

Product Overview

Safety Remote Controls



CONDUCTIX
wampfler

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safe

- Active and Passive STOP systems for quick response and ultimate protection
- Guaranteed unique and tamperproof addressing system
- Dual-redundant receiver decoders on all models
- Duplicate inputs and outputs
- Self-monitoring

simple

- Light weight transmitters (only 420g for the LK including battery)
- Run time of up to 12 hours (LK) or 15 hours (MJ/MK) continuous use
- Smart recharger with max 4 hour recharge
- No license fees required - operates under the LIPD class license
- Automatic frequency selection for mobile devices
- Modular plug-together construction

tough

- Impact-resistant composite materials
- Transmitters and receivers rated to IP65
- Extreme temperature rating (-20C to +70C for the receiver)
- High resistance to grease, oils, paints, and other chemicals
- Internal aerials

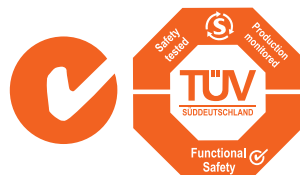
reliable

- Highly engineered electronics
- Encapsulated surface-mount circuit boards
- 4th generation of a well-proven design
- Dual contacts on joysticks and pushbuttons (MK)
- Self-diagnostic systems in transmitter and receiver
- Modular design for simple maintenance, upgrade and repair

versatile

- Models for most applications
- Special configurations built to meet your requirements
- Options for single-speed, multi-speed, and fully-proportional joysticks
- Toggle switches, push-buttons, keyswitches and rotary switches available
- Full-colour customised labels
- Many spare parts common across models, for reduced inventory

compliant



- All controllers carry the C-Tick of compliance
- No fees payable under the LIPD Class License
- Compliant with requirements of AS1418.1-2002 for cordless controllers
- Functional safety independently certified by TÜV
- Safety performance tested and stated to AS4024.1501-2006

LK hand-held

4,6,8 BUTTONS

- single-speed or dual-speed buttons
- optional toggle switch or side-pushbutton on most models
- supplied with protective pouch and strap
- AC or DC receiver
- customizable labels and decals
- 12 hour run (100% duty) with 4 hour charge



MK hand-held

6,8,10,12 BUTTONS

- dual-speed buttons
- optionally with 2 toggle switches or 4 side buttons
- data feedback option (LEDs or LCD screen)
- supplied with shoulder strap
- AC or DC receiver
- customizable labels and decals
- 15 hour run (100% duty) with 4 hour charge



MJ joystick

2 MULTI-SPEED JOYSTICKS
3 SINGLE-SPEED JOYSTICKS

- dual axis joysticks
- up to 4 speeds per axis
- optionally up to 5 toggles
- up to 2 side pushbuttons may be fitted
- data feedback option
- AC or DC receiver
- customizable full colour decals
- 15 hour run (100% duty) with 4 hour charge



SIRIO joystick

2 MULTI-SPEED JOYSTICKS
MANY SELECTOR OPTIONS

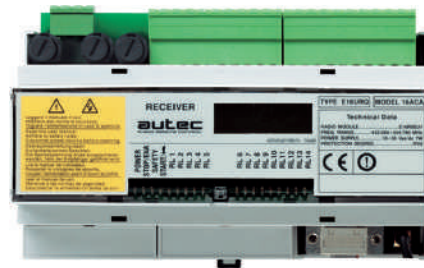
- dual axis joysticks
- up to 4 speeds per axis
- optionally up to 9 toggles
- up to 2 side pushbuttons may be fitted
- rotary / BCD selectors available
- 15 hour run (100% duty) with 4 hour charge



KTC

DIN-rail System

- DIN-rail transmitter and receiver
- Real-time data transmission (100ms)
- Transmitter can accept inputs from control panels, limit switches, etc
- Can be used for STOP commands or other safety-relevant controls
- Frequency can be changed by the external inputs.



