



STANDARD KEYPADS AND ENCODER



The KEYPAD and ENCODER family is designed for robust use in construction machinery and off-highway vehicles and supports different HMI concepts within modern vehicle architectures. The portfolio includes scalable control units with pushbuttons as well as rotary push encoder solutions for precise input, navigation and function control. All variants are designed for safety-relevant applications and aligned with requirements according to ISO 25119 AGPL d, ISO 13849 PL d and ISO 19014 MPL d. The products meet common safety requirements and CRA requirements with Secure Boot and Secure Update. RGB status LEDs enable state-dependent visualization of functions, operating states or feedback. Thanks to their customizability, the KEYPADS and ENCODER can be adapted to account-specific requirements.

STANDARD KEYPADS AND ENCODER

INTELLIGENT CONTROL SYSTEMS FOR CONSTRUCTION MACHINERY AND OFF-HIGHWAY VEHICLES



KEYPAD K20 RGB

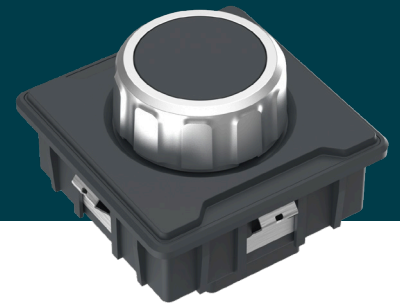
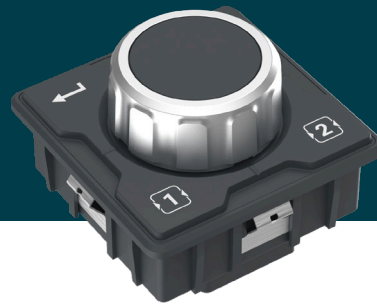
For comprehensive control and functionality, the KEYPAD 20 offers 20 push buttons, as well as function and background illumination in a CAN design. The KEYPAD 20 is ideal for applications requiring a clearly structured, directly accessible user interface with high functional density.



KEYPAD K16 RGB

The KEYPAD 16 is a compact CAN control solution with 16 pushbuttons that feature function and background illumination. It is designed for machine concepts that require multiple control functions to be arranged in a space-efficient and ergonomic layout.

Dimensions (lxbxh)	135x92x23,5	108x111x23,5
Operating temperature	-40 °C to +85 °C	-40 °C to +85 °C
Power supply	6 to 48 Volt	6 to 48 Volt
Interfaces	CAN-FD (J1939, UDS)	CAN-FD (J1939, UDS)
Plug	DT-plug, 4-polig	DT-plug, 4-polig
Pushbutton lifetime	1. Mio	1. Mio
Encoder lifetime	n.a.	n.a.
Number of detents	n.a.	n.a.
Sensor system	n.a.	n.a.
Operating force actuation	5-10 N	5-10 N
Operating force rotation	n.a.	n.a.
ISO / SAFETY Level	ISO 25119 AGPL d ISO 13849 PL d ISO 19014 MPL d	ISO 25119 AGPL d ISO 13849 PL d ISO 19014 MPL d
Security	HSM, Secure Boot, Secure Update	HSM, Secure Boot, Secure Update
IP degree of protection (in installed state)	IP 69	IP 69
Background illumination	Monochrome	Monochrome
Status illumination	SAFETY RGB	SAFETY RGB



ENCODER-KEYPAD EK14 RGB

14 pushbuttons with function and background illumination as well as an integrated rated rotary encoder expand the KEYPAD 14E for the versatile CAN control. This makes the device particularly suitable for applications with menu navigation, parameter adjustment or function selection.

ENCODER-KEYPAD EK4

The Encoder 4K is a compact control unit that combines a rotary pushbutton with four additional buttons. This combination enables precise navigation and quick direct access to often-used functions.

ENCODER RP

The encoder is a compact solution that provides precise input and intuitive operating processes. It is particularly suitable for navigation, adjustment, and menu-guided operating concepts in construction machinery and off-highway vehicles.

108x111x39	65x65x39	65x65x39
-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C
6 to 48 Volt	6 to 48 Volt	6 to 48 Volt
CAN-FD (J1939, UDS)	CAN-FD (J1939, UDS)	CAN-FD (J1939, UDS)
DT-plug, 4-polig	DT-plug, 4-polig	DT-plug, 4-polig
1. Mio	1. Mio	n.a.
1. Mio	1. Mio	1. Mio
16 to 48	16 to 48	16 to 48
Hallsensor ASIL C	Hallsensor ASIL C	Hallsensor ASIL C
5-10 N	5-10 N	n.a.
5-10 N	5-10 N	5-10 N
ISO 25119 AGPL d ISO 13849 PL d ISO 19014 MPL d	ISO 25119 AGPL d ISO 13849 PL d ISO 19014 MPL d	ISO 25119 AGPL d ISO 13849 PL d ISO 19014 MPL d
HSM, Secure Boot, Secure Update	HSM, Secure Boot, Secure Update	HSM, Secure Boot, Secure Update
IP 69	IP 69	IP 69
Monochrome	Monochrome	n.a.
SAFETY RGB	n.a.	n.a.



APPLICATIONS

The keypad and encoder family is suitable for a wide range of control tasks in construction machinery and off-highway vehicles. Typical application areas include armrests, control consoles, side panels, steering columns, and trim panels within the driver's immediate environment. In these locations, the products facilitate the safe and intuitive operation of driving, working, and auxiliary functions, even under demanding operating conditions. They are particularly well-suited for frequently used applications with menu-guided operation and tactile blind operation during the work process. Through function and background illumination, the products provide clear feedback on operating states, functions, and active switching states. Thanks to their customizability, the control units can be adapted to different machine classes, control concepts, and brand requirements.



The information in this brochure contains general descriptions and performance characteristics that may not apply exactly in the specific application and/or that can change due to further development of the products. The technical data, images, and other details of our products are merely the results of individual technical tests. These and other performance characteristics are only binding when they are expressly agreed upon conclusion of the contract. We otherwise

reserve the right to change delivery options and technical details. Products are similar to the illustrations and other forms of representation. All product designations can be brands or product names of the RAFI Group or other suppliers whose use by third parties for their own purposes may violate the owner's rights.

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