

INDUSTRIAL CRANES

NUCLEAR CRANES
PORT CRANES
HEAVY-DUTY LIFT TRUCKS
SERVICE
MACHINE TOOL SERVICE

RADIO CONTROLS

KONECRANES®
Lifting Businesses™

Crane radio control
FASTER, SAFER, EASIER



MOVING TONS WITH JUST THE FLICK OF A FINGER

A crane is typically controlled from a distance. The usual way of controlling a regular assembly workshop crane is by using a pendant controller hanging from the crane or wirelessly with a radio control. In some special applications and full automation cranes, the control method can be a cabin or a separate control room or even a sophisticated ERP system.

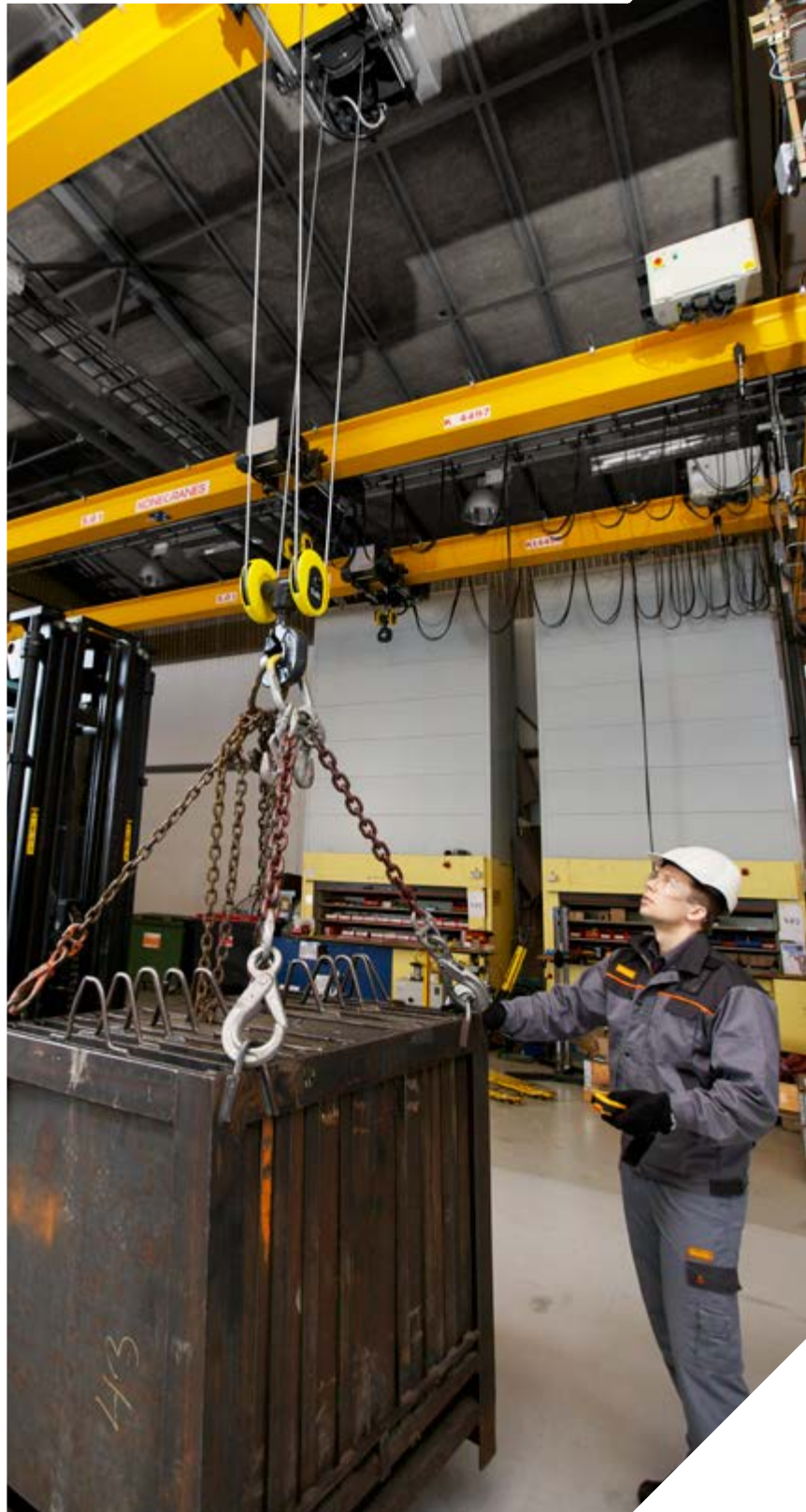
A crane radio control needs a transmitter and a receiver. The transmitter is a handheld device for the crane operator and the interface between a crane and an operator. The operator gives commands with the transmitter, and the receiver – usually located in an electrical cubicle of the crane – forwards them to the crane control devices.

