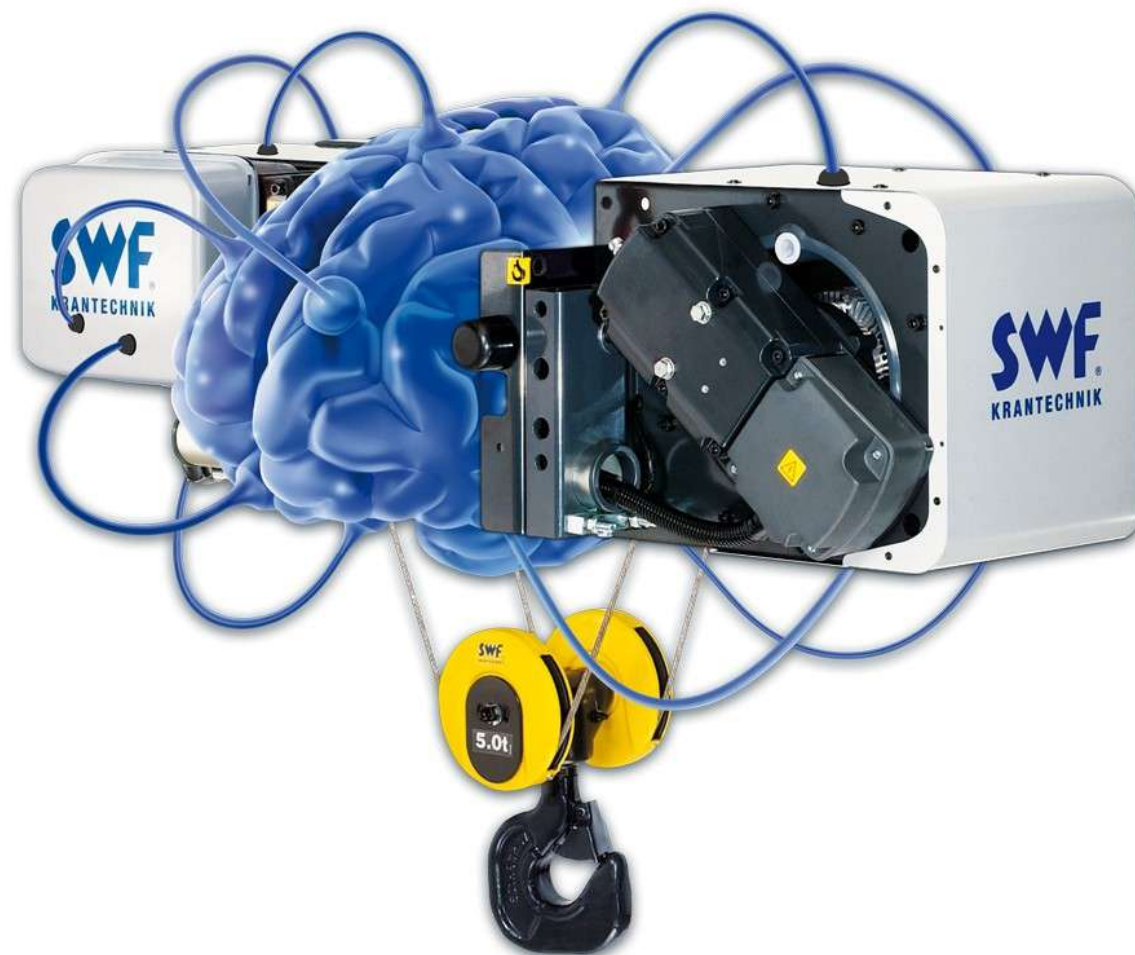


NOVA & CRABster Crane Intelligence



What does it mean?

Features which can be added to the Inverter and/or NovaMaster



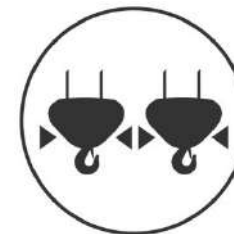
Extended speed range



Micro speed



Slack rope



Tandem



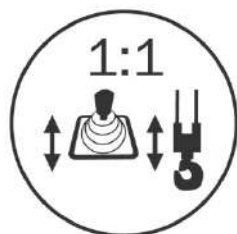
Inching



Restricted load



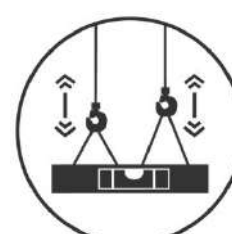
Sway control



Load floating



Shock load



Synchronisation



Cranes in Tandem

WHY CRANE INTELLIGENCE?

