# Digital Switching


*(Part No. DSS-PKU2400)*

## PowerKey Ultimate 2400

FLEXIBLE - SMART - RUGGED

- Versatile, intelligent and affordable.
- High quality, rugged design, open protocols.
- Various configuration capabilities.
- Custom features to create innovative solutions.

### *HARDWARE FEATURES*

- IP67/NEMA6 Rating - Guaranteed to be dust tight and sealed against water immersion to a depth of 1 metre for up to 1 hour.
- UV Protected - UVB 400 Hours: Keypad is highly resistant to deterioration caused by exposure to sunlight.
- Customisable Inserts - The replacement system for individual inserts makes modifying the keypad layout simpler and more economical.

Packed with new features, Digital Switching Systems releases its new line of PowerKey Ultimate keypads. DSSA released the newly updated PowerKey Ultimate family of keypads with new features for added functionality and flexibility.
The PKU2400 is now available with CANopen and RS232 protocol architecture. In addition, the PKU series will be available with industry first auxiliary I/O functionality.
Known as ADD-On buttons, each model from the PKU series will be able to incorporate up to 3 additional external switches. Whether it be a mechanical rocker switch or an emergency stop switch, the PowerKey Ultimate is now more versatile than ever.





Icons shown on this keypad are for visual demonstration only.

## Features

- Reconfigurable keys
- Relegendable buttons
- LED state & status configurable
- Verticle or horizontal mount
- Flush-mount or front-mount
- LED backlit icons
- Multicolour indicator rings
- Overlay
- Laster etch
- Pad Print
- ON/OFF, momentary, toggle & scroll
- Over 100 stock icons to choose from
- Snap dome positive tactile feedback
- Sealed (coated silicone rubber)
- **OPTIONAL**
  Up to 3 Add-On buttons/switch ports

## Other Benefits

- Programmer's manual available to help support plug-n-play
- New CAN GUI
- Can be mounted for a flush look
- Available in fixed legends

## Software Features

- Change CAN or Rs485 Keypad addresses independently
- Periodic status transmission
- Heartbeat
- Event status transmission
- LED Acknowledgment
- Address claim transmission
- CANopen
- Application Programming Interface (API) using Development Kit

- CAN and RS485 Keypad Addresses - Assign any valid CAN (J1939) address to the keypad while also assigning the same or a different Rs485 address. Communicate on Either BUS simultaneously.

- J1939 Address Claim Transmission - Keypads no longer have to be pre-programmed to a specific address. This enables customers that work in applications in the field without access to a GUI to use any replacement keypad on hand. The keypad can be configured to automatically announce it's address and accept a new address assignment as appropriate.

- Event Status Transmission - The keypad can send messages to the BUS indicating a button press or a button release event has occurred. This confirmation allows digital systems to have the same input acknowledgements as that of the latching position of a mechanical switch.

- Periodic Status Transmission - The keypad can be configured to send messages to the CAN BUS per button, on a predetermined frequency. This frequency can be set low as every 100 milliseconds. This feature can be used to monitor the continuity of the system and is also helpful in troubleshooting a fault.

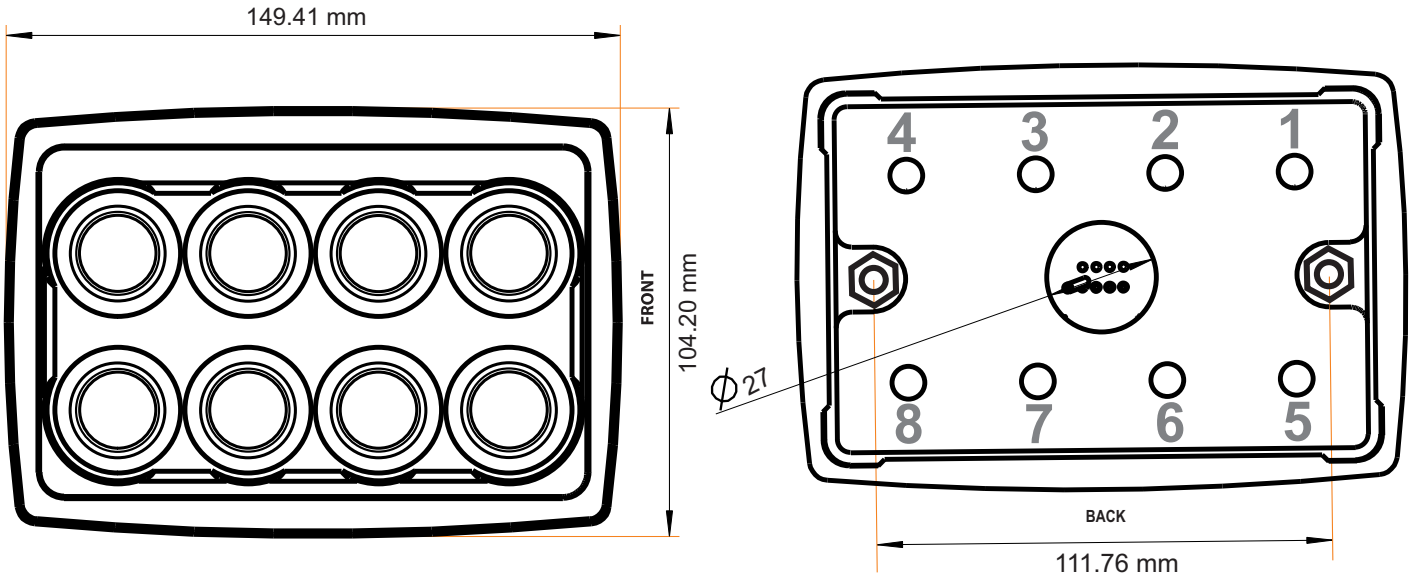
- Periodic Heartbeat - The keypad sends a continuous broadcast of messages indicating it is functioning correctly. The message indicates the press or release status of each button at that instance. The frequency of these messages is preset to one message every 100 millisecond, but can be adjusted as needed.