Konecranes has two product families for crane radio control, REMOX and MiniJoystick. MiniJoystick is a new, ergonomic radio, designed by Konecranes. The joystick makes the crane controlling extremely ergonomic, and it makes it easy way to control speed.

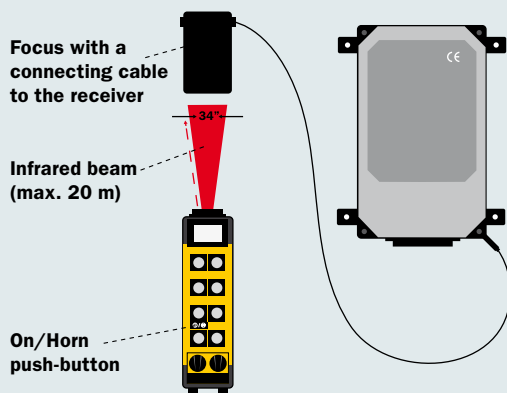


**Examples of radio transmitters:
MiniJoystick on the left, REMOX on the right.**





Infra-key module and principle



INFRA-KEY

Infra-key is an additional infrared module for crane activation between the transmitter and the receiver. It prevents the crane from becoming inadvertently enabled, thus increasing safety. The range of the infrared beam is approximately 20 meters.

MiniJoystick radio

ERGONOMIC IN DESIGN, ROBUST IN STRUCTURE

Konecranes MiniJoystick radio takes the ergonomics of controlling cranes to the next level. It is lightweight, easy to use and starts up fast. The joystick is for controlling the travelling movement of the crane and hoist, and the buttons are for lifting and lowering. The joystick allows the user to control the load with just a single grip and enables the operator to concentrate fully on the load.

MiniJoystick radio:

Applications: Cranes, Solo hoists, Chain hoists with motorized trolley (bridge)

Operation: Indoor, outdoor (when no need to install the receiver inside the bridge panel)

Control elements: 2-step joystick, 2-step push-buttons

Enclosure ratings: IP65 / NEMA4

Operating temperature range: -20 to 70 °C (-4 to 158 °F)

Receiver power supply: 48, 115 and 230 VAC 50/60Hz

Antenna: Internal antenna in the receiver and in the transmitter

Transmitter: Operating mode signalling Bi-Color LED and internal buzzer

Battery: Two Li-Ion batteries per system, 3.7 V / 1130mAh, over 16 hours operating time with 50% duty cycle

Connections: Standardized Konecranes Corporation connections

Carrying options and protection: The radio transmitter includes protective silicone cover, carabiner hook and wrist strap as a standard.

Certificates: CSA, CCC, CE

Storage: Storage cabinet with a key as an option

MiniJoystick radio control transmitter model:



MiniJoystick radio functionality



Bridge and trolley movements

The joystick is for controlling the travelling movement of the crane and hoist. The joystick allows the user to control the load with just a single grip. The symbols are covered with a thick layer of transparent plastic to guarantee durability.



Hook up/Hook down



Multifunction key

The transmitter has a removable, multifunctional key that prevents the transmitter from being operated without the key. The rotatable function makes it possible to have multiple functions for just one control element. The 5-step switch enables to have a trolley selection for two trolleys, flood lights and even sway control. The push-button function is used to start the crane and to sound the horn.

Available configurations:



STOP
Easy-to-see stop button



REMOX PRECISION IN CRANE CONTROL

REMOX radio control increases efficiency and reduces operating risks. It allows the operator to have a good view of the load in the hook and to manually assist it, if necessary. A crane equipped with Smart Features – together with an intelligent HIM (Human Interface to Machine) transmitter – is a serious tool for even the most demanding applications.



