DATA MODUL

Intuitive & precise operation

Grayhill product portfolio

GRAYHILL

Long-standing cooperation: Grayhill & DATA MODUL

With Grayhill, we have a long-standing partner at our side who specialises in the development of high-quality and intuitive HMI interfaces.

The comprehensive product spectrum ranges from touch encoders and optical encoders to Hall-effect encoders and joysticks, specifically designed for modern HMI applications. Grayhill's products fit perfectly into our wide range of components and services, enabling flexible adaptation to a variety of customised applications.

Touch encoder

By cleverly combining a rotary encoder with a touch-sensitive colour display, Grayhill has developed an innovative user interface. This integrates the functions of a touchscreen, a keypad and a rotary switch into a single product. Users can effortlessly make various entries on the device by tapping/swiping on the display or turning the rotary encoder. The touch encoders are characterised by their high level of flexibility, made possible by fully customisable widgets, and are ideal for a wide range of HMI applications, for example in the medical or automotive sectors.

Touch encoder features:

- Comprehensive image memory (32 MB)
- High-resolution display: 330 PPI (320 x 300)
- Up to 3 million rotation cycles
- Optically bonded display and touchscreen for excellent readability in sunlight
- Simple panel mounting
- Sealing according to IP67

Optical encoders

Through the development of optical encoders, optionally with joysticks and pushbuttons, Grayhill strives to provide users with outstanding tactile feedback when operating HMIs. A key advantage of these optical encoders is their non-contact switching technology with infrared LEDs, which results in an exceptionally long service life. The precise performance of these state-of-the-art optical encoders is particularly evident in typical applications such as measuring speed, distance and/or rotation angle. In addition, their effortless integration enables seamless integration into our solutions.

Optical encoder features:

- Over 1 million rotation cycles
- Available in 16, 20, 24 and 32 locking positions
- Wide range of cable lengths and connectors
- Available for 5 VDC and 3,3 VDC
- Optionally with integrated push button
- Patented fibre optic technology

Product overview

Optical encoders

Series	Feature	Life cycle	Size [mm]	Detens per revolution
62A	Small housing, 5 VDC	1 m.	12,70 x 13,72	12, 16, 20, 24, 32
62V	3,3 VDC Input	1 m.	12,70 x 13,72	12, 16, 20, 24, 32
62D	High torque	1 m.	12,70 x 14,73	12, 16, 20, 24, 32
62AG	Low cost	1 m.	12,70 x 14,73	16, 20, 24, 32
62C	Concentric shaft	1 m.	12,70 x 14,73	12, 16, 20, 24, 32
62F	Button illumination	1 m.	12,70 x 13,72	12, 16, 20, 24, 32
62S	Compact 1/2" housing	1 m.	12,70 x 13,72	8, 12, 16, 20, 24, 32

Hall effect encoders & joysticks

A hall effect sensor magnetically detects the position of a moving part, such as the shaft of a joystick or a rotary encoder. The relative position can be output by the device in various formats such as I²C, open collector or push-pull output. The hall effect technology impresses with its outstanding adaptability to low-voltage applications and a power-saving sleep mode. Especially when integrated into various types of switches such as joysticks, paddles/rockers and rotary switches, it not only enables extremely precise position determination, but also seamless integration into our data modules and systems. The versatility of hall effect technology extends across various application areas, from industrial automation to marine applications.

Typical hall effect applications:

- Robotics and industrial automation
- Material handling equipment
- Medical electronics, including bed and table positioning
- Off-highway vehicles
- Marine GPS and controls

Product overview

Hall effect encoder & Joysticks

Series	Feature	Life cycle	Size [mm]	Detens per revolution
67A	Joystick, small housing	1 m.	ø 33,02	I²C proportional
67B	Joystick with momentary rotation and push button	1 m.	ø 31,75	I²C prop. Joystick & rotation mechanical push button
67C	Joystick with 360° rotation and push button	1 m.	ø 25,4	Prop. Joystick, quadrature encoder, mech. push button
68A	Rotary switch, optional redundancy	1 m.	ø 12,7	Quadratur for rotation Mechanical pushbutton
68P	Rotary switch	7 m.	ø 12,7	Proportional

MMI control units & CANbus keypads

The Vehicle Display Controller (VDC) from the Grayhill Legacy 3J series is the ideal solution for intuitive vehicle operation in industries such as agriculture, construction and mining. Equipped with an optical rotary encoder and a centre pushbutton, the VDC enables effortless navigation through menu options and selection of functions. Five quick selection buttons provide fast access to frequently used functions, including the standard options of the CANopen and J1939 protocols.
The CANbus keypads of the Grayhill 3K series are also available in variants with J1939 or CANopen protocol and integrate seamlessly into the electronic onboard systems of vehicles. With their IP67 sealing and compact design, they are particularly suitable for applications in vehicle control systems.
Both product groups make it easy to select button labelling from a library of ISO standard symbols or expand them as required. The integrated dimmable LED backlighting offers flexibility in reducing power consumption. Both the 3J and 3K perform self-diagnostics, monitor the supply voltage, check the LED display and detect button malfunctions. Our expertise at DATA MODUL ensures efficient integration into various applications to provide an optimal user experience.

MMI control units & CANbus keypads features:

- Modern, flush design
- Tool-free snap-in front mounting
- Developed for vehicles with Safety assessment according to ISO 13849
- Self-diagnostics included
- Sleep mode with low power consumption
- Customised legends and configurations configurations

Product overview

MMI control units & CANbus keypads

Series	Description	Configuration
3JG2	Latest MMI control	3 options for the centre knob: - Optical rotary encoder - Encoder with pushbutton - Proportional joystick with optional pushbutton
3KG2	Latest CANbus keyboards	5 standard sizes (row x column): 15 buttons (3 x 5) 12 buttons (4 x 3) 8 buttons (4 x 2) 8 buttons (2 x 4) 6 buttons (2 x 3)

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Single & multi-deck rotary switches

Grayhill is the leading manufacturer of single and multi-deck rotary switches with a robust design and almost unlimited configuration options. Many of these products are MIL-qualified and meet demanding electrical, mechanical and environmental standards. Various options such as isolated positions, spring returns, adjustable stops, concentric shaft switches and configurable key switches are available to meet the diverse needs of our customers.

Rotary switch features:

- Low installation depth
- Compact size: minimum space space required behind the panelling
- Optionally with continuous rotation or fixed stop
- High impact resistance
- Shaft and panel sealing

Product overview

Single & multi-deck rotary switches

Series	Feature	Life cycle	Size [mm]	Detents per revolution
50, 51, 56	Various shafts	25.000	EMI/RFI shielding	1-2 poles, 2-10 positions
75	Small size	10.000	Control knobs available	1 or 2 pole(s), up to 10 positions
77	Minimal space requirement	25.000	Shaft seal available	1 or 2 pole(s), up to 10 positions

Possible applications for Grayhill products

Medical

Agriculture

Construction machinery

Vehicles

For further information please contact your DATA MODUL sales partner or visit our website: **www.data-modul.com**