✓ = pin connection made												**Direct connection to rear of keypad ?**
KEYPAD TYPE													
20 WAY BACKLIT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	**YES**
20 WAY NOT BACKLIT	Fit polarising pin	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Fit polarising pin	**YES**
12 / 16 WAY BACKLIT	Fit polarising pin	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Fit polarising pins		**YES** —fit polarising pins to positions 1,12 and 13
12 / 16 WAY NOT BACKLIT	Fit polarising pins		✓	✓	✓	✓	✓	✓	✓	✓	Fit polarising pins			**YES**
4 WAY BACKLIT	Fit polarising pin	✓	Fit polarising pin	✓	✓	✓	✓			✓	✓	Fit polarising pin	✓	**NO** —separate cable required - See Note 1 below STD version needs 5 way cable BACKLIT version needs 7 way cable Fit polarising pins as required
4 WAY NOT BACKLIT	Fit polarising pins			✓	✓	✓	✓			✓	Fit polarising pins			

	Encoder Pin	1	2	3	4	5	6	7	8	9	10	11	12	13
R = ROW, C = COLUMN	**To Keypad**	LED CATHODE	TAMPER IN	R1	R2	C1	C2	C3	C4	R4	R3	R5 FUNCTION KEYS	TAMPER OUT	LED ANODE
		PIN 1 ON REVERSE												

NOTE 1—Connections for 4 way keypads

ENCODER PIN	TO KEYPAD PIN	STD	BACKLIT
2		NC	1
11		1	2
5		5	6
6		4	5
7		3	4
8		2	3
13		NC	7



LCD Display Connector, *16 pins, 0.1" square pins*

Pin	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Symbol	Vss	Vdd	Vo	RS	R/W	E	DB0	DB1	DB2	DB3	DB4	DB5	DB6	DB7	A	K

ORDERING DETAILS

Stock No	**Item**
4200-00[X]	*RS232 Encoder*

[X] denotes packaging variant

free downloads from www.storm-interface.com :-

420 Encoder Application/Engineering Manual
Test Software

Whilst every effort is made to ensure details are correct at time of print, specifications are subject to change without notice.

FM39602

www.storm-interface.com

420 Series RS232 only Encoder for Keypad Applications

Fitted to 4, 12 or 16 WAY KEYPAD

Configuration Switch Settings	1	2	3	4	5	6	7	8
4 Way Keypads	ON	CHARACTER ECHOING SELECTOR	OFF	ON	ON	ON	OFF	BAUD RATE SELECTOR
12 and 16 Way Telephone Layout Keypads	ON		OFF	OFF	OFF	OFF	ON	
12 and 16 Way Calculator Layout Keypads	ON	ON = ECHO ON	OFF	ON	OFF	OFF	ON	OFF=9600 BAUD
		OFF = ECHO OFF						ON=1200 BAUD

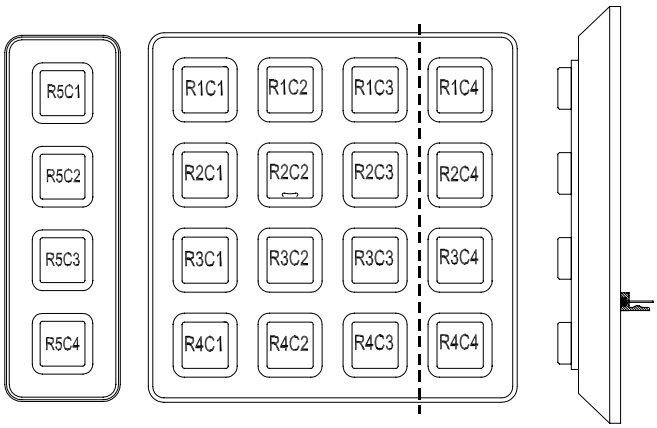
Installation Checklist

- ✓Keypad
- ✓Encoder , configuration switch set
- ✓Panel Fixing prepared
- ✓+5V regulated supply
- ✓RS 232 cable with 6 way Molex socket
- ✓Ribbon cable keypad to encoder if needed
- ✓LCD and 16 way ribbon cable if needed
- ✓Polarising pins fitted to encoder

ROW / COLUMN DESIGNATIONS (KEYPADS FRONT VIEW)

For Example R1C2 = Row 1 Column 2. NB : A 20 way keypad is treated as 4 way + 16 way.

4 Way Front View | 12 / 16 Way Front View | Side View



PIN-OUT FOR 4, 12 and 16 WAY MATRIX KEYPADS

4 WAY KEYPAD (NO BACKLIGHT) CONTACT CONNECTIONS (REAR VIEW)

PINS	• • • • •
PIN NUMBER	5 4 3 2 1

CONTACT MATRIX

PIN	ROW / COLUMN
1	R5
2	C4
3	C3
4	C2
5	C1

4 WAY BACKLIT KEYPAD CONTACT CONNECTIONS (REAR VIEW)

PINS	• • • • • • • •
PIN NUMBER	7 6 5 4 3 2 1

CONTACT MATRIX

PIN	ROW / COLUMN
1	LED POWER
2	R5
3	C4
4	C3
5	C2
6	C1
7	LED POWER

12 / 16 WAY KEYPAD (NO BACKLIGHT) CONTACT CONNECTIONS (REAR VIEW)

PINS	• • • • • • • •
PIN NUMBER	8 7 6 5 4 3 2 1

CONTACT MATRIX (NO BACKLIGHT)

PIN	ROW / COLUMN
1	R1
2	R2
3	C1
4	C2
5	C3
6	C4 (16 WAY ONLY)
7	R4
8	R3

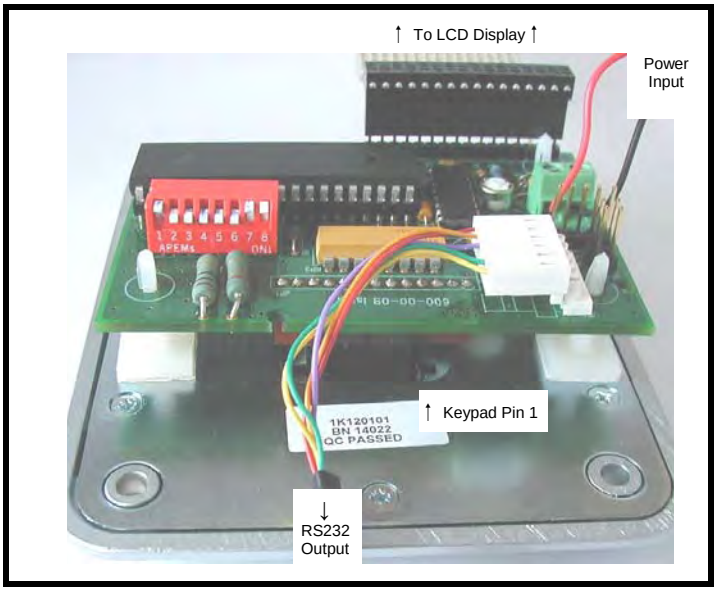
12 / 16 WAY BACKLIT KEYPAD CONTACT CONNECTIONS (REAR VIEW)

PINS	• • • • • • • • • •
PIN NUMBER	10 9 8 7 6 5 4 3 2 1

CONTACT MATRIX (WITH BACKLIGHT)

PIN	ROW / COLUMN
1	LED POWER
2	R1
3	R2
4	C1
5	C2
6	C3
7	C4 (16 WAY ONLY)
8	R4
9	R3
10	LED POWER

TYPICAL INSTALLATION
(rear view, encoder direct connection to keypad, LCD display used)



ASCII CODE TABLES

4 WAY KEYPAD ASCII CODES

ROW/ COLUMN	R5
C1	11
C2	12
C3	13
C4	14

NOTE 1 : These codes are non-printing ASCII device control codes. The application software will need to assign usage

NOTE 2 : The COMMON pin on a 4 way is termed ROW 5 to be consistent with applications using 4 function keys.

12 / 16 WAY TELEPHONE KEYPAD ASCII CODES

ROW/ COLUMN	C1	C2	C3	C4
R1	31	32	33	61
R2	34	35	36	62
R3	37	38	39	63
R4	2A	30	23	2E

12 / 16 WAY CALCULATOR KEYPAD ASCII CODES

ROW/ COLUMN	C1	C2	C3	C4
R1	37	38	39	1B
R2	34	35	36	0C*
R3	31	35	33	05
R4	7F	30	0D	2E

* = Form Feed Code to give CLEAR function

420 Series RS232 only Encoder for Keypad Applications

Fitted to INTEGRATED 20 WAY KEYPAD AND DISPLAY

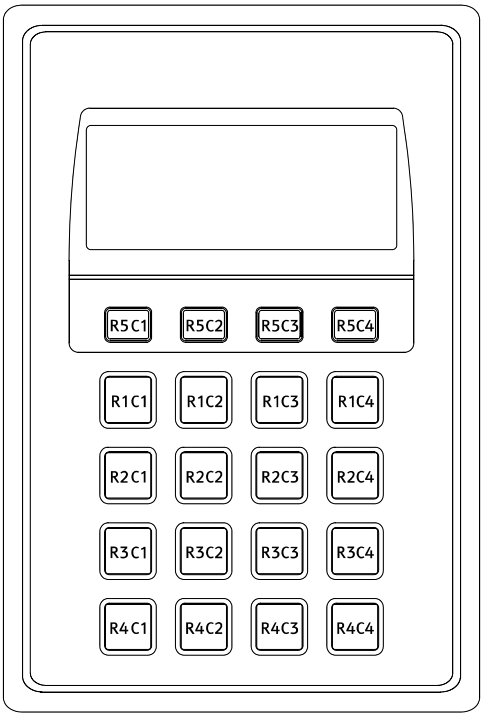
Configuration Switch Settings	1	2	3	4	5	6	7	8
Integrated 20 Way Keypad and Display - Telephone Layout	OFF	CHARACTER ECHOING SELECTOR	ON	OFF	OFF	ON	OFF	BAUD RATE SELECTOR
Integrated 20 Way Keypad and Display - Calculator Layout	OFF		ON	ON	ON	ON	OFF	
Note : Remove Jumpers from JP3 and JP4 in this configuration.		ON = ECHO ON OFF = ECHO OFF						OFF=9600 BAUD ON=1200 BAUD

Installation Checklist

- ✓Integrated 20 way Keypad
- ✓Encoder , configuration switch set
- ✓LCD and 16 way ribbon cable if needed
- ✓Panel Fixing prepared
- ✓+5V regulated supply
- ✓RS 232 cable with 6 way Molex KK socket
- ✓13 way ribbon cable keypad to encoder if needed
- ✓Polarising pins fitted to encoder

ROW / COLUMN DESIGNATIONS (KEYPAD FRONT VIEW)

For Example R1C2 = Row 1 Column 2. NB : A 20 way keypad is treated as 4 way + 16 way.