REMOX radio transmitters use an iLOG key to store all the important data of the radio system. The key can be transferred to a spare transmitter and it will immediately have the correct frequency and the same system functionalities as the original transmitter.



Left: iLOG key.

Right: REMOX transmitter models MI, EC and SP have a vibration alarm as standard. When the battery is running low, the alarm goes off and the transmitter starts vibrating. Vibration alarms are optional in some models.

Available REMOX transmitter models:



QU = Push-button model



M2 = Push-button model with display for ControlPro condition monitoring



MI = Push-button model



EC = Mini-joystick model, two joysticks



SP = Joystick model, two advanced joysticks



S2 = Joystick model, two advanced joysticks and a display for ControlPro condition monitoring



SA = Joystick model with two analog joysticks



A lockable storage cabinet with two keys for transmitter storing is available for all REMOX models.



Available REMOX models:

Radio model	Hoisting movement	Trolley movement	Crane movement
REMOX 510MI	X	X	
REMOX 510QU	X	X	
REMOX 512QU	X	X	X
REMOX 516MI	X	X	X
REMOX 512EC	X	X	X
REMOX 516EC	X	X	X
REMOX 512SP	X	X	X
REMOX 516SP	X	X	X
REMOX 516M2	X	X	X
REMOX 516S2	X	X	X
REMOX 524SP	X	X	X
REMOX 524S2	X	X	X
REMOX 736SA	X	X	X
REMOX 736SP	X	X	X
REMOX 707FIX	For crane movement interlocking purposes only		
REMOX 716FIX	For crane movement interlocking purposes only		

REMOX receivers:

510, 512, 516, 524, 736 = Konecranes standard receivers. Component selection made automatically by Konecranes sales.

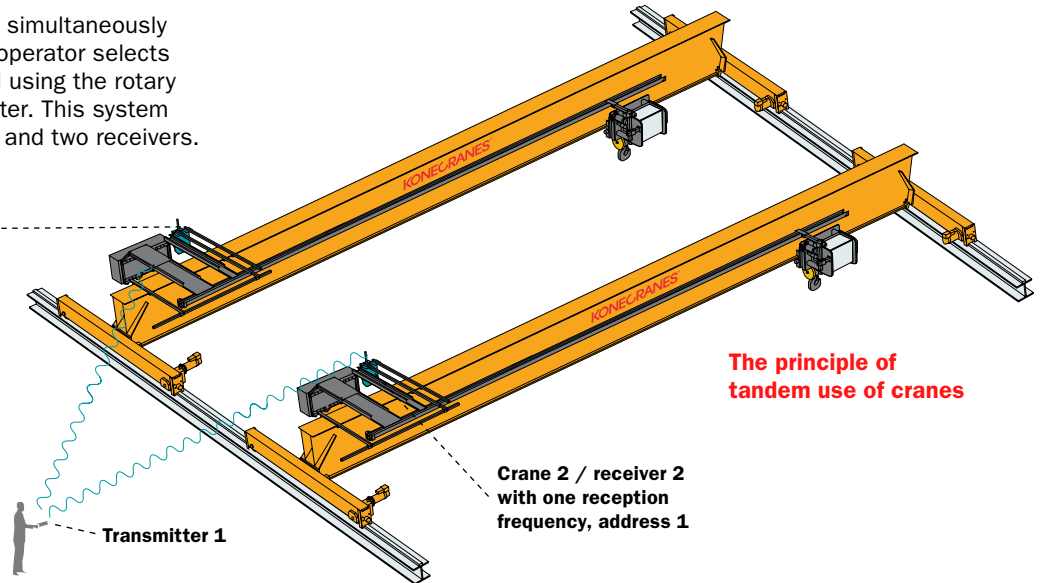
707FIX & 716FIX = For crane movement interlocking purposes only.

Optional features of **KONECRANES RADIO CONTROLS**

TANDEM

Two cranes can be controlled simultaneously with the tandem option. The operator selects the crane he wants to control using the rotary selector in the radio transmitter. This system requires only one transmitter and two receivers.