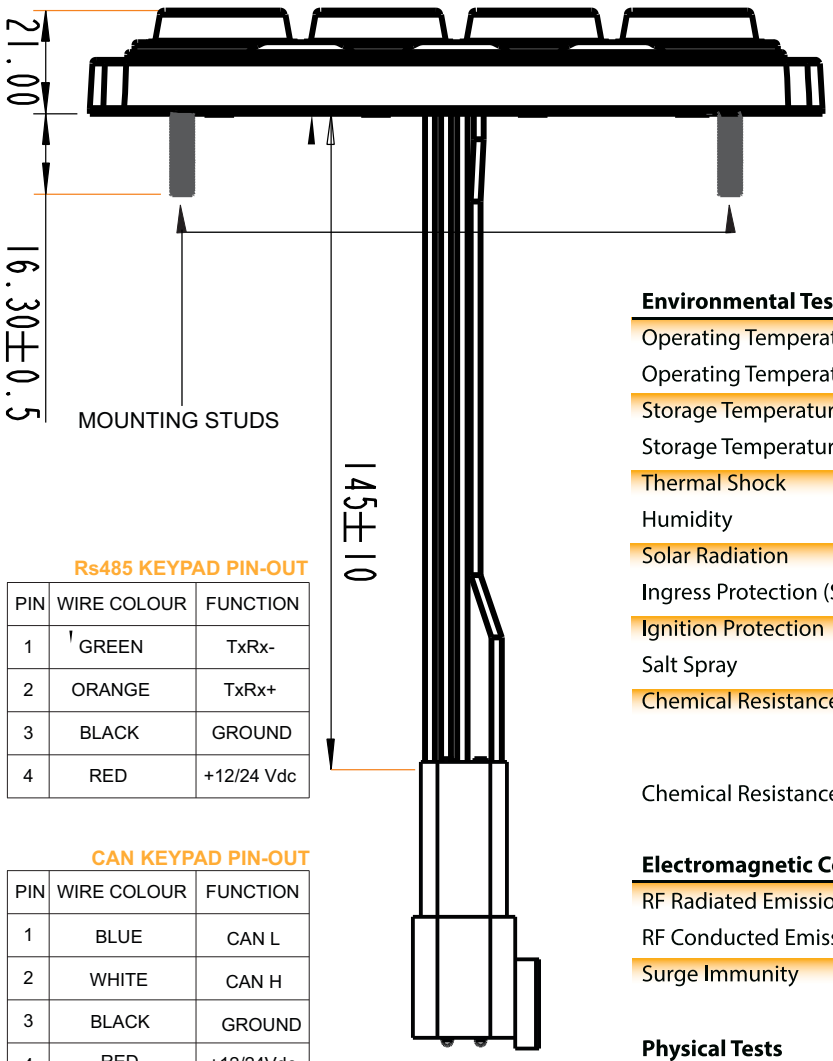
- CANopen Communications Protocol - Fully compliant with Device Profile 401d.

- Extra I/O Ports - Up to 3 add-on switch ports are available for additional push-button switches, rocker switches, toggle switches or whatever you require. Each port comes with an indicator circuit as well, to power an indicator lamp or LED on the switch. These extra ports appear on the BUS as though they were additional buttons on the keypad.

**This feature is an industry exclusive.**

# Diagrams




# Specifications

| Environmental Test | Criteria |
|---|---|
| Operating Temperature High | 85° C, 24 hours |
| Operating Temperature Low | -40° C, 4 hours |
| Storage Temperature High | +85° C, 24 hours |
| Storage Temperature Low | -40° C, 24 hours |
| Thermal Shock | -40° to +72° C @ 4° C / Min |
| Humidity | Test Method 104A |
| Solar Radiation | UVB 400 hours |
| Ingress Protection (Sand/Dust/Water) | 1m/1 hour |
| Ignition Protection | Protected Device |
| Salt Spray | 700 hours |
| Chemical Resistance (24-hr exposure) | DEET, Engine Cleaner, Isopropyl Alcohol, Suntan Lotion, Multi-Purpose Cleaner, Orange Citrus Cleaner |
| Chemical Resistance (1-min exposure) | Motor Oil, Gasoline (82 Octane) |

| Electromagnetic Compatibility | Criteria |
|---|---|
| RF Radiated Emissions | 30-1000 MHz |
| RF Conducted Emissions | 150 kHz - 30 MHz |
| Surge Immunity | +/-500V - 50 µs |

| Physical Tests | Criteria |
|---|---|
| Mechanical Shock | X,Y,Z 50Gs 11ms |
| Vibration | X,Y,Z 10 - 150Hz 0.15mm amp |
| Switch Life | 3 million operations |

**Rs485 KEYPAD PIN-OUT**

| PIN | WIRE COLOUR | FUNCTION |
|---|---|---|
| 1 | GREEN | TxRx- |
| 2 | ORANGE | TxRx+ |
| 3 | BLACK | GROUND |
| 4 | RED | +12/24 Vdc |

**CAN KEYPAD PIN-OUT**

| PIN | WIRE COLOUR | FUNCTION |
|---|---|---|
| 1 | BLUE | CAN L |
| 2 | WHITE | CAN H |
| 3 | BLACK | GROUND |
| 4 | RED | +12/24Vdc |