PIN-OUT FOR 20 WAY KEYPAD

20 WAY KEYPAD
CONTACT CONNECTIONS
(REAR VIEW)

PINS	• • • • • • • • • • • • •
PIN NUMBER	13 12 11 10 9 8 7 6 5 4 3 2 1

CONTACT MATRIX

PIN	ROW / COLUMN
1	NOT USED
2	TAMPER IN
3	R1
4	R2
5	C1
6	C2
7	C3
8	C4
9	R4
10	R3
11	R5
12	TAMPER OUT
13	NOT USED

ASCII CODE TABLES

Row / Column	Telephone Layout		Calculator Layout	
	Character	ASCII	Character	ASCII
R5C1	▲	11	▲	11
R5C2	▲	12	▲	12
R5C3	▲	13	▲	13
R5C4	▲	14	▲	14
R1C1	1	31	1	31
R1C2	2 ABC	32	2	32
R1C3	3 DEF	33	3	33
R1C4	A	41	ENTER	1B
R2C1	4 GHI	34	4	34
R2C2	5 JKL	35	5	35
R2C3	6 MNO	36	6	36
R2C4	B	42	CLEAR	0C
R3C1	7 PQRS	37	7	37
R3C2	8 TUV	38	8	38
R3C3	9 WXYZ	39	9	39
R3C4	C	43	?	05
R4C1	* CLR	2A	*	7F
R4C2	0	30	0	30
R4C3	# ENT	23	#	0D
.	ENTER	2E	CANCEL	2E
ANTI-TAMPER OPEN CIRCUIT		07*		07*
	* = CODE REPEATS EVERY 10 SECONDS WHILST CONDITION REMAINS ACTIVE			

420 Series RS232 only Encoder for Keypad Applications

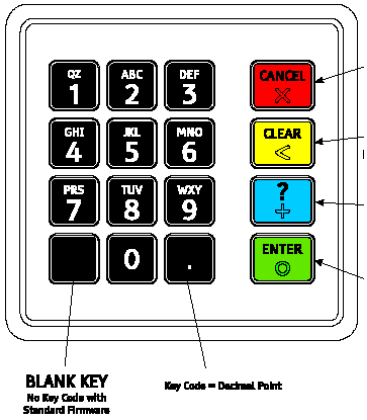
Fitted to 6000 SERIES PINPAD

Configuration Switch Settings	R3	1	2	3	4	5	6	7	8
6000 Series Pinpad - Basic Layout	fitted	OFF	CHARACTER ECHOING SELECTOR	ON	OFF	ON	OFF	OFF	BAUD RATE SELECTOR
6000 Series Pinpad - UK Layout	Remove before use	OFF		ON	OFF	ON	OFF	OFF	
6000 Series Pinpad - USA Layout	Remove before use	OFF	ON = ECHO ON	ON	ON	ON	OFF	OFF	OFF=9600 BAUD
Note : R3 may need to be removed depending on the configuration required.			OFF = ECHO OFF						ON=1200 BAUD

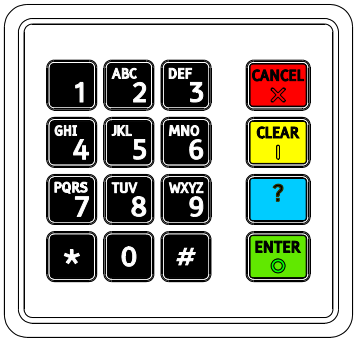
Installation Checklist

- ✓Keypad
- ✓Encoder , configuration switch set
- ✓Panel Fixing prepared
- ✓+5V regulated supply
- ✓RS 232 cable with 6 way Molex KK socket
- ✓13 way ribbon cable keypad to encoder if needed
- ✓Polarising pins fitted to encoder

BASIC LAYOUT

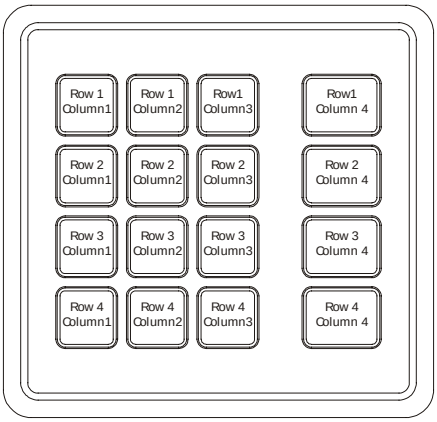


UK LAYOUT



USA LAYOUT

ROW / COLUMN DESIGNATIONS



PIN-OUT FOR 16 WAY MATRIX PINPAD

CONTACT CONNECTIONS
(REAR VIEW)

PINS • • • • • • • • • • • • •

PIN NUMBER 13 12 11 10 9 8 7 6 5 4 3 2 1

CONTACT MATRIX

PIN	ROW / COLUMN
1	NOT USED
2	TAMPER
3	R1
4	R2
5	C1
6	C2
7	C3
8	C4
9	R4
10	R3
11	NC
12	TAMPER
13	NOT USED

ASCII CODE TABLES

Row / Column	Basic Layout			UK Layout			USA Layout		
	Marking	Base Key	ASCII	Marking	Base Key	ASCII	Marking	Base Key	ASCII
R1C1	1 QZ	Black	31	1	Black	31	1 QZ	Black	31
R1C2	2 ABC	Black	32	2 ABC	Black	32	2 ABC	Black	32
R1C3	3 DEF	Black	33	3 DEF	Black	33	3 DEF	Black	33
R1C4	CANCEL	Red with raised Cross	0D	CANCEL	Red with raised Cross	0D	ENTER	Green with raised circle	1B
R2C1	4 GHI	Black	34	4 GHI	Black	34	4 GHI	Black	34
R2C2	5 JKL	Black with Homepip	35	5 JKL	Black with Homepip	35	5 JKL	Black with Homepip	35
R2C3	6 MNO	Black	36	6 MNO	Black	36	6 MNO	Black	36
R2C4	CLEAR	Yellow with raised verti-cal line	7F	CLEAR	Yellow with raised vertical line	7F	CLEAR	Yellow with raised verti-cal line	7F
R3C1	7 PRS	Black	37	7 PQRS	Black	37	7 PRS	Black	37
R3C2	8 TUV	Black	38	8 TUV	Black	38	8 TUV	Black	38
R3C3	9 WXY	Black	39	9 WXYZ	Black	39	9 WXY	Black	39
R3C4	?	Blue with raised Plus	05	?	Blue	05	?	Blue	05
R4C1		Black	No Code	*	Black	2A	*	Black	2A
R4C2	0	Black	30	0	Black	30	0	Black	30
R4C3	.	Black	2E	#	Black	23	#	Black	23
R4C4	ENTER	Green with raised circle	1B	ENTER	Green with raised circle	1B	CANCEL	Red with raised Cross	0D
ANTI-TAMPER OPEN CIRCUIT			07*			07*			07*
	*= CODE REPEATS EVERY 10 SECONDS WHILST CONDITION REMAINS ACTIVE. TO RESET—DISCONNECT POWER FOR 30 SECONDS.								

Storm Interface

Secured, sealed and toughened data entry devices

450i & 450 SERIES

USB 2.0 Keypad Encoder

This self-contained device is ready to use. It can be easily attached to the rear surface of most Storm keypads to provide connectivity and communication with USB compatible host systems. Factory configured for standard numeric data entry, this versatile device can also be user programmed to output alternative key codes; making the 450 Series Encoder the ideal keypad interface for most applications.

- Generic keyboard (HID) device – no additional drivers needed
- Factory configured to encode telephone or calculator format numeric keypads
- Output code table can be customised using the USB Configuration Utility (available for free download from www.storm-interface.com)
- 450i version includes an integrated power supply and provides colour and brightness control for keypad illumination (where fitted)
- 450i version features a piezo sounder for optional key press confirmation or status signal
- Simple connection via a USB Mini-B socket
- Compact, self contained form factor

Compatible with most Storm 4, 12 and 16 key format keypads (including Storm 700, 720,1000, 2000, 3000, GFX and PLX product series)

Features

- Direct connection to keypad via integral 0.1" pitch, square pin, female connector (included)
- Connection to host system via cable fitted with USB Mini-B male connector (supplied separately)
- Integral cable tie anchor points to secure USB cable

Compliance *(designed to meet)*

- EU RoHS
- EU Low Voltage Directive
- EMC: Emissions and Immunity: FCC part 15 class A
- EN55022, EN55024
- ESD: Up to +/- 15kV air discharge, +/- 7.5kV contact discharge
- WEEE Directive compliant

Performance

Operational temperature	**-20°C to +60°C**
Storage temperature	**-20°C to +70°C**
Humidity	**10% to 90% non-condensing**
Vibration and shock	**ETSI 300 019 5M3**
Insulation resistance	**50Mohms (min)**
Breakdown voltage	**500V a.c. (60 secs)**
Operating voltage	**5V +/- 5% (USB)**
Operating current	**20mA (excluding keypad illumination current)**

Encoder Part No.s

450i **4500-10**
450 **4500-00**

Accessories Part No.s

• USB cable fitted with 90° angled Mini-B male connector (to encoder) and USB-A male connector (to host system).	**4500-01**
• Optional encoder configuration software (free download)	**4500-SW01**

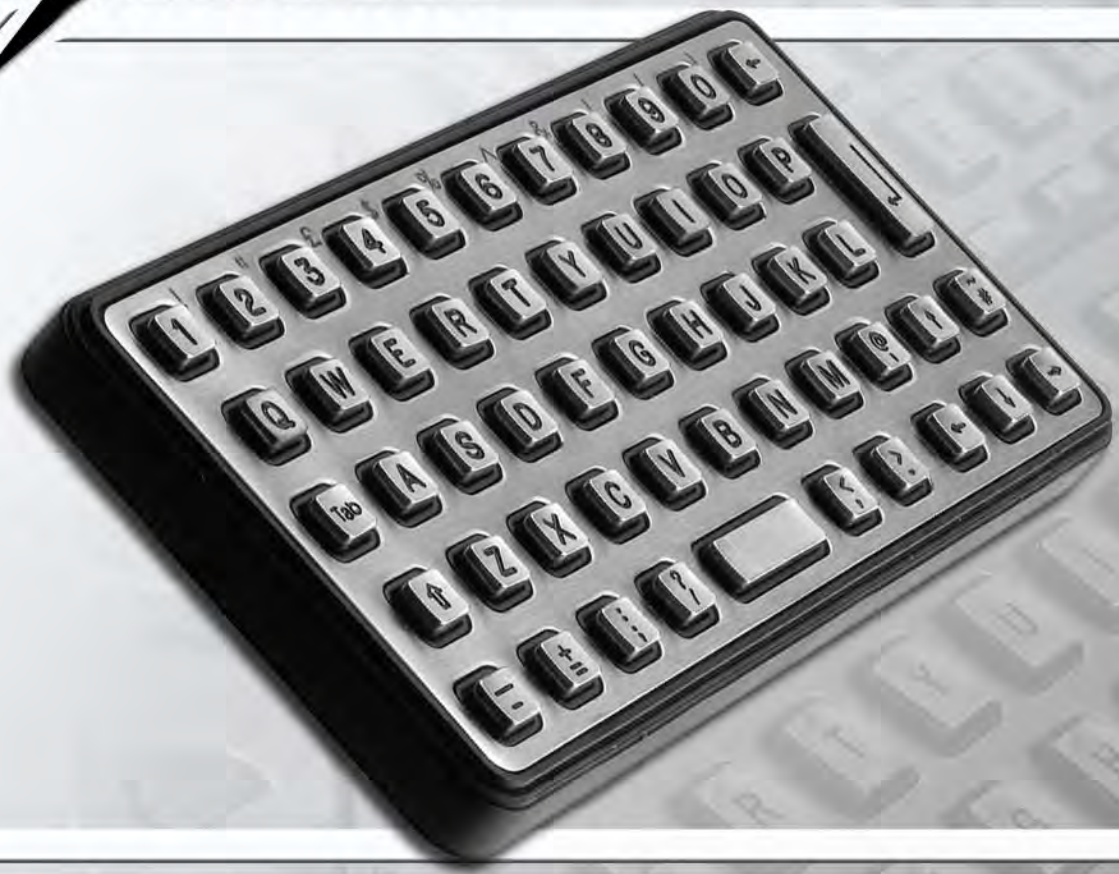
For more information & to order:

www.storm-interface.com

450i August 2013

FM 39602

Storm 1200 Series Keyboard



Miniature Keyboard for harsh outdoor environments

- Vandal resistant (20J BS EN 60068-2-75: 1997)
- Weather resistant (IP65)
- Integral PS2/USB Interface (switchable)
- Optional PC connection cables (sold separately)
- Optional fixing kit for under panel installation (sold separately)
- Compact format: 175 mm x 85 mm x 21 mm
- 53 engraved metal keys
- RFI / EMI Protection in accordance with European and U.S. directives
- Operational life of more than 4 million cycles per key
- Resistant to most commonly used cleaning agents