Crane 1 / receiver 1
with one reception
frequency, address 1

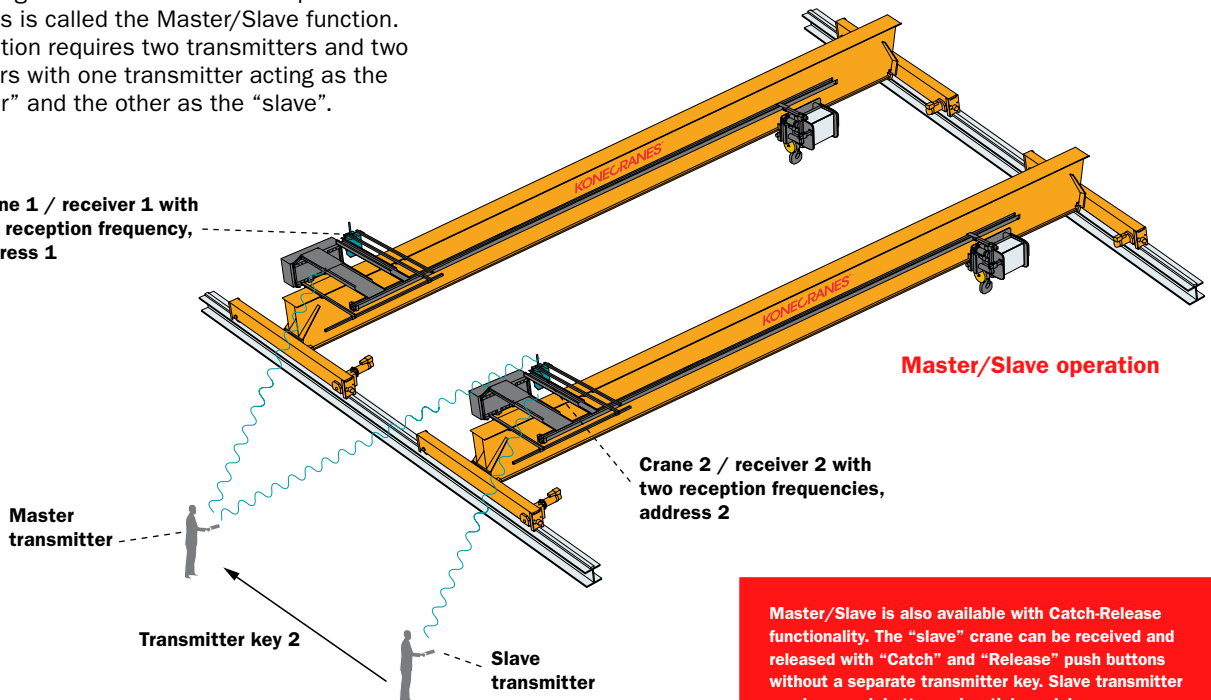


The principle of
tandem use of cranes

MASTER/SLAVE

Operating two cranes with two complete radio systems is called the Master/Slave function. This option requires two transmitters and two receivers with one transmitter acting as the "master" and the other as the "slave".