Safety

Sophisticated load handling methods reduces the risk of collisions and accidents.

Productivity

Time savings in load handling and final positioning makes processes more efficient.

Cost Savings

Longer lifetime of components and less maintenance work results in better economy.

Crane Intelligence

EXTENDED SPEED RANGE



Functionality

- Extended Speed Range allows higher lifting and lowering speeds with partial loads.
- With loads less than 20% of capacity, the hoist can be operated up to twice the speed at rated load.
- Stepless ESR - The maximum allowed speed is automatically calculated based on the measured load.

Benefits

- **Full power of the crane can be used** all the time
Heavy loads - nominal speeds
Light loads - extended speeds (up to 200% of nom. speed)
- **Maximized productivity**
No need to oversize larger mechanical and electrical components.
- **Significant time savings**
If majority of lifts requires loads less than 20% of rated load
Particularly beneficial with long lifting height



Crane Intelligence

MICRO SPEED



Functionality

- Microspeed makes load control more precise.
- Available for hoist motion or for all three motions.
- Microspeed turns large joystick movements at the controls into slow and precise load movements.
- The maximum microspeed can be preset from 1% to 99% of full motion speed.
- Each motion can have different maximum microspeed
- Activated by On/Off selector in radio or pendant.

Benefits

- Microprecisely in tight spaces, increasing safety and protecting peed helps the operator control the load the load.
- Useful in heavy lifting assembly applications, where very high load positioning accuracy is needed.



Crane Intelligence

SLACK ROPE PREVENTION



Functionality

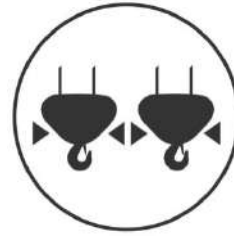
- Slack Rope Prevention is an important safety and productivity feature when lifting devices such as lifting beams are used.
- When the load is lowered, the hoist drive detects when load has arrived on the ground and stops lowering motion.
 - Lifting device weight must be min. 10% of nominal load
- The ropes do not get slack. Ropes do not slip out of the hook block. Proper connection of hook attachments to hook is ensured.

Benefits

- **Increased productivity**
 - Optimizes load handling cycle by stopping the lowering motion when the load is landed before the ropes go slack
- **Increased safety**
 - Reduces risk of accidents caused by lifting devices falling over
 - Minimizes wire rope damages by preventing excessive slack rope coming off the rope sheaves
- **Minimizes risk of damaging load with lifting device**
 - Example: Lowering coil tong too far can damage the landed coil



Crane Intelligence Tandem



Standard, NovaMaster Tandem

- Electronic monitoring of safe tandem operation of two hoist
- Signal transmission between hoists via BUS cable
- Load summarization and crane overload

Options

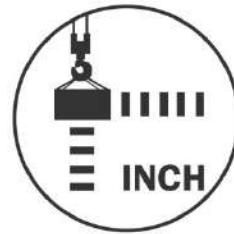
- Anti collision device
- LED load display, Sum load
- Lifting speed synchronization via inverter of two or more same hoist motors on one crane



CAN-bus

Crane Intelligence

INCHING



Functionality

- Inching provides a way for accurate load positioning.
- Available for hoist motion or for all three main motions.
- Inching increments can be preset ranging from 2 to 100 mm:
 - Each motion can have different Inching Increment
- Each activation of the joystick moves the motion the preset Inching Increment.
- Activated by On/Off selector in radio or pendant.