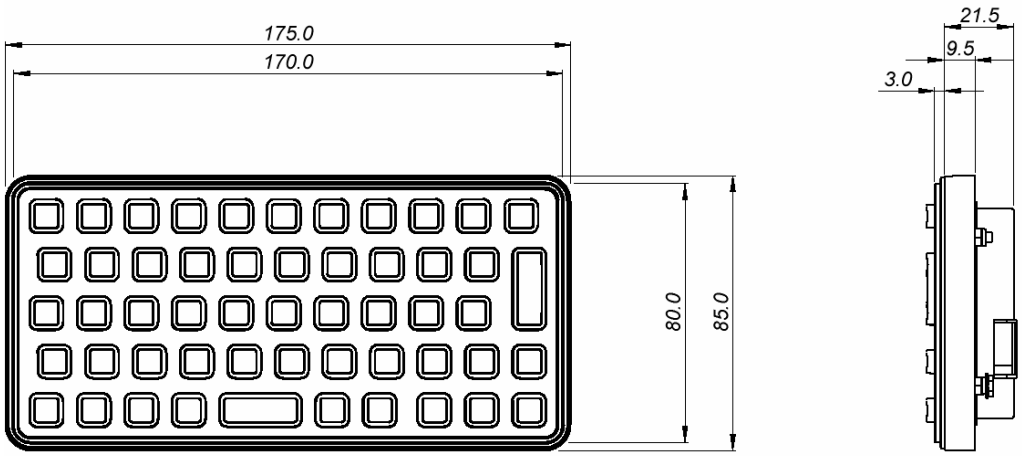
UK Email: sales@storm-interface.com Tel: +44 (0)1895 431421
US Email: sales.usa@storm-keypads.com Tel: +1 (630) 472-5360

www.storm-interface.com

1200 SERIES SUB-MINIATURE KEYBOARD

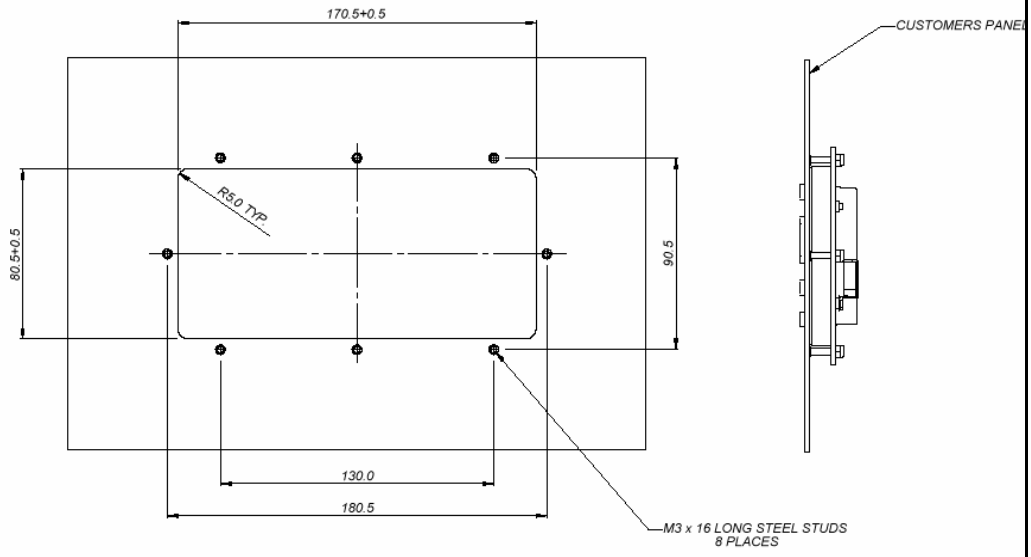
The Storm 1200 Series Keyboard has been developed for use in a new generation of web enabled public telephones and transaction terminals, this small but highly responsive keyboard is suitable for use in exposed or hostile environments. It's robust construction is highly resistant to hard use, abuse and vandalism. It is sealed against water and dust to ensure responsive and reliable data entry in the most demanding situations. The keyboard's front panel and keytop characters can be customised to compliment the colour scheme, design and function of almost any host equipment.
The unit is supplied either with encoding electronics PS2 or USB Interface, or as a matrix keypad. User options for cables and mounting hardware are available separately. Contact your Storm distributor for the product code for the option you require. For further product information refer to the Application Engineering Guide

OVERALL DIMENSIONS



MOUNTING DETAILS

For effective resistance to vandalism, abuse and rough use the STORM 1200 is installed from the underside of a panel, with the operational face of the keyboard accessible through a rectangular aperture in the panel



INSTALLATION

(Note : Keyboards with no encoder require the corresponding female molex connector. See Application / Engineering Guide for pin out details)

Required parts :-
Keyboard Cable
Mounting Kit 2mm panel with studs

Fit the cable, and then make the connection to ground securing the eyelet to the stud provided. On USB selectable versions ensure the switches are set to the option you require.

ENCODER SWITCH SETTINGS			
SW1	**SW2**	**SW3**	**MODE**
OFF	OFF	OFF	**PC/AT**
ON	OFF	ON	**USB**

Offer the keyboard up to the rear of the panel. Thread the cable through the centre of the retaining plate. Locate the retaining plate over the studs on customers panel. Fit M3 nuts over the studs and tighten down. Fit cable retaining pad and clip cable inside.

Note the Storm Part number, serial number and firmware version for your build records.

ACCESSORIES FOR USE WITH STORM 1200 SERIES

Stock No	Item
1200-001001	2.5m Cable - Minidin
1200-002001	2.5m Cable - USB B
1200-MK0001	Mounting Kit

Whilst every effort is made to ensure details are correct at time of print, specifications are subject to change without notice.

FM 39602

www.storm-interface.com

Storm 2210 Series keyboards

Compact format, vandal resistant keyboards for exposed public environments

- Vandal resistant (20J BS EN 60068-2-75: 1997)
- Weather resistant (IP65)
- Integral PS2/USB Interface (switchable)
- Optional PC connection cables (sold separately)
- Optional fixing kit for under panel installation (sold separately) or adapter kit for benchtop use (also sold separately)
- RFI / EMI Protection in accordance with current European and U.S. directives
- Operational life of more than 4 million cycles per key
- Resistant to most commonly used cleaning agents
- 61 keys
- Compact format: 289.5 mm x 118.5 mm x 32.8 mm

Tel 02.33.61.16.26 - Fax 02.26.26.10.60
ELITALIA
WWW.ELITALIAWEB.IT - INFO@ELITALIAWEB.IT

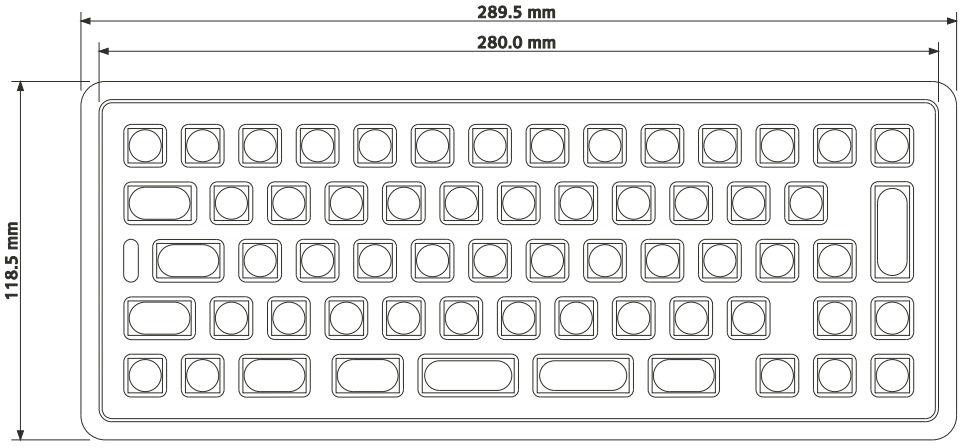
www.storm-interface.com

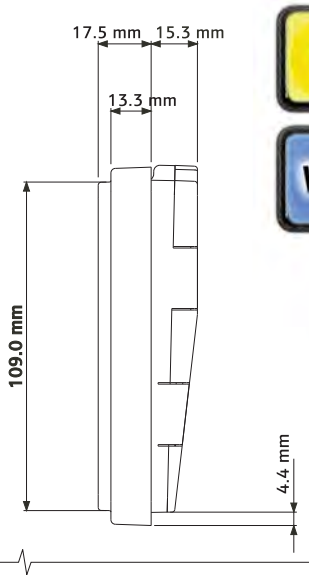
Storm

2210 Series keyboards for public environments

STORM 2210 keyboards are constructed to survive in exposed, unsupervised, public environments. Their responsive key action ensures rapid, reliable and responsive data entry in tough, wet or hostile conditions. A hardened stainless steel front plate and captive, cast metal or high impact polymer keys ensure the keyboard's resistance to hard use, abuse and vandalism.