Crane 1 / receiver 1 with
one reception frequency,
address 1



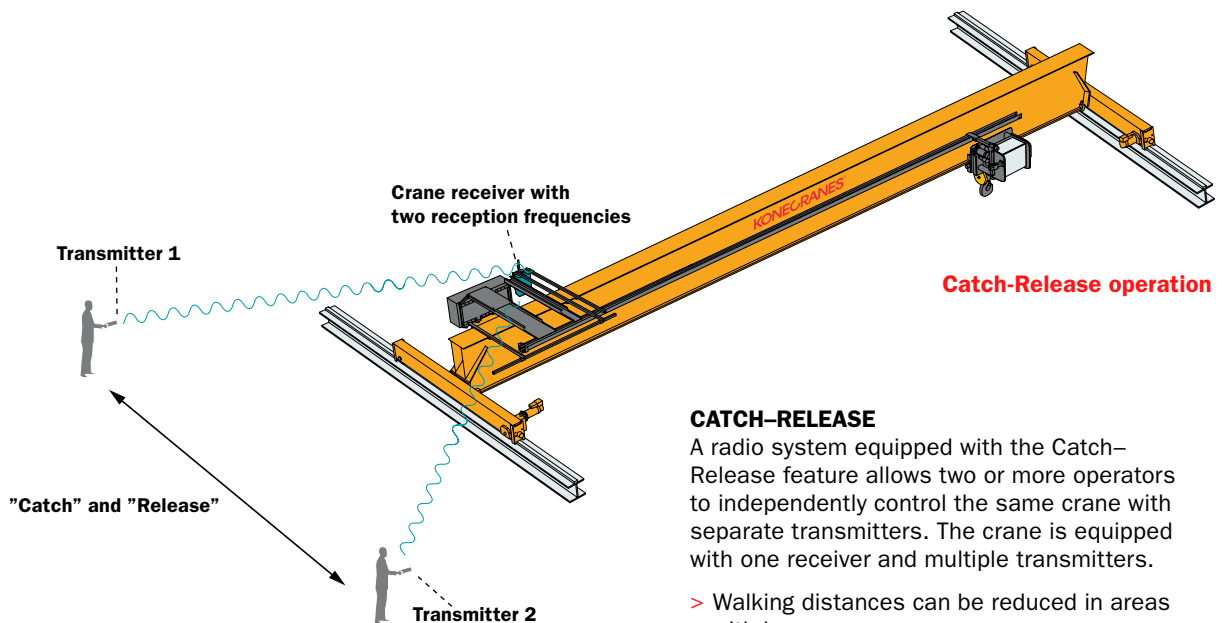
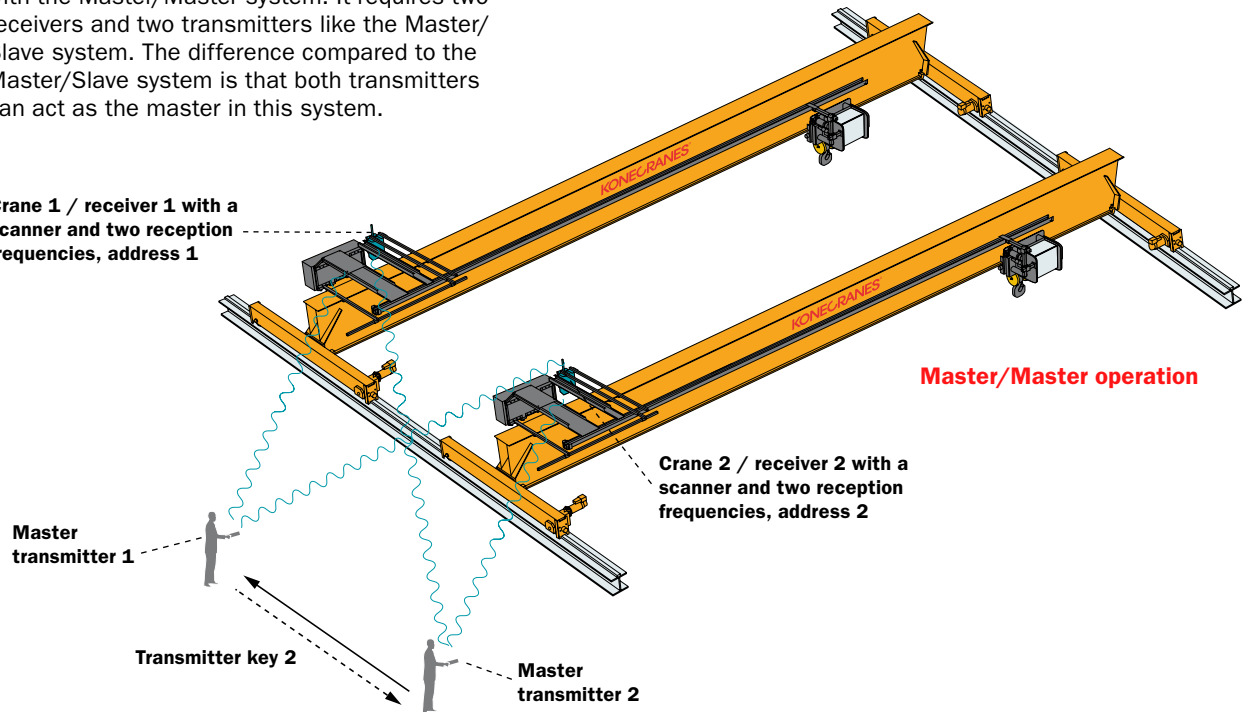
Master/Slave operation

Master/Slave is also available with Catch-Release functionality. The "slave" crane can be received and released with "Catch" and "Release" push buttons without a separate transmitter key. Slave transmitter can be a push button or joystick model.

MASTER/MASTER

Two cranes can be operated in tandem also with the Master/Master system. It requires two receivers and two transmitters like the Master/Slave system. The difference compared to the Master/Slave system is that both transmitters can act as the master in this system.