Benefits

- The load is easier to put into position with the predefined inching incremental control
- Makes accurate load positioning more efficient and reduces risk of collisions



Crane Intelligence

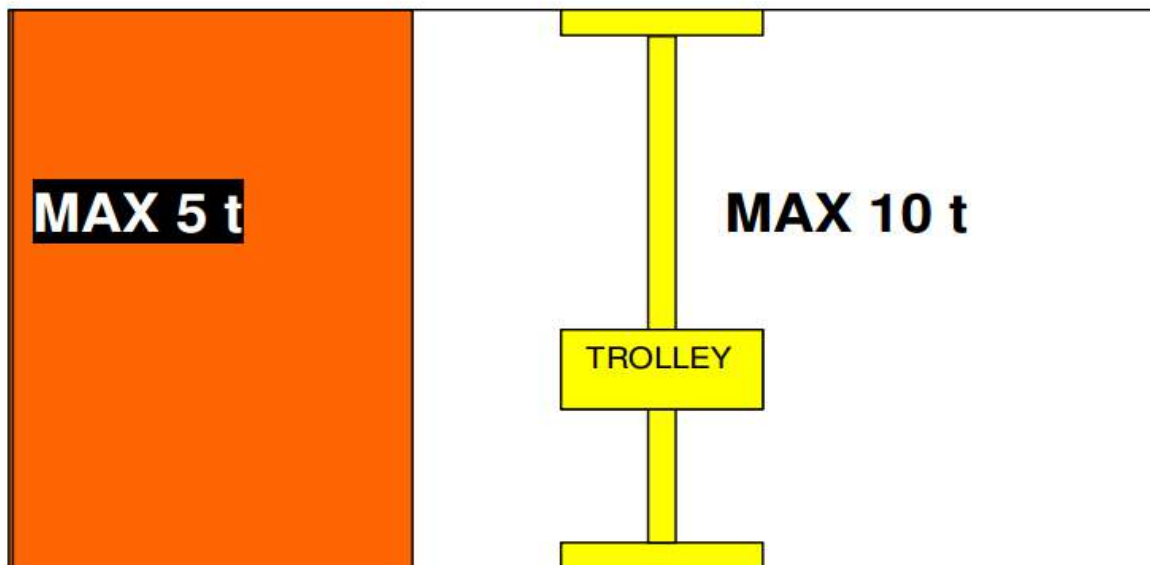
RESTRICTED LOAD



Functionality

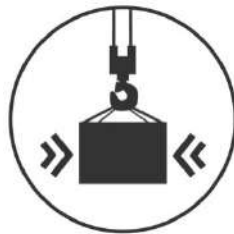
Load restricted areas can be in trolley movement direction or in bridge movement direction or both directions. Load restriction area can be symmetrical on both sides or single side restriction.

Common for both cases is that the restriction beginning from certain point until end of crane structure. This point is done with magnetic limit switch on runway or crane.



Crane Intelligence

SWAY CONTROL



Functionality

Sway Control takes the crane operator's speed command at the controls and brings the load to the required speed while minimizing sway caused by acceleration and deceleration.

Benefits

Increased productivity

- Higher speeds and faster acceleration rates can be used
- Better positioning accuracy as the load is not swaying when travel motion is stopped.

Increased safety

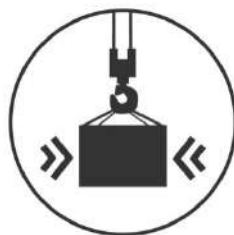
- Crane operator can focus on safety of load handling while not worrying about the load swing
- Reduced risk of collisions due to reduced load sway

Less training needed for crane operators to reach proficient level of

- Positioning accuracy
- Load handling safety



Crane Intelligence SWAY CONTROL



Indication LED light
Sway ON/OFF



Height
measurement unit



D2C Bridge travelling
inverter



D2C Trolley travelling
inverter



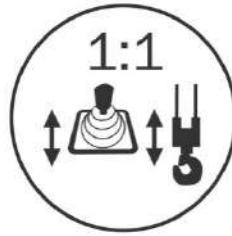
REMOX Controller with
sling length adjustment



Encoder in the end of rotating limit switch
(Stromag)

Crane Intelligence

LOAD FLOATING



Functionality

- Holds the load at zero speed for a predefined time after the hoist motion stops.
- Hoist motor provides the needed torque at zero speed; hoist brake does not close
- Transition from hoisting to lowering takes place faster
- Starting the motion again is fast and smooth as the brake is already open
- The floating time can be adjusted: typically 3...5 sec.
- Similar Floating function is available for travelling motion.