Overall Dimensions

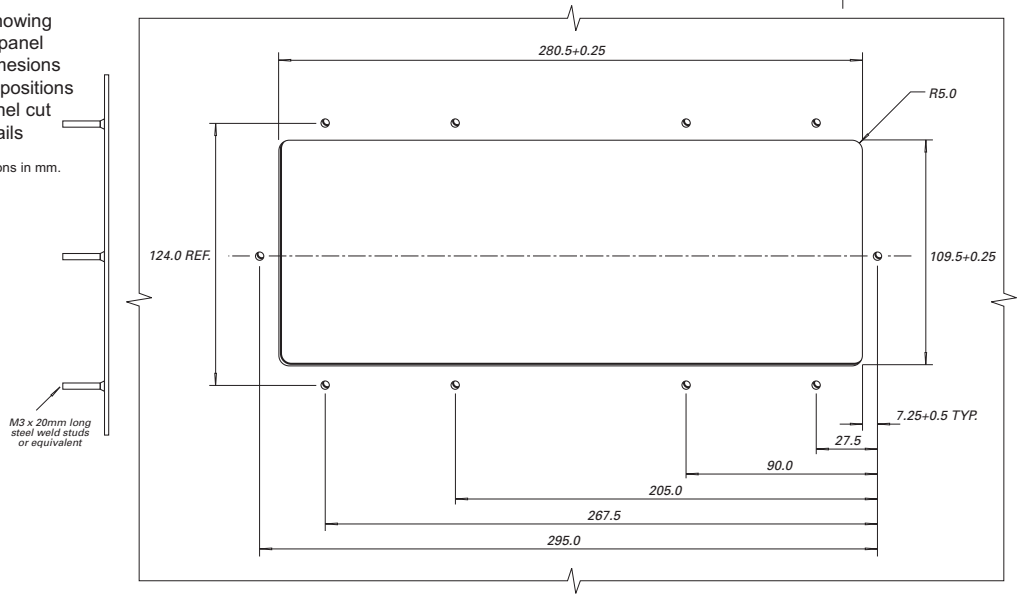




Keyboard Weight:	
with cast metal keytops	**1.71 kg**
with polymer keytops	**1.05 kg**
Underpanel cut out aperture	**280.5 x 109.5mm (11.0 x 4.3 in.)**
Max panel thickness	**2mm**

View showing rear of panel with dimesions of stud positions and panel cut out details

All dimesions in mm.



Options

Build Style	**Vandal resistant (stainless steel top plate)**
Keytops	**Cast metal keytops, chrome plated**
	Black keytops, laser marked white
Encoder	**PS2/USB selectable**
Languages	**English UK, English USA, French, Spanish, German**

Electrical

EMC Emissions	**EN55022 : 1998 Class B Limit**
EMC Immunity to ESD	**EN55024 : 1998**
EMC Immunity to Radiated Fields	**EN55024 : 1998**
Electrical Safety	**EN60950, UL60950**
Communication	**Industry Standard PS2 or USB Interface**
Supply requirements – voltage	**+5V nominal (5.5V to 4.75V)**
Supply requirements – current	**60mA (with 2 LEDs illuminated)**

Environmental

Sealing – Water / Particulates	**EN60529 (sealing to IP65)**
Temperature	**-20°C to +60°C operating (dry)**

Mechanical

Impact Resistance	**20 Joules vie 50mm dia steel striker**
Key Pitch	**19mm**
Size	**11mm square**
Travel	**1.5mm nominal**
Actuation Force	**130g nominal**

Accessories

Description	Stock Code
2200 Underpanel Fixing Kit – contains clips	2210-MK000[x]
2200 Foot Kit – required for benchtop use	2200-FK000[x]
Keyboard PS2 Cable – straight 2.5m long	1200-00100[x]
Keyboard USB Cable – straight 2.5m long	1200-00200[x]

Whilst every effort is made to ensure details are correct at time of print, specifications are subject to change without notice.

UL File reference: E230121

Designed & produced by **NIK Design** www.nikdesign.co.uk

2210-LIT-01 Rev 3 Nov 2008

FM 39602

Storm 2210-T/B Series Keyboards

Compact format, vandal resistant keyboards with integrated trackball

- Vandal resistant (20J BS EN 60068-2-75: 1997)
- Weather resistant (IP65)
- Integral PS2/USB Interface (switchable)
- Optional PC connection cables (sold separately)
- Optional fixing kit for under panel installation (sold separately) or adapter kit for benchtop use (also sold separately)
- RFI / EMI Protection in accordance with current European and U.S. directives
- Operational life of more than 4 million cycles per key
- Resistant to most commonly used cleaning agents
- Integral 38mm PS2 / USB compatible trackball with left & right click keys
- 63 keys
- Compact format: 360.0 mm x 118.5 mm x 38.5 mm

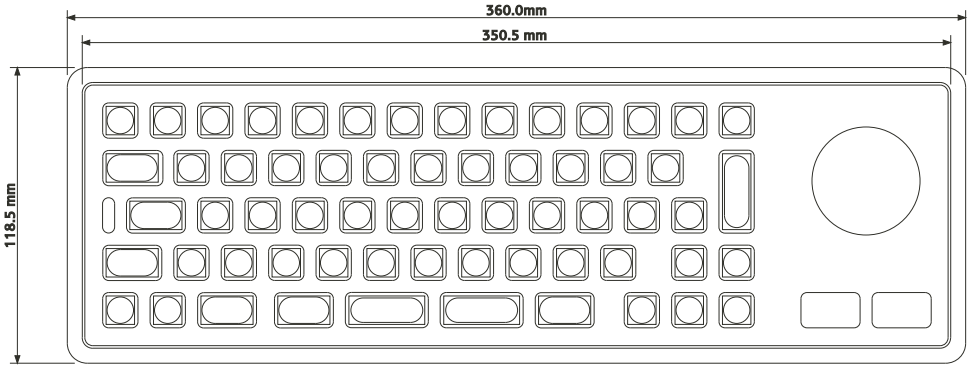
www.storm-interface.com

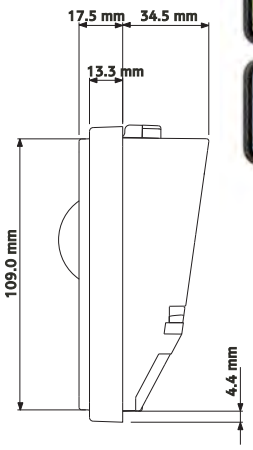
Storm

2210-T/B Series keyboards for public environments

STORM 2210-T/B keyboards are constructed to survive in exposed, unsupervised, public environments. Their responsive key action ensures rapid, reliable and responsive data entry in tough, wet or hostile conditions. A hardened stainless steel front plate and captive, cast metal or high impact polymer keys ensure the keyboard's resistance to hard use, abuse and vandalism. A water and impact resistant trackball makes this keyboard the complete and ideal solution for PC data entry in menu based 'point & click' application.

Overall Dimensions

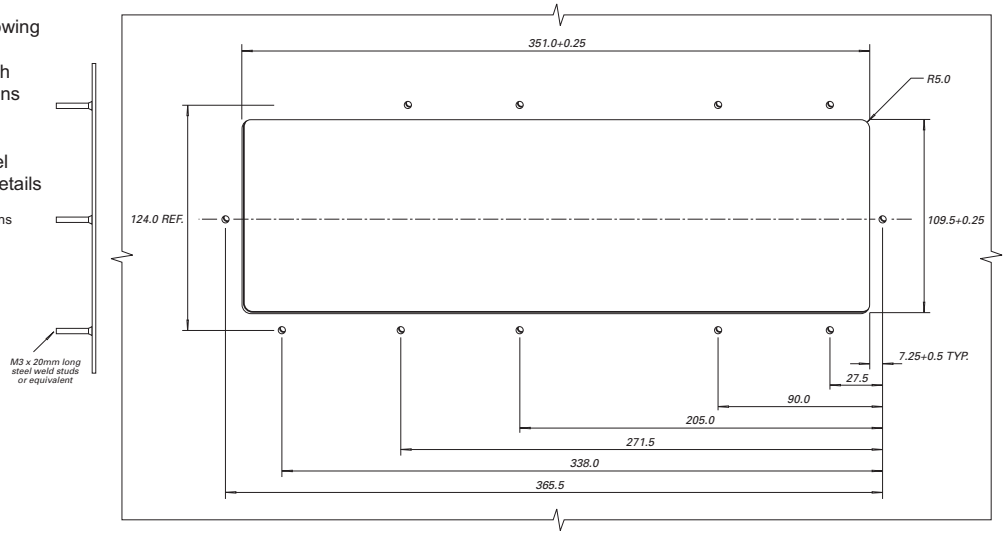




Keyboard Weight:	
with cast metal keytops/trackball	**2.20 kg**
with polymer keytops/trackball	**1.80 kg**
Underpanel cut out aperture	**351.0 x 109.5 mm (11.0 x 4.3 in.)**
Max panel thickness	**2mm**

View showing rear of panel with dimensions of stud positions and panel cut out details

All dimensions in mm.



Options

Build Style	**Vandal resistant (stainless steel top plate)**
Keytops	**Cast metal keytops, chrome plated**
	Black keytops, laser marked white
Encoder	**PS2/USB selectable**
Languages	**English UK, English USA, French, Spanish, German**

Electrical

EMC Emissions	**EN55022 : 1998 Class B Limit**
EMC Immunity to ESD	**EN55024 : 1998**
EMC Immunity to Radiated Fields	**EN55024 : 1998**
Electrical Safety	**EN60950, UL60950**
Communication	**Industry Standard PS2 or USB Interface**
Supply requirements – voltage	**+5V nominal (5.5V to 4.75V)**
Supply requirements – current	**60mA (with 2 LEDs illuminated)**

Environmental

Sealing – Water / Particulates	**EN60529 (sealing to IP65)**
Trackball sealing	**IP65 stationary (IP54 rotating)**
Temperature	**-20°C to +60°C operating (dry)**

Mechanical

Impact Resistance	**20 Joules via 50mm dia steel striker**
Key Pitch	**19mm**
Size	**11mm square**
Travel	**1.5mm nominal**
Actuation Force	**130g nominal**

Accessories

Description	Stock Code
2200 Underpanel Fixing Kit – contains clips	2210-MK000[x]
2200 Foot Kit – required for benchtop use	2200-FK000[x]
Keyboard PS2 Cable – straight 2.5m long	1200-00100[x]
Keyboard USB Cable – straight 2.5m long	1200-00200[x]
Trackball PS2 Cable – straight 2.5m long	2200-00200[x]
Trackball USB Cable – straight 2.5m long	2200-00300[x]

Whilst every effort is made to ensure details are correct at time of print, specifications are subject to change without notice.