PRO-M

Proportional Joysticks

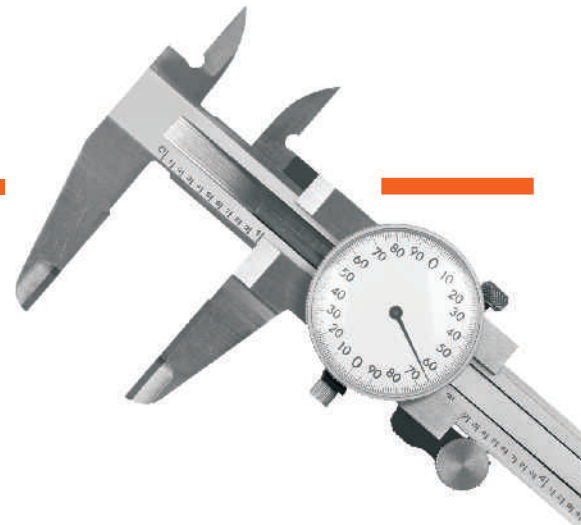
- up to 14 proportional commands
- up to 24 on/off commands
- 2 or 3 dual-axis joysticks or up to 6 x single-axis proportional paddles
- direct drive for voltage or PWM current hydraulic valves, or VSDs
- remote teach-in for rapid set-up
- compact, rugged, multi-voltage receiver



Engineered Systems

Take advantage of our knowledge and experience in designing customised radio control systems that can include:

- **Master/slave or tandem systems**
controlling 2 cranes from one transmitter
- **Pitch-catch systems**
controlling one crane from 2 transmitters
- **Data feedback to a display on the transmitter**
display machine status on the operator's console
- **Onboard logic**
integrate basic machine logic into the receiver



Our systems are engineered, assembled, and tested right here in Australia, giving us unbeatable turn-around for new designs. All of our systems can be customised to include OEM labels, logos, and colour schemes.

We can supply our receivers unwired, so that they can be customised by you, or pre-wire them with cables or plugs, and factory test them to an agreed configuration, for plug-in simplicity.

Functional Safety in Radio Remote Controls

Safety is the principal requirement of any machine, and must be properly assessed and verified for each component. This is particularly important for machines such as cranes and hoists that typically operate above and around personnel, where uncontrolled motion could present many hazards. The control system of these machines is required to behave in a safe manner, even in the presence of faults. This is the principle of Functional Safety.

As a minimum, radio remote controls for use on machines should be assessed for two potential hazards:

STOP: The machine must STOP when commanded from the remote control, or there is a loss of the communication link.
 UMFS: (Unexpected motion from standstill). The control system must not initiate motion not commanded by the operator.



Our remote control systems are assessed for safety performance against both of these potential hazards, and they are shown in the icon next to each model. Here, a safety category is listed for both the STOP function, and UMFS. These state the safety performance according to categories defined in AS4024.1501-2006

Australian Standard AS4024.1501 - 2006

This standard describes the safety requirements, and provides guidance on principles for the design of safety-related parts of control systems, including programmable and electronic systems. It applies to all safety-related parts of control systems, regardless of the type of energy used (e.g. electrical, hydraulic, pneumatic, mechanical) and applies to all machinery.

AS4024.1501 defines different categories of fault-resistance by describing the behaviour of the safety function under fault conditions, and whether this is to be achieved by structural arrangements of the parts, or by their reliability. It is important to note that truly fail-safe behaviour requires a structure that is redundant and monitored, not simply "reliable".

The categories are defined as follows - note that the 'safety function' is dependant on the potential hazard being examined - our radio controls are assessed for two distinct safety functions - STOP and UMFS as described above.

Category 2: The occurrence of a fault may lead to the loss of the safety function between the checking intervals. The fault is detected by the check.

Category 3: When the single fault occurs, the safety function is always performed. Some, but not all faults, will be detected. An accumulation of undetected faults may lead to the loss of the safety function.

Category 4: When faults occur, the safety function is always performed. The faults will be detected in time to prevent the loss of the safety function.

AS4024 also provides guidance on the selection of an appropriate category for a control system, based on three criteria:

- Severity of a potential injury
- Frequency of exposure
- Possibility of avoidance

	B	1	2	3	4
S1		●	○	○	○
P1		●	●	○	○
F1		●	●	○	○
P2			●	●	○
S2				●	○
F2				●	○
P1					○
P2					●

LEGEND:

- S Severity of injury
 - S1 = Slight (normally reversible) injury
 - S2 = Serious (normally irreversible) injury, including death
- F Frequency and/or duration of exposure to the hazard
 - F1 = Seldom to quite often, and/or short exposure time
 - F2 = Frequent to continuous and/or long exposure time
- P Possibility of avoiding the hazard
 - P1 = Possible under specific conditions
 - P2 = Nearly impossible

- Preferred Categories
- Possibly Over-dimensioned

More Information

A white-paper with a more detailed examination of the safety performance of radio remote controls is available on request. Ask your representative for details.



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