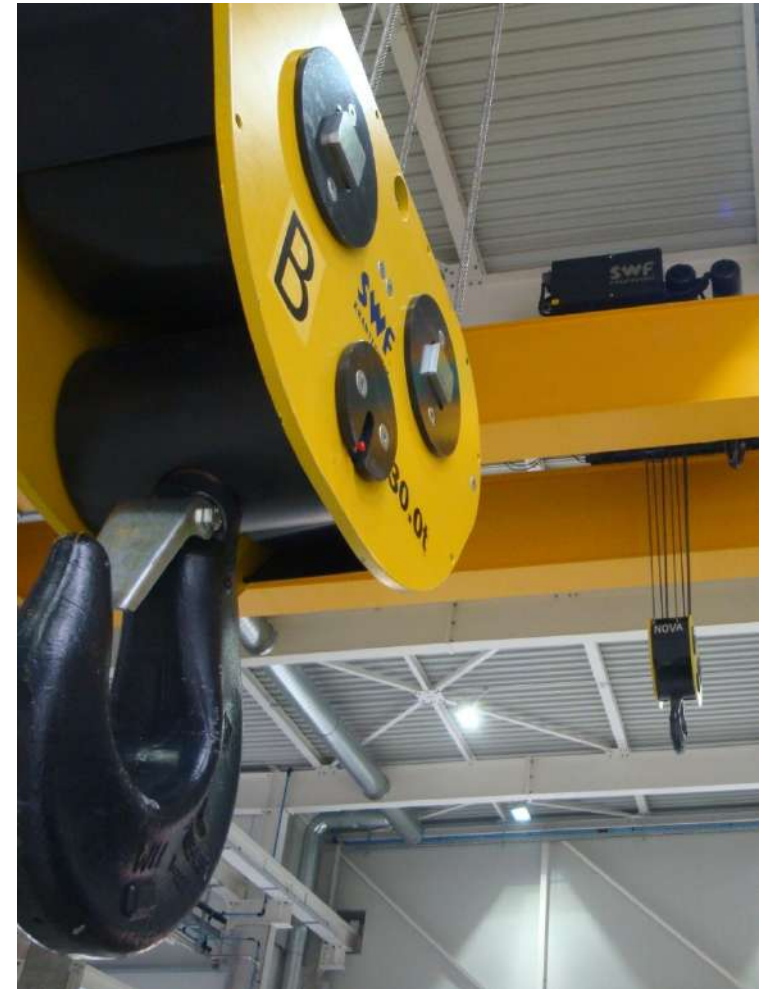
Benefits

Longer lifetime of

- crane's steel structure
- mechanical components
- lifting devices and slings
- wire ropes
- runway structure

Stability; Smooth load pick-up

- makes the load movements more stable and safer
- protects fragile loads



Crane Intelligence

SHOCK LOAD



Functionality

- Shock Load Prevention ensures smooth load pick-up.
- The hoist drive monitors the load and when a quick load change is detected (when slack chains or slings become tight) the system slows down until the load is lifted.
- Impact due to abrupt load pick-up is minimized.

Benefits

Longer lifetime of

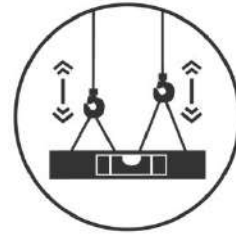
- crane's steel structure
- mechanical components
- wire ropes
- lifting devices and slings
- runway structure

Stability; Smooth load pick-up

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Crane Intelligence SYNCHRONISATION



Functionality

- When lifting a load simultaneously with two hooks of the same crane, Hoisting Synchronization supervises and controls both hooks so that they run at exactly the same speed;
- Also works with imbalanced loading between the hoists.
- Synchronization of hoisting is always activated, when the operator selects common hoist mode.