UL File reference: E230121

Designed & produced by **NIK Design** www.nikdesign.co.uk

2210-T/B-LIT-01 Rev 4 Nov 2008

FM 39602

Robust Keyboards

2210-T/B Series

Compact format, robust keyboard with integrated trackball

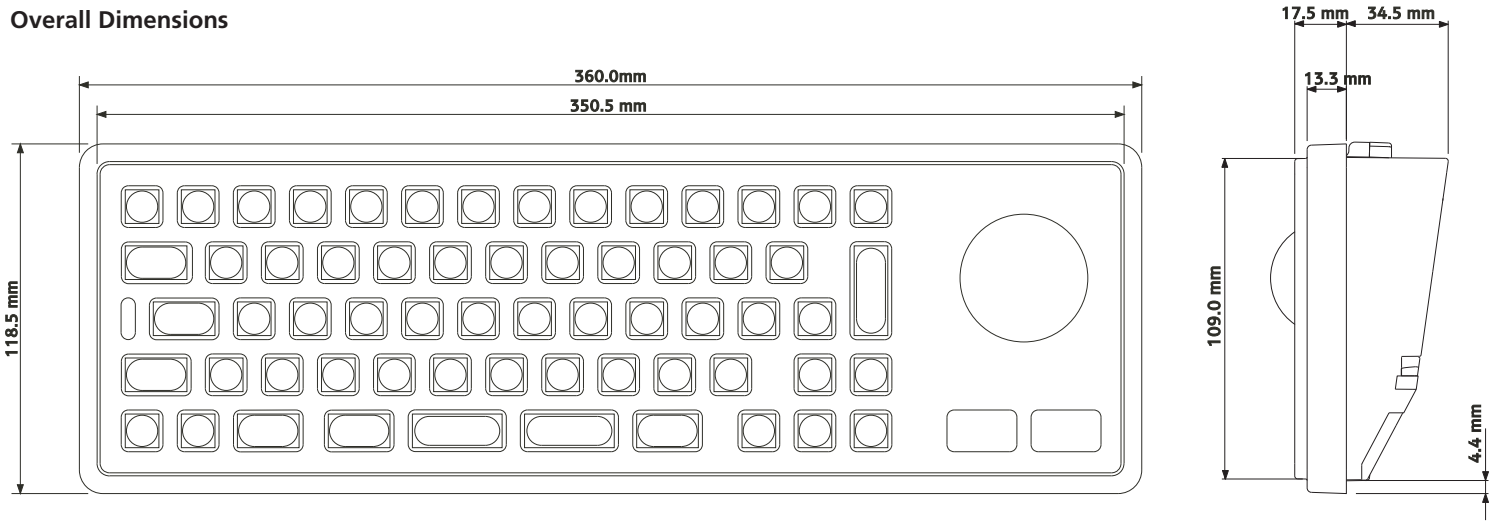
- Vandal resistant (10J BS EN 60068-2-75: 1997)
- Weather resistant (IP54)
- With factory fitted 2.5m USB cable
- Optional fixing kit for under panel installation or adapter kit for benchtop use (both sold separately)
- RFI/EMI Protection in accordance with current European and US directives
- Operational life of more than 4 million cycles per key
- Resistant to most commonly used cleaning agents
- Integral 38mm trackball with left & right click keys
- 63 keys
- Compact format: 360mm x 118.5mm x 438.5mm

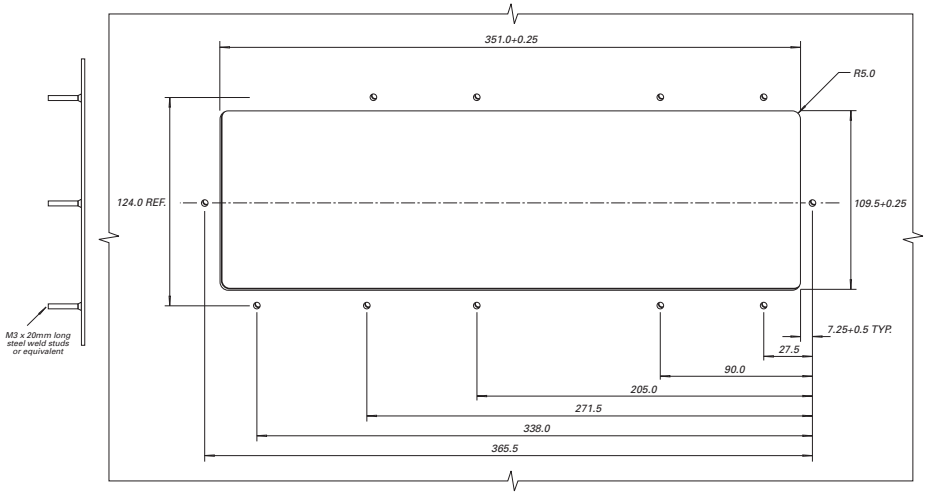
www.storm-interface.com

2210-T/B Robust Keyboard for Industrial & Public Environments

Robust, high contrast keyboard for use in public access and industrial installations. This responsive and reliable keyboard was developed specifically for use in unsupervised or semi-supervised environments where hardware may be subject to hard use or abuse. The 2210 Robust keyboard was designed to provide maximum systems accessibility to those with sensory or mobility impairments. Ideal for use in kiosk and retail applications.

Overall Dimensions





View showing rear of panel with dimensions of stud positions and panel cut out details

All dimensions in mm.

Specifications

Keyboard Weight	
with polymer keytops/trackball	**1.80kg**
Underpanel cut-out aperture	**11.0 x 4.3in. (351.00 x 109.50mm)**
Max panel thickness	**(2mm)**

Options

Build Style	**Robust (black polymer top plate)**
Keytops	**White keytops, laser marked black**
Encoder	**USB**
Languages	**English UK, English USA, French, Spanish, German**
Cable	**Factory Fitted 2.5m USB**

Electrical

EMC Emissions	**EN55022 : 1998 Class B Limit**
EMC Immunity to ESD	**EN55024 : 1998**
EMC Immunity to Radiated Fields	**EN55024 : 1998**
Electrical Safety	**EN60950, UL60950**
Communication	**Industry Standard USB Interface**
Supply requirements – voltage	**+5V nominal (5.5V to 4.75V)**
Supply requirements – current	**60mA (with 2 LEDs illuminated)**

Environmental

Sealing – Water / Particulates	**EN60529 (sealing to IP54)**
Trackball sealing	**IP54 stationary (IP54 rotating)**
Temperature	**-20°C to +60°C operating (dry)**

Mechanical

Impact Resistance	**10 Joules via 50mm dia steel striker**
Key Pitch	**19mm**
Size	**11mm square**
Travel	**1.5mm nominal**
Actuation Force	**100g nominal**

Accessories

	Stock Code
2200 Underpanel Fixing Kit contains clips	**2210-MK000[x]**
2200 Foot Kit required for benchtop use	**220-FK000[x]**

www.storm-interface.com

Designed & produced by **NIK Design** nik@nikdesign.co.uk

Whilst every effort is made to ensure details are correct at time of print, specifications are subject to change without notice.

UL File reference: E230121

2210-TB-Robust-LIT-01 Rev 1 Mar 2011

FM 39602

Storm 2220 Series Keyboards

Compact format, vandal resistant keyboards, with F1-F12 function keys, for use in exposed public environments

- Vandal resistant (20J BS EN 60068-2-75: 1997)
- Weather resistant (IP65)
- Integral PS2/USB Interface (switchable)
- Optional PC connection cables (sold separately)
- Optional fixing kit for under panel installation (sold separately) or adapter kit for benchtop use (also sold separately)
- RFI / EMI Protection in accordance with current European and U.S. directives
- Operational life of more than 4 million cycles per key
- Resistant to most commonly used cleaning agents
- 75 keys
- Compact format: 289.5 mm x 137.5 mm x 32.8 mm

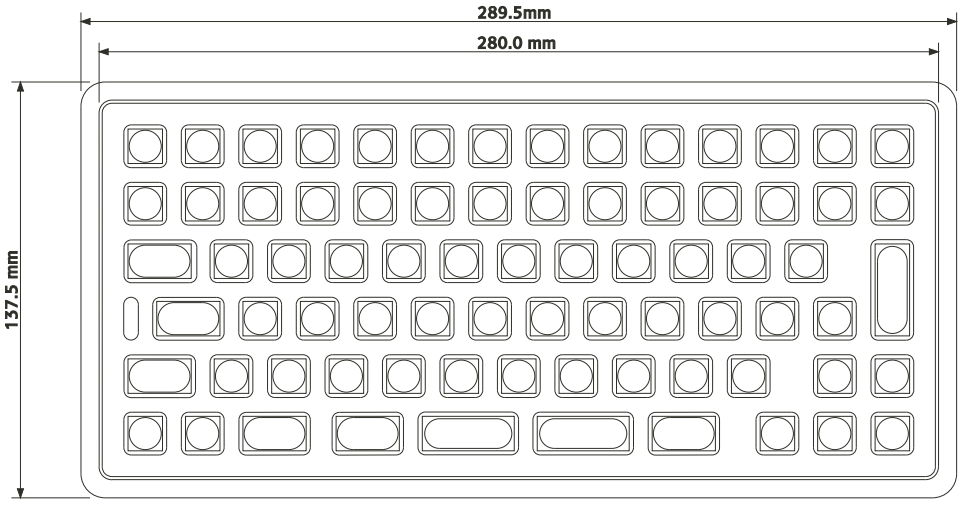
www.storm-interface.com

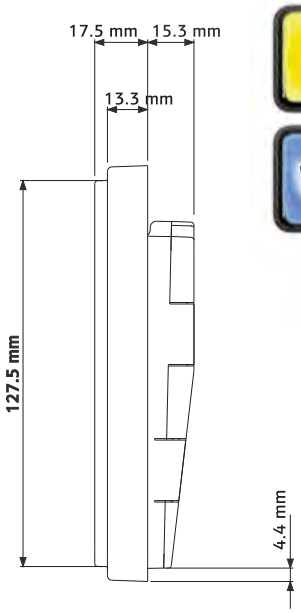
Storm

2220 Series keyboards for public environments

STORM 2220 keyboards are constructed to survive in exposed, unsupervised, public environments. Their responsive key action ensures rapid, reliable and responsive data entry in tough, wet or hostile conditions. A hardened stainless steel front plate and high impact polymer keys ensure the keyboard's resistance to hard use, abuse and vandalism.

Overall Dimensions

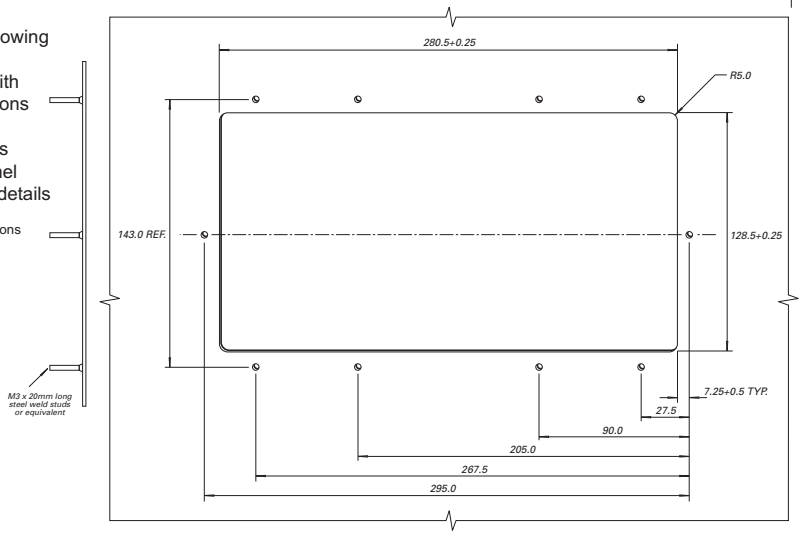




Keyboard Weight:	
with polymer keytops	**1.70 kg**
Underpanel cut out aperture	**280.5 x 128.5mm (11.0 x 5.06 in.)**
Max panel thickness	**2mm**

View showing rear of panel with dimensions of stud positions and panel cut out details

All dimensions in mm.