Crane 1 / receiver 1 with a scanner and two reception frequencies, address 1



CATCH-RELEASE

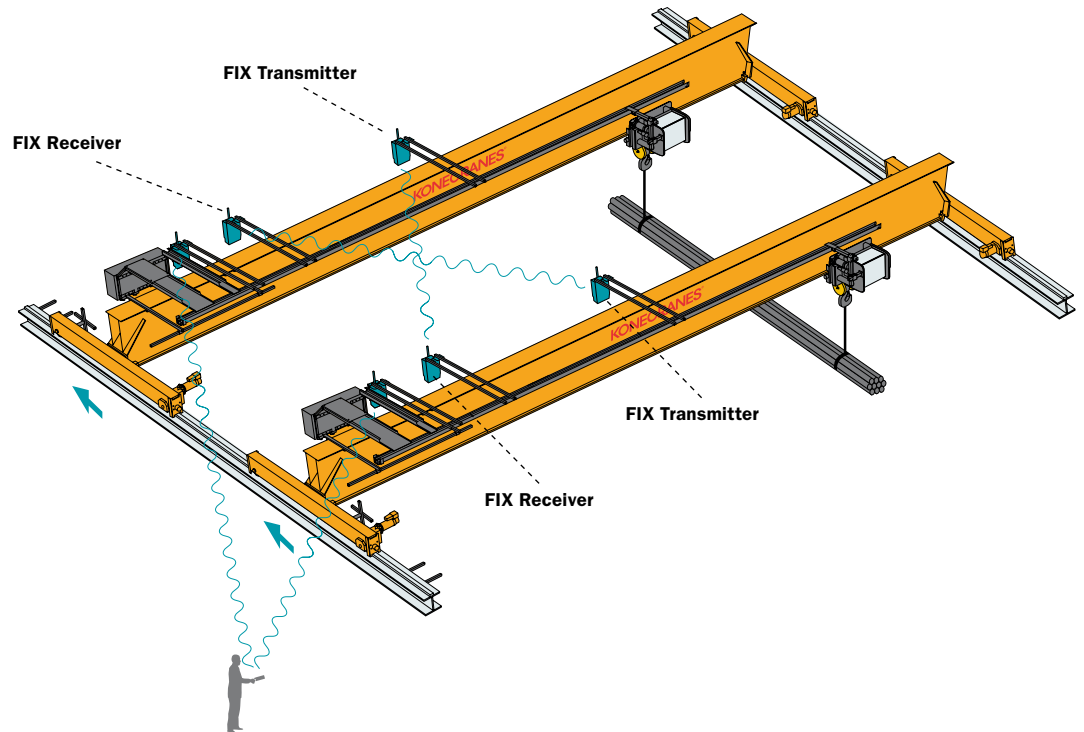
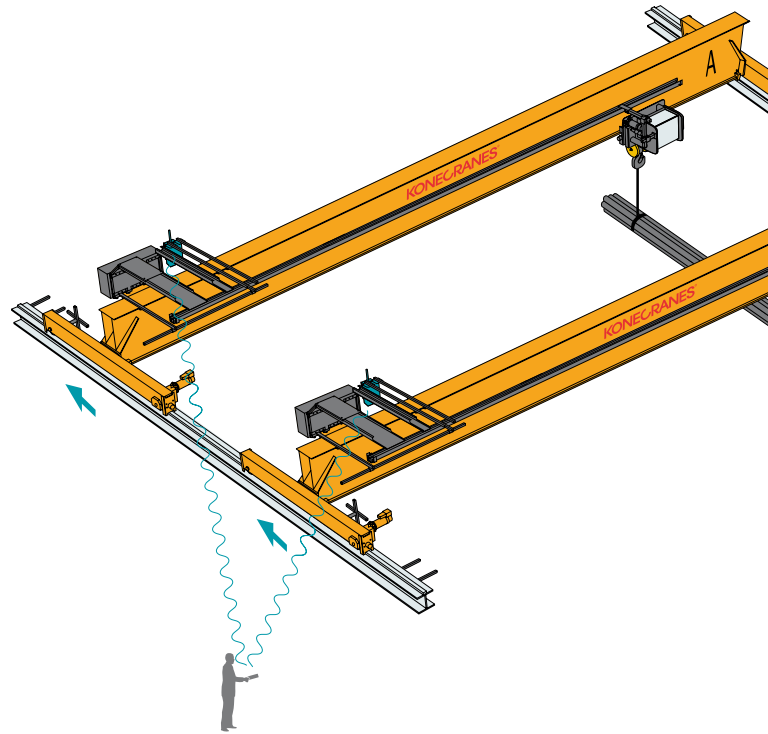
A radio system equipped with the Catch-Release feature allows two or more operators to independently control the same crane with separate transmitters. The crane is equipped with one receiver and multiple transmitters.