Benefits

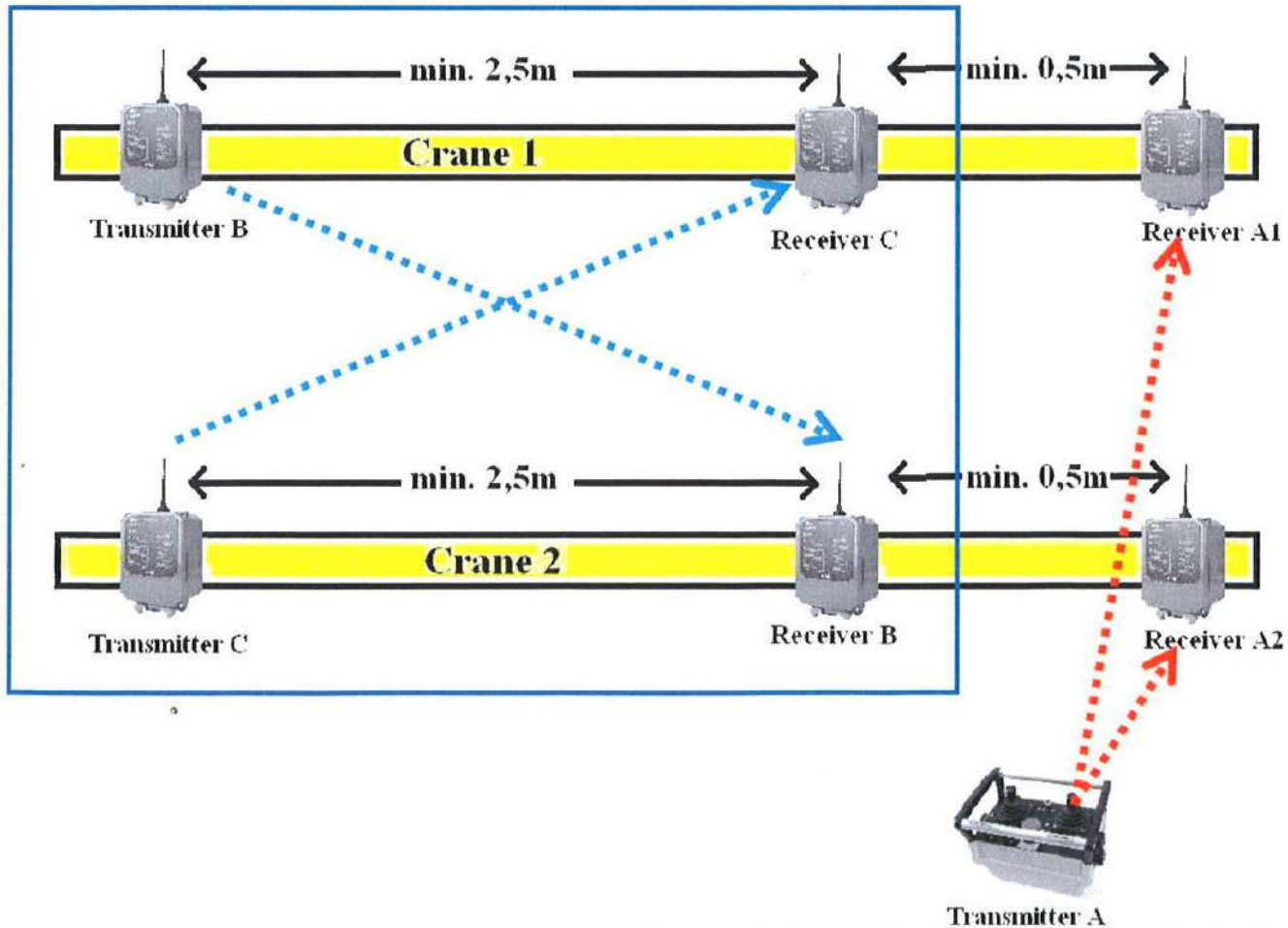
- Hoisting Synchronization keeps the height difference of the hooks constant during hoisting.
- Load does not tilt during lifting and lowering.
- Increases both safety and productivity.



Crane Intelligence CRANES IN TANDEM



Fixed radio system



Crane Intelligence

CRANES IN TANDEM



Crane interlocking feature includes

- FIX radio –system: 2 x transmitter + 2 x receiver
- Transmitters and receivers including external antennas
- Connection cable from transmitter and receiver to interlocking panel
- Relays and RC-circuit assembly and wiring to bridge panel
- Electrical engineering and drawings

FIX-radio transmitter and receiver



Interlocking panel