Options

Build Style	**Vandal resistant (stainless steel top plate)**
Keytops	**Black keytops, laser marked white**
Encoder	**PS2/USB selectable**
Languages	**English UK, English USA, French, Spanish, German**

Electrical

EMC Emissions	**EN55022 : 1998 Class B Limit**
EMC Immunity to ESD	**EN55024 : 1998**
EMC Immunity to Radiated Fields	**EN55024 : 1998**
Electrical Safety	**EN60950, UL60950**
Communication	**Industry Standard PS2 or USB Interface**
Supply requirements – voltage	**+5V nominal (5.5V to 4.75V)**
Supply requirements – current	**60mA (with 2 LEDs illuminated)**

Environmental

Sealing – Water / Particulates	**EN60529 (sealing to IP65)**
Temperature	**-20°C to +60°C operating (dry)**

Mechanical

Impact Resistance	**20 Joules via 50mm dia steel striker**
Key Pitch	**19mm**
Size	**11mm square**
Travel	**1.5mm nominal**
Actuation Force	**130g nominal**

Accessories

Description	Stock Code
2200 Underpanel Fixing Kit – contains clips	2210-MK000[x]
2200 Foot Kit – required for benchtop use	2200-FK000[x]
Keyboard PS2 Cable – straight 2.5m long	1200-00100[x]
Keyboard USB Cable – straight 2.5m long	1200-00200[x]

Whilst every effort is made to ensure details are correct at time of print, specifications are subject to change without notice.

UL File reference: E230121

Designed & produced by **NIK Design** www.nikdesign.co.uk

2220-LIT-01 Rev 4
Nov 2008

FM 39602

Storm 2230 Series Keyboards

Fully featured, vandal resistant keyboards with numeric/arithmetic function keypad

- *Vandal resistant (20J BS EN 60068-2-75: 1997)*
- *Weather resistant (IP65)*
- *Integral PS2/USB Interface (switchable)*
- *Optional PC connection cables (sold separately)*
- *Optional fixing kit for under panel installation (sold separately) or adapter kit for benchtop use (also sold separately)*
- *RFI / EMI Protection in accordance with current European and U.S. directives*
- *Operational life of more than 4 million cycles per key*
- *Resistant to most commonly used cleaning agents*
- *92 keys with non embedded numeric/arithmetic keypad*
- *Space efficient footprint: 346.5 mm x 137.5 mm x 32.8 mm*

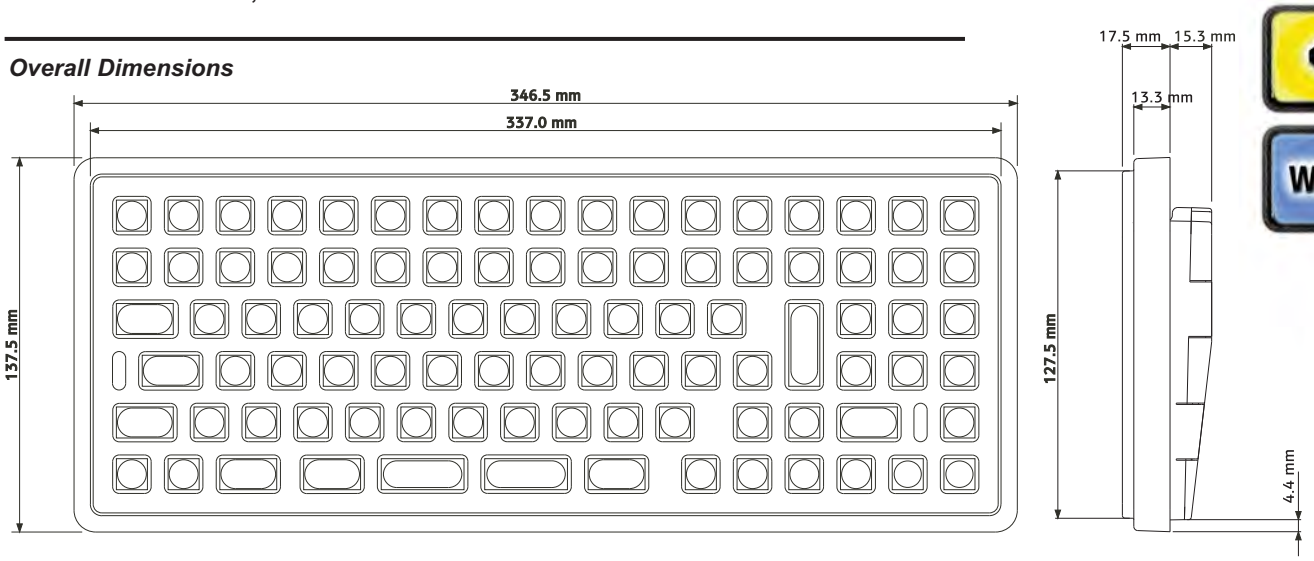
www.storm-interface.com

Storm

2230 Series keyboards for public environments

STORM 2230 keyboards are constructed to survive in exposed, unsupervised, public environments. Their responsive key action ensures rapid, reliable and responsive data entry in tough, wet or hostile conditions. A hardened stainless steel front plate and high impact polymer keys ensure the keyboard's resistance to hard use, abuse and vandalism.

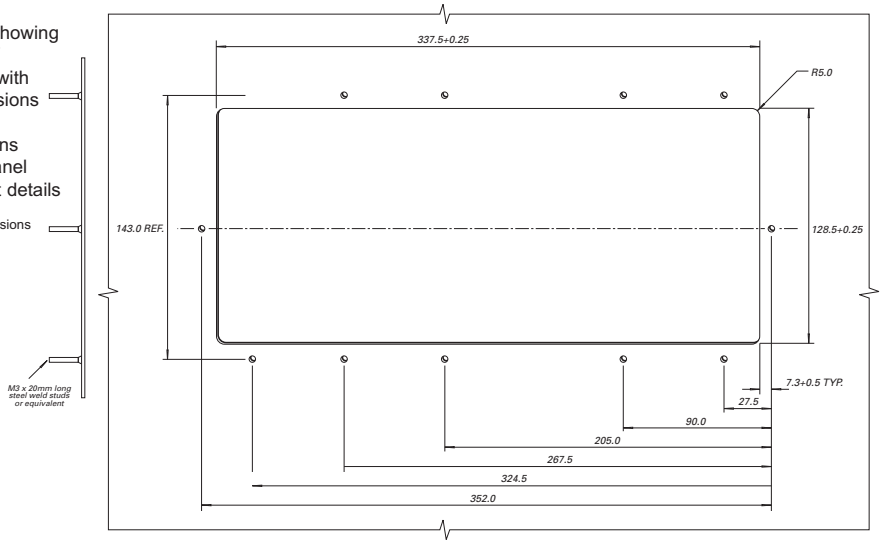
Overall Dimensions



Keyboard Weight:	
with polymer keytops	**1.80 kg**
Underpanel cut out aperture	**337.5 x 128.5mm (13.29 x 5.06 in.)**
Max panel thickness	**2mm**

View showing rear of panel with dimensions of stud positions and panel cut out details

All dimensions in mm.



Options

Build Style	**Vandal resistant (stainless steel top plate)**
Keytops	**Black keytops, laser marked white**
Encoder	**PS2/USB selectable**
Languages	**English UK, English USA, French, Spanish, German**

Electrical

EMC Emissions	**EN55022 : 1998 Class B Limit**
EMC Immunity to ESD	**EN55024 : 1998**
EMC Immunity to Radiated Fields	**EN55024 : 1998**
Electrical Safety	**EN60950, UL60950**
Communication	**Industry Standard PS2 or USB Interface**
Supply requirements – voltage	**+5V nominal (5.5V to 4.75V)**
Supply requirements – current	**60mA (with 2 LEDs illuminated)**

Environmental

Sealing – Water / Particulates	**EN60529 (sealing to IP65)**
Temperature	**-20°C to +60°C operating (dry)**

Mechanical

Impact Resistance	**20 Joules via 50mm dia steel striker**
Key Pitch	**19mm**
Size	**11mm square**
Travel	**1.5mm nominal**
Actuation Force	**130g nominal**

Accessories

Description	Stock Code
2200 Underpanel Fixing Kit – contains clips	2210-MK000[x]
2200 Foot Kit – required for benchtop use	2200-FK000[x]
Keyboard PS2 Cable – straight 2.5m long	1200-00100[x]
Keyboard USB Cable – straight 2.5m long	1200-00200[x]

Whilst every effort is made to ensure details are correct at time of print, specifications are subject to change without notice.

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UL File reference: E230121

CE

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UKAS QUALITY MANAGEMENT 003

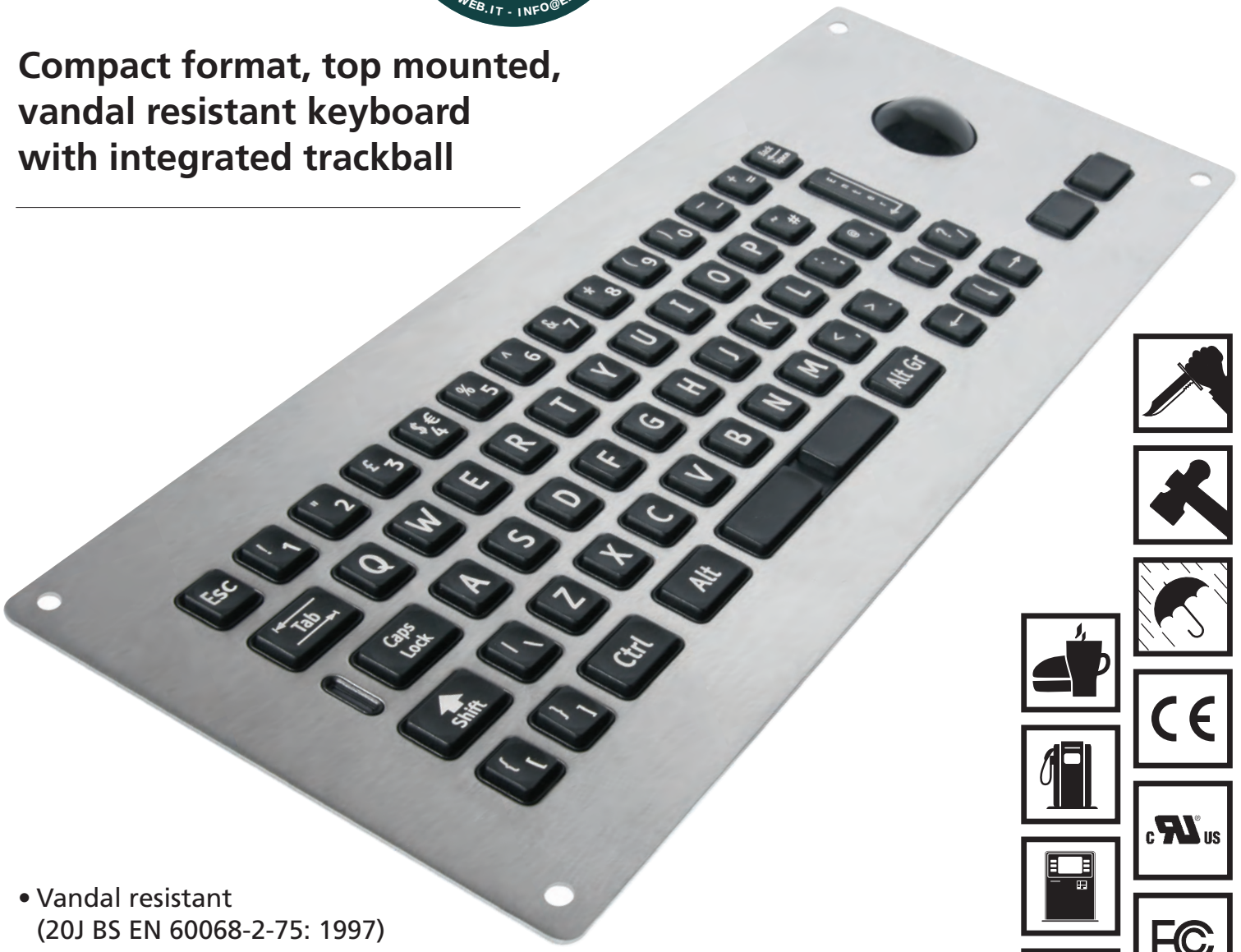
Designed & produced by **NIK Design** www.nikdesign.co.uk

2230-LIT-01 Rev 4 Nov 2008

Top Mounting Keyboards

2212-T/B Series

Compact format, top mounted, vandal resistant keyboard with integrated trackball



- Vandal resistant (20J BS EN 60068-2-75: 1997)
- Weather resistant (IP65)
- Suitable for fixing into work surfaces
- Operational life of more than 4 million cycles per key
- Resistant to most commonly used cleaning agents
- Integral 38mm trackball with left & right click keys
- 63 keys
- Compact format: 384mm x 142mm x 40mm

www.storm-interface.com

2212-T/B Top Mounting Keyboard for Public Environments

The Storm 2212-T/B Series keyboard is configured to allow convenient top mounting installation into a work surface or desktop. Using simple hand tools (jig saw and hand drill) the work surface can be easily prepared to accept this robust, responsive and reliable keyboard.