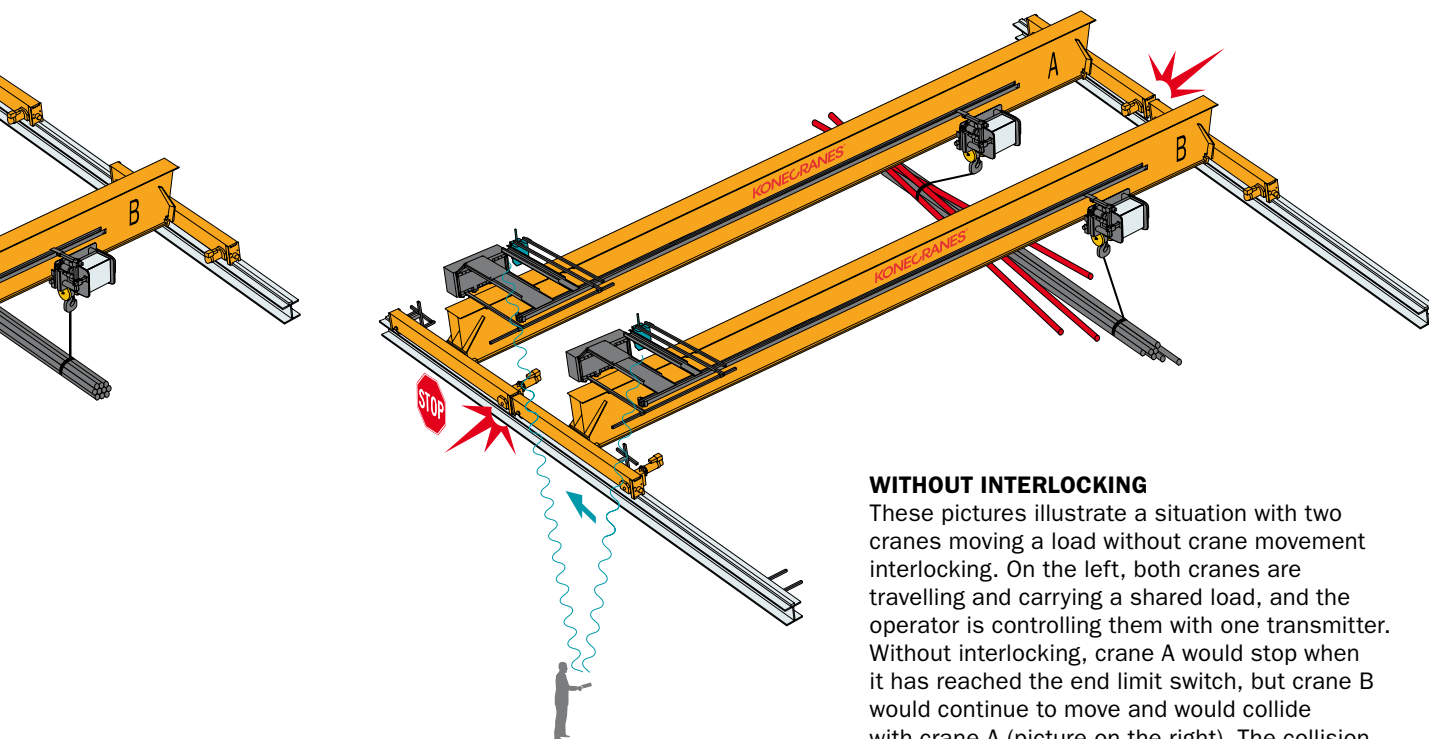
- > Walking distances can be reduced in areas with long crane runways.
- > Possible hazardous situations such as loading and unloading can be monitored and handled more safely with good visibility and without unnecessary walking.

