

## Nano-minor



The Nano-minor is our top seller in the field of joystick transmitters. Despite its compact design, numerous operating elements can be integrated.

### > Operating elements

Joysticks	– Up to 6 single-axis (MSA1)* – Up to 3 dual-axis (MSA2)*
Joystick options	– Stepped travel activation – Embedded push button (MSA2) – Travel limiting gates (MSA2)
Digital on/off switch	Up to 36 on/off functions available via toggle switches, push buttons, rotary switches, key switch, etc.*
Additional analog functions	Up to 2 analog devices such as potentiometers
Cable control interface	1 x CAN I/O for machine control and feedback

\* Consult NBB for available combinations.

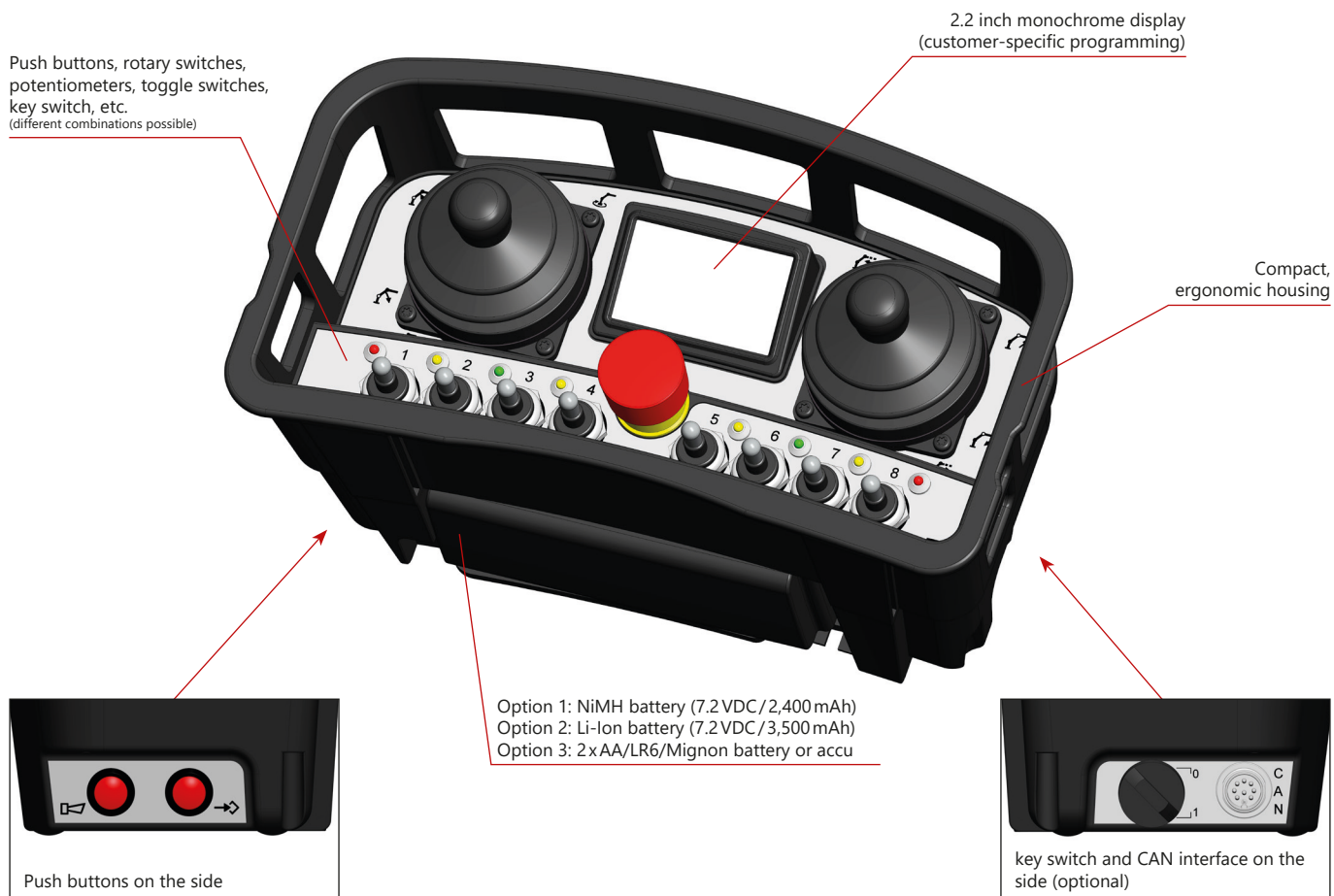


Illustration contains optional equipment.

### > Technology



SMJ



Proximity detection



Teach-in function



Multi-user system



NBB battery system



LBT frequency search



Data feedback

## Technical data

### Technical information

Frequency range	419 MHz, 429 MHz, 434 MHz, 868 MHz, 915 MHz, (2.4 GHz) (depending on customer requirements and country-specific regulations)
RF power	≤ 1 mW, ≤ 10 mW, ≤ 25 mW (depending on frequency range and country-specific regulations)
Typical working range	≤ 100 m (depending on environmental conditions)
Frequency channel search, automatic	LBT-Modus (Listen Before Talk) (depending on country and function configuration)
Antenna	Integrated
Typical response time of the control commands	Approx. 50 ms
LF modulation method	FSK/GFSK
Datarate (depending on customer requirements)	– 1,200 Baud (Bit/sec.) – 9,600 Baud (Bit/sec.)
Ø Current consumption (depending on the expansion level)	– approx. 30 mA (with LED 7-segment display) – approx. 50 mA (with LCD display)
Prewarning time „Battery empty“	Approx. 15 minutes
Acoustic response	Integrated buzzer, customized setting
LCD/TFT display	Optional: 2.2 inch monochrome display (128 x 64 px), customized illustration possible
Energy saving function (Standby)	Standard: after 60 min. Optional: Setting according to customer requirements (continuous operation possible)

### Machine data

Ambient operating temperature	-20°C up to +70°C (NiMH battery / AA/LR6/Mignon battery or accu) -20°C up to +60°C (Li-Ion battery)
Weight	1100 g
Dimensions (L x W x H)	248 mm x 140 mm x 118 mm
Case material	Impact resistant, glass fiber reinforced polyamide
Status display (7-segment, depending on the configuration)	1x (2-digit)

### Equipment safety

CE certification	Yes
Protection class	IP65
Data security	Addressing of each transmitter by unique bit combination
EMERGENCY STOP or STOP function	Yes (sending stop telegrams for 2 sec.)

### Power supply

Power supply	Option 1: NiMH battery (7.2VDC/2,400mAh), pluggable Option 2: Li-Ion battery (7.2VDC/3,500mAh), pluggable Option 3: 2xAA/LR6/Mignon battery or accu
Operating time	Option 1: up to 48 hours Option 2: up to 70 hours Option 3: up to 38 hours
Loading form	Externally, via a separate charger
Charger available for (UE)	110 VAC–230 VAC, 12/24 VDC
Plug form AC (adapter set)	EU, USA/JP, GB, AU
Plug form DC	Car charger plug