A stainless steel front plate and captive cast metal or high impact resistant polymer keys ensure the keyboards resistance to heavy use and harsh environments. An integral water and impact resistant trackball makes this keyboard ideal for kiosk applications.

Overall Dimensions

Specifications

Keyboard Weight

with cast metals keytops/trackball	**2.50kg**
with polymer keytops/trackball	**2.10kg**

Options

Build Style	**Vandal resistant (stainless steel top plate)**
Keytops	**Cast metal keytops, chrome plated**
	Black keytops, laser marked white
Encoder	**USB**
Languages	**English UK, English USA, French, Spanish, German**
Cable	**Factory Fitted 2.5m USB**

Electrical

EMC Emissions	**EN55022 : 1998 Class B Limit**
EMC Immunity to ESD	**EN55024 : 1998**
EMC Immunity to Radiated Fields	**EN55024 : 1998**
Electrical Safety	**EN60950, UL60950**
Communication	**Industry Standard USB Interface**
Supply requirements – voltage	**+5V nominal (5.5V to 4.75V)**
Supply requirements – current	**60mA (with 2 LEDs illuminated)**

Environmental

Sealing – Water / Particulates	**EN60529 (sealing to IP65)**
Trackball sealing	**IP65 stationary (IP54 rotating)**
Temperature	**-20°C to +60°C operating (dry)**

Mechanical

Impact Resistance	**20 Joules via 50mm dia steel striker**
Key Pitch	**19mm**
Size	**11mm square**
Travel	**1.5mm nominal**
Actuation Force	**100g nominal**

Fixing

Adhesive Gasket
4x M5 x 30 A2 stainless steel socket button head screws
4x M5 stainless steel washers
4x M5 stainless steel nyloc nuts
Supplied

www.storm-interface.com

Designed & produced by **NIK Design**
nik@nikdesign.co.uk

Whilst every effort is made to ensure details are correct at time of print, specifications are subject to change without notice.

UL File reference: E230121

2212-TB-LIT-01 Rev 1 Mar 2011

FM 39602

Storm

2200 Series
Panel-mount Trackballs

Rugged cursor control for industrial and hostile public environments

- 38mm panel-mount trackball provides smooth, responsive and precise cursor control
- Vandal resistant version features a stainless steel retention ring and a coated steel ball (mirror finish) (10J BS EN 60068-2-75: 1997)
- Robust version features a tough phenolic resin ball (black)
- Sealed against the ingress of liquids & dust to IP65 when ball is stationary (IP54 when rotating)
- Operating temp: -20°C (dry) to +60°C
- Robust chassis designed to provide secure under-panel fixing for maximum resistance to hard use, abuse and vandalism
- On-board encoder automatically configures to provide either USB or PS2 connectivity
- Two 'click keys' (not supplied) can be connected directly to the on-board encoder
- USB and PS2 cables for connection to host system are available separately

www.storm-interface.com

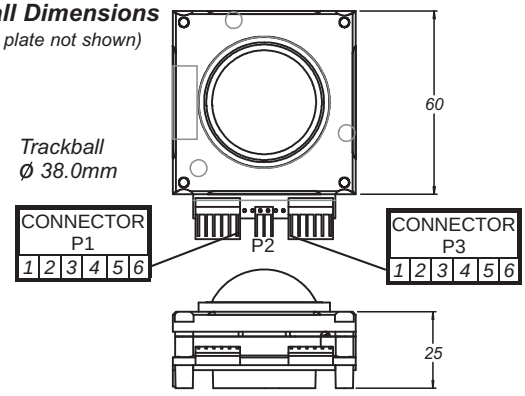
Storm

Panel-mount trackballs for industrial and public environments

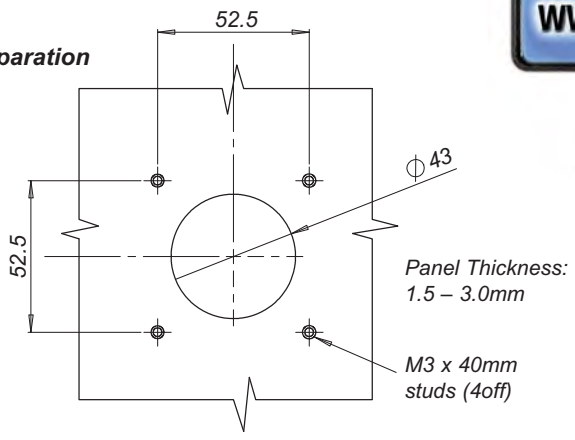
These 38mm trackballs provide smooth, accurate and responsive cursor control in wet, dirty or aggressive environments. Each device automatically configures to provide USB or PS2 connectivity. Two selector (click) buttons (not supplied) can be configured to provide either left and right click functions or for both buttons to provide left click functions only. These trackballs can be installed as a flush mounted component in a control panel or equipment housing. Cables enabling connection to either USB or PS2 systems are supplied separately. The trackballs are constructed to ensure maximum resistance to hard use, abuse, and vandalism.

Overall Dimensions

(Vandal plate not shown)



Panel Preparation Details



Connector Pinout Details

Pin	Button Connections (P1)	PS2 / USB Output Connections (P3)
1	0V	D- / Data
2	Button 1 (left)	D+ / Clock
3	0V	Test Only
4	Button 2 (right)	Power +5V
5	0V	Ground 0V
6	Button 3 (middle)	Not used

The unit automatically selects either USB or PS/2 protocols on power-up. No re-setting of any DIP switches required.

If both buttons are required to be set as left click then a connection must be made between pins on connector P2 using the jumper device (supplied).

Please note that the TEST input is reserved for factory test only. On no account should a connection be made to this terminal.

The Button inputs are pulled high to 5V within the unit.

Both rising and falling edges of this signal are debounced for 30ms.

The Storm Trackball is designed to work with resident drivers and does not require additional software to be loaded.

Electrical

Supply Voltage	**5.0V dc ±10%**
Switch Debounce	**30ms rising/falling**
Supply Current	**15mA maximum**
Resolution	**150 pulses, 600 counts/revolution**

Environmental

Operating Temp	**-20°C (dry) to +60°C**
IP65 seal when ball stationary	
IP54 seal when ball rotating	
Humidity	**95% Rh max, non-condensing**

Mechanical

Tracking Force	**50g nominal any direction**
Ball Speed	**250 rpm maximum**
Operational Life	**10 million revolutions (min)**
Mounting Angle	**within 45° from horizontal**

Material

Robust Trackball	**Phenolic Resin**
Vandal Resistant Trackball	**Surface Treated Steel**
Seal Material	**PTFE with low friction fill**
Vandal Plate	**Stainless Steel**

NB. Robust Version does not have Vandal Plate

Installation

Prepare plate with hole for ø43.0mm bezel and M3 x 40mm studs on 52.5mm centres.
Fit sealing gasket to trackball.
Place trackball over studs.
Place vandal plate over studs (VR version only).
Secure with plain washers and Nyloc nuts.
IMPORTANT: Max torque 40Ncm on nuts.
Connect switches to connector P1.
If reqd,fit jumper to enable both buttons as left click.

Accessories [x] denotes packaging variant

Stock No.	Item
2200-00200[x]	Cable 2.5m PS2
2200-00300[x]	Cable 2.5m USB
2200-00020[x]	Trackball Unit PS2 / USB Black Phenolic Ball
2200-00030[x]	Trackball Unit PS2 / USB Coated Steel Ball

UL File reference: E230121

Designed & produced by **NIK Design** www.nikdesign.co.uk

2200-LIT-01 Rev 4
Nov 2008

FM 39602


1 2 3
4 5 6
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With rising crime rates and an increasing incidence of assaults on personnel, the need to control access to buildings or work areas has never been greater.

It is essential to provide free access to **authorised** personnel, whilst securing premises against those who are not. The high risk practice of issuing duplicate door keys is no longer acceptable or economically viable. Keys (or cards) are regularly lost, stolen or copied. If a breach in security is suspected, locks must be changed and new keys (or cards) issued. This is not practical on a repeated or routine basis.

The fitting of a **STORM AXS Keypad** provides a secure, efficient and cost effective solution. Authorised personnel can be allocated a 'Personal Identification Number' (PIN) which, when entered into the keypad, triggers an electrically operated strike or lock. This permits instant access through a normally locked door or barrier. PIN codes can be regularly changed to maintain system security, or can be withdrawn at any time to discontinue an individual's access to the secured area.

Code holders can be given access to selected areas and debarred from others. For example; an office worker's PIN code can be programmed to allow access to an administration centre but prohibit access to a stores area; whereas the Store Manager's PIN code can be programmed to access both the administration centre and the stores area. PIN codes can be programmed to unlock a door and leave it unlocked (latched) until the code is re-entered. Alternatively they can be programmed to unlock the door for a pre-set time allowing just one person to enter before the door re-locks.

Robust, responsive keypad technology, proven in military, industrial and public environments.

STORM AXS Keypads provide rapid and reliable access control in professional 'high-traffic' applications. Constructed to withstand hard use and abuse the keypads can be fitted in exposed outdoor locations. Available in both 'general service' and 'vandal resistant' specifications, complying with current and forthcoming mandatory standards, **STORM AXS Keypads** are ideal for use in all indoor and outdoor installations.

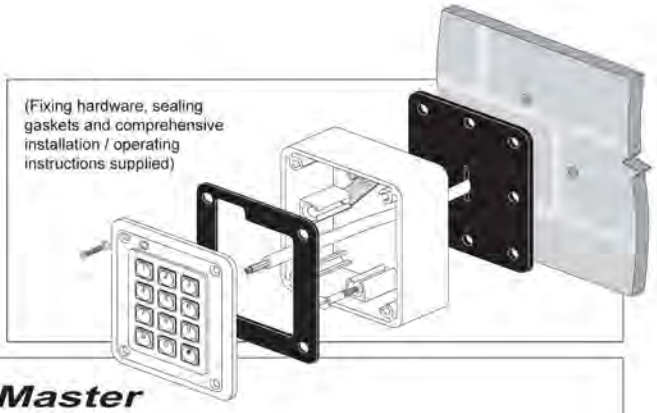
Secure and simple to install.