CRANE MOVEMENT INTERLOCKING

In situations where two cranes are carrying the same load, it is crucial for safety that the load is moved at exactly the same time and speed in each direction. Due to the hazardous nature of this type of load moving, standardization has been created to increase the safety of the employees and of the objects being moved. Konecranes fulfills EN ISO 13849-1 performance level C. We have the industry's most comprehensive monitoring of crane conditions on tandem controls.

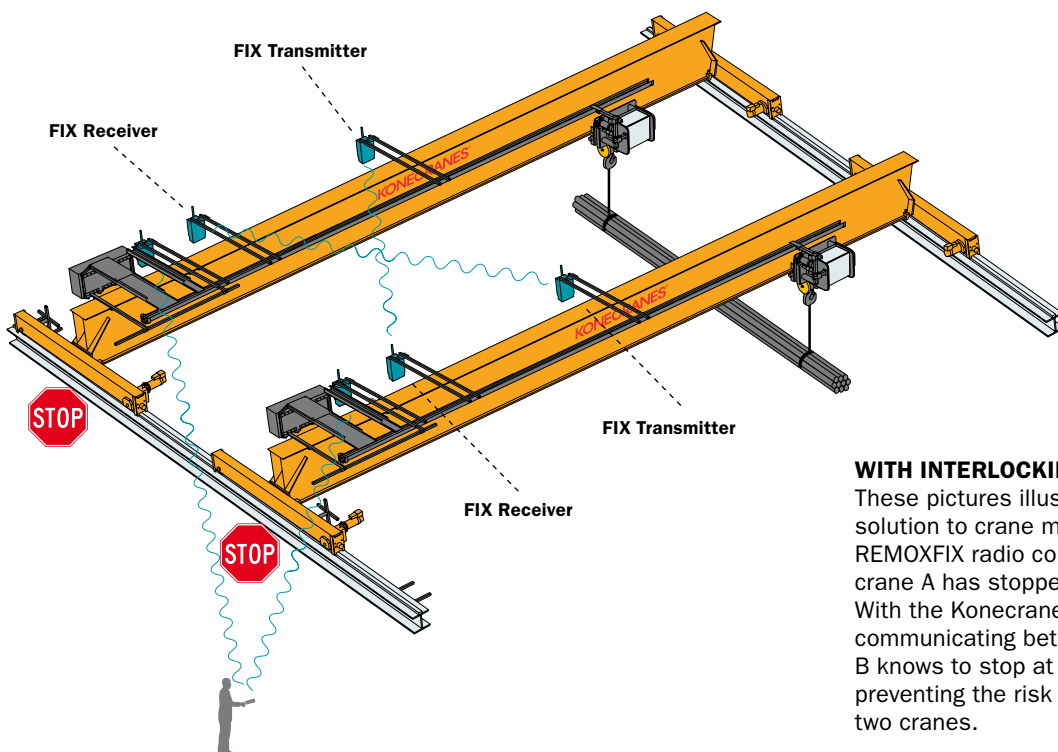
Konecranes' REMOxFIX system monitors all the necessary signals between two cranes, to ensure safety. The control system monitors the movements and loads so that the operator can focus only on the effective load moving.





WITHOUT INTERLOCKING

These pictures illustrate a situation with two cranes moving a load without crane movement interlocking. On the left, both cranes are travelling and carrying a shared load, and the operator is controlling them with one transmitter. Without interlocking, crane A would stop when it has reached the end limit switch, but crane B would continue to move and would collide with crane A (picture on the right). The collision would make the load unstable and put it in danger of dropping; this would thus create a major safety hazard.



WITH INTERLOCKING

These pictures illustrate the Konecranes solution to crane movement interlocking with the REMOXFIX radio control system. On the right, crane A has stopped at the end limit switch. With the Konecranes solution, the cranes are communicating between each other and crane B knows to stop at exactly the same time, preventing the risk of collision between the two cranes.



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Konecranes is a world-leading group of Lifting Businesses™ offering lifting equipment and services that improve productivity in a wide variety of industries. The company is listed on NASDAQ OMX Helsinki Ltd (symbol: KCR1V). With over 12,000 employees at more than 600 locations in almost 50 countries we have the resources, technology and determination to deliver on the promise of Lifting Businesses™.

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