STORM AXS Keypads include sophisticated electronic controllers. These controllers, utilising the latest developments in microprocessor technology, are securely housed within the keypad casing. The keypads include high level protection against static discharge damage. They can be selected to achieve direct, local control of door locking mechanisms (Strike Master) or to provide electronic communication with centralised alarm and access control systems (Code Master). The **STORM AXS Strike Master** keypad includes an electronic sensor that detects any attempt to remove or tamper with the keypad. This feature provides high level system security whilst maintaining the advantages of a self-contained, compact, 'one-box' installation.

Storm® AXS *Secure Keypads for access control*

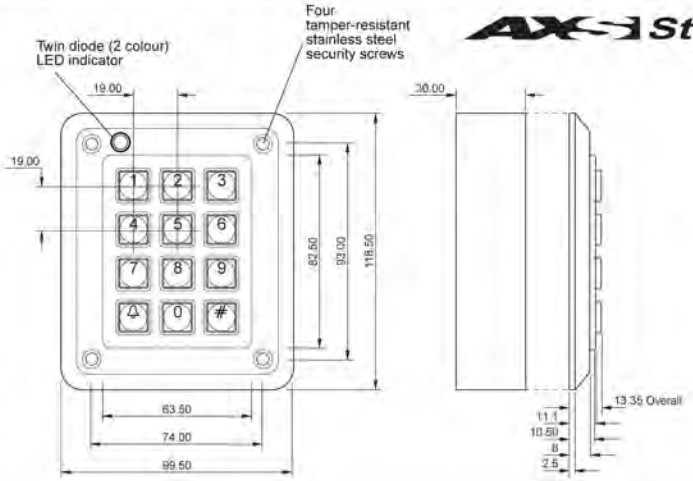
storm AXS

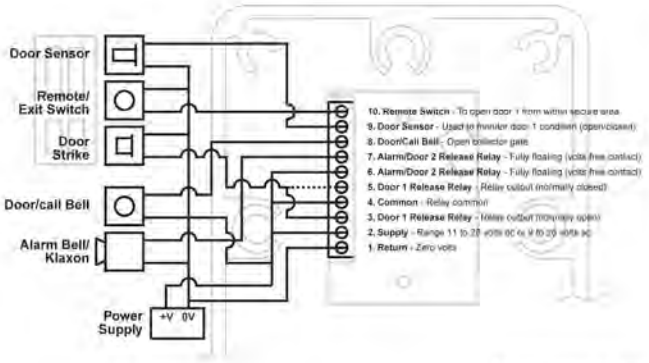
Secure Keypads for access control



PRODUCT SPECIFICATIONS

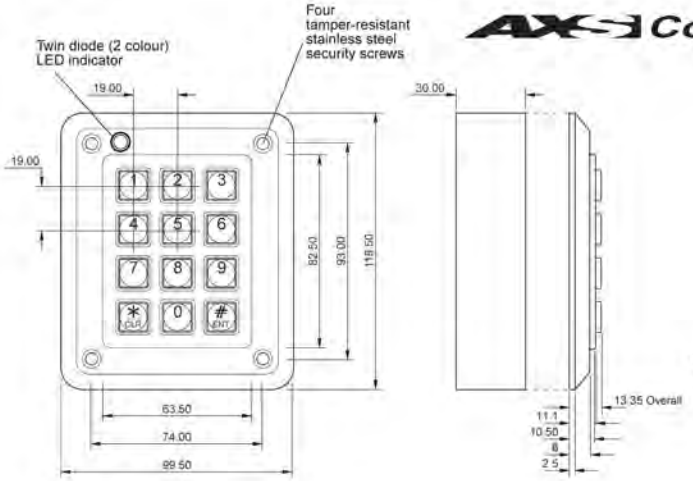
AXS Strike Master

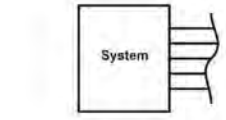




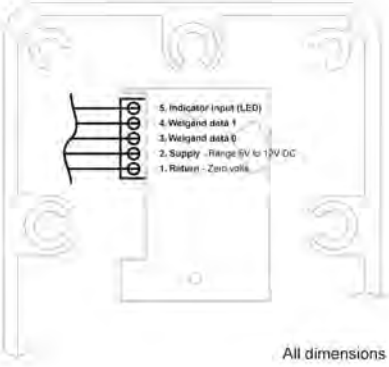
All dimensions in mm

AXS Code Master





Connect to access control / security system (refer to manufacturer's instructions for connection details).



All dimensions in mm

PRODUCT FEATURES	ANTI VANDAL KEYPAD	VANDAL RESISTANT KEYPAD	GENERAL SERVICE KEYPAD
Strike Master	**DE1KT1**	**DEPLXT2**	**DE2KT1**
Code Master	**WE1KT1**	**WEPLXT2**	**WE2KT1**
Key Life (cycles)	> 4 Million	> 4 Million	> 4 Million
Service Temp (Dry)	-20°C to +70°C	-20°C to +70°C	-20°C to +70°C
Keypad Material	Chromed Zinc	Super Impact Polymer	Super Impact Polymer
Keypad Colour	Silver	Black	Mid Grey
Keytop Material	Chromed Zinc	Chromed Zinc	Super Impact Polymer
Keytop Colour	Silver	Silver	Light Grey
Keytop Legends	Engraved	Engraved	Laser Marked
Legend Colour	Black	Black	Dark Grey
Contact Materials	Carbon / Gold	Carbon / Gold	Carbon / Gold
Weather Sealed	IP65	IP65	IP65
Resistance to Static Discharge	> 12.5 KV	> 12.5 KV	> 12.5 KV

All **STORM AXS Keypads** incorporate the proven **STORM** switching technology ensuring rapid, reliable and responsive data entry. Specified to survive in different service environments, ranging from exposed, unsupervised public environments to general service / indoor installations. Keypads in the **STORM AXS** range are dimensionally and electrically interchangeable. This allows users, entering codes at all outdoor or indoor access points, to establish and maintain familiarity with the keypad features.

Whilst every effort is made to ensure details are correct at time of print, specifications are subject to change without notice.

CE

MAY 1999

AXS-LIT-01 1SS.3

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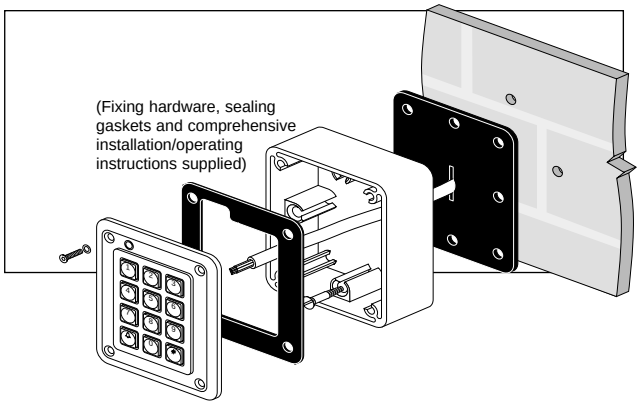
- Up to 50 user programmable entry codes
- Entry code indexing for secure allocation and re-allocation of entry codes
- 4, 5 or 6 digit entry codes
- Timed release or latching operation
- Timed lock out for “code hacker” resistance
- Remote exit switch facility
- Weather resistant to IP65
- Hidden entry code feature
- Optional Privacy Shroud

Storm® AXS Strike Master

storm®

AXS Secure Keypads for access control

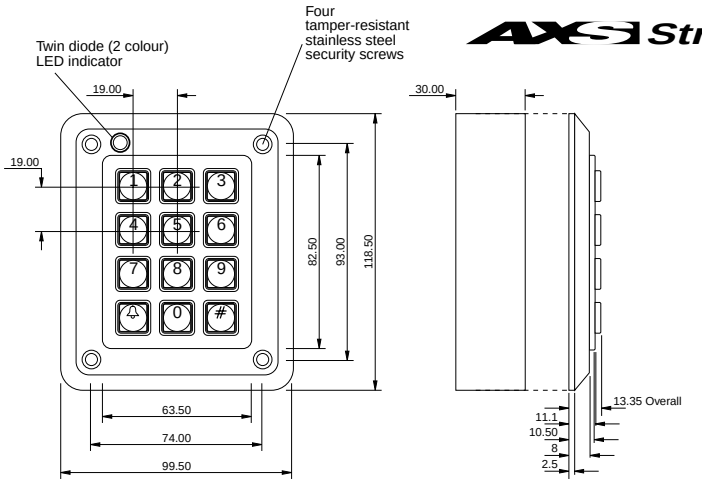
Single Door Access-control Keypad

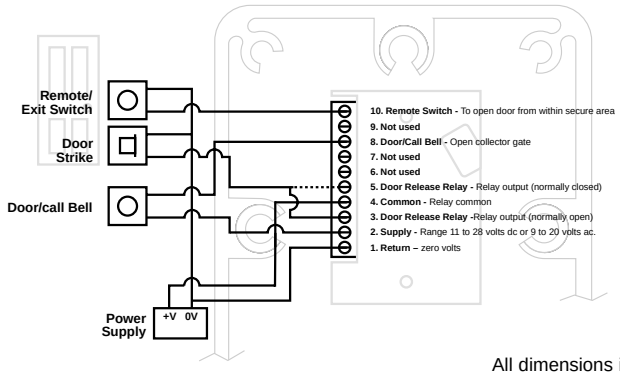


The STORM AXS StrikeMaster, Single Door Keypad, is ideally suited for access control in outdoor and indoor locations. It is resistant to high impact and sealed against water and dust to IP65.

PRODUCT SPECIFICATIONS

AXS Strike Master





All dimensions in mm

- **Up to 50 user programmable entry codes**
- **Entry code indexing for secure allocation and re-allocation of entry codes**
- **4, 5 or 6 digit entry codes**
- **Timed release or latching operation**
- **Timed lock out for “code hacker” resistance**
- **Remote exit switch facility**
- **Weather resistant to IP65**
- **Hidden entry code feature**
- **Volt free, normally open/normally closed release relay**

PRODUCT FEATURES	SINGLE DOOR
Part Number	**DR2KT2**
Key Life (cycles)	> 4 Million
Service Temp (Dry)	-20°C to +70°C
Keypad Material	Super High-impact Polymer
Keypad Colour	Black
Keytop Material	Super High-impact Polymer
Keytop Colour	Black
Keytop Legends	Laser Marked
Legend Colour	White
Contact Materials	Carbon / Gold
Weather Sealed	IP65
Resistance to Static Discharge	> 12.5 KV

All **Storm AXS Keypads** incorporate the proven **STORM** switching technology ensuring rapid, reliable and responsive data entry. Specified to survive in different service environments, ranging from exposed, unsupervised public environments, to general service / indoor installations. Keypads in the **STORM AXS** range are dimensionally and electrically interchangeable.
This allows users, entering codes at all outdoor or indoor access points, to establish and maintain familiarity with the keypad features. Applications requiring two door control or alarm and door monitoring support require the **Storm AXS StrikeMaster** DE Keypads.

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