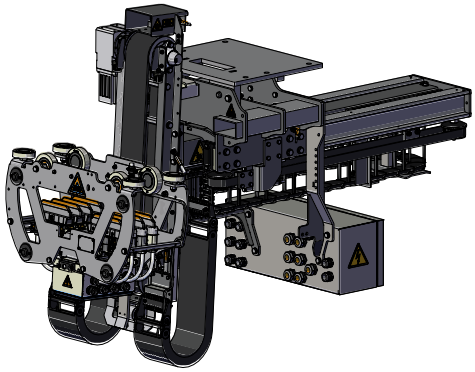
Commissioning Checklist

E-RTG™ / RTG Electification System

0852 Drive-In-L with PLC



This checklist serves as a guideline to ensure the safe operation of the electrification system!

The checklist is addressed to qualified specialists who install and commission electrification systems and who are familiar with the regulations regarding work safety and prevention of accidents.

Read and follow all safety and warning instructions in the assembly instructions MAL0852-00XX for this product.

For initial commissioning, the acceptance report has to be completed!

Project:	
Customer:	
CXW-Order-No.:	

Final Customer:	
Address:	
Country:	

Facility/Building/Block/Aisle:	
Serial Number (if applicable):	
Period of Commissioning:	
Additional Remarks:	

	Commissioning/Service Technician
Name:	
Date:	
Signature:	

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No.	Description	Target value	Remarks	OK	Not OK
1	**Installation of hardware / checking inputs and outputs**				
1.1	Installation of the cables on the RTG: o The cables are properly laid and the bending radius is observed. o Cables are properly installed and connected (without any damage). o All existing cable glands are properly tightened.	Details: see project specific circuit diagram			
1.2	Hardware installation on the crane side where control cabinet 1 and fuse box 1 are mounted: o Control cabinet and fuse box are properly installed and connected. o All equipment and cables are labeled. o Live parts on the main contactor are covered.	Details: see project specific circuit diagram			
1.3	Hardware installation on the crane side where control cabinet 2 and fuse box 2 are mounted (if available): o Control cabinet 2 and fuse box 2 are properly installed and connected. o All equipment and cables are labeled. o Live parts on the main contactor are covered.	Details: see project specific circuit diagram			
1.4	Installation of the laser scanners on the RTG: o The laser scanners are properly installed according to MAL. o All cables are labeled.	Details: see project specific circuit diagram			
1.5	Drive-in unit 1 and 2 (if available) are mounted at the correct height. (Dimension from upper edge of adapter plate to upper edge of RTG runway).	According to project specification	**Actual:** _____ **mm**		
1.6	Connection of drive-in unit 1 and 2 (if available) to adapter plate secured against slipping out with additional „crosswise screw".				
1.7	Tightening torques observed according to MAL				
1.8	Grounding cable from console to RTG properly connected.				
1.9	Function test: o Emergency stop / emergency off from the RTG o Supply voltages (see circuit diagram) within acceptable range.	Details: see project specific circuit diagram			

No.	Description	Target value	Remarks	OK	Not OK
2	**Manual operation: under visual control (outside of the stack) for DIU 1 and DIU 2 (if available)**				
2.1	RTG location outside the stack: Function test on the manual control unit: (see MAL) o Main key switch of manual control unit “ON“ (switch 1 turn to the right) o The control of the drive-in unit via the DIU-L touch panel is completely blocked	Touch panel: manual operation is active			
2.2	Extending the drive-in unit (DIU): o Extending is not possible if the DIU is locked. o Main key switch of manual control unit to ”ON“ (switch 1 turn to the right). o To unlock the current collector trolley mechanically, the following sequence must be observed: 1 Press button 2 to lift the vertical unit. 2 Press button 4 to extend the horizontal unit	Touch panel: manual operation is active			
2.3	Horizontal unit extends easily and evenly.				
2.4	Extending the drive-in unit (DIU): o Lift the vertical unit, if necessary (button 2), the vertical unit must not be in the lower end position. o Press button 5, fully retract the horizontal unit. o As soon as the horizontal unit is fully retracted, press button 3 and lower the vertical unit into the mechanical lock.				
2.5	Horizontal unit retracts easily and evenly.				
2.6	RTG travels with the manual control unit switched on: o The drive-in unit is in in the basic position. Driving with the RTG at reduced speed is allowed. o The drive-in unit is extended. Driving with the RTG at reduced speed is allowed. o The current collector trolley is in the conductor rail. Driving with the RTG at reduced speed is allowed.	Maximum speed: **15 m/min**			
2.7	Function test finished: o Turn the main key switch to the “OFF” position.	Touch panel: manual operation no longer active			

No.	Description	Target value	Remarks	OK	Not OK
3	**Normal operation: Crane driver extends the drive-in unit for DIU1 and DIU2 (if available)**				
3.1	Outside the driving line: The drive-in unit must not extend (no release signal from the laser sensor).	Touch panel: extending is not possible			
3.2	The RTG drives into the correct position in the drive-in zone (laser sensor in correct distance in front of the reflector foil. The touch panel indicates to the crane driver that the correct position has been reached.	Touch panel: extending is not possible			
3.3	After pressing the function key Extension: The drive-in unit is mechanically unlocked and extends. Shortly before the pressure plate, the speed of the unit is reduced.	Touch panel: menu "Sensors"			
3.4	The sliding parts on the current collector trolley are pressed against the pressure plate.	3 of 4 sliding parts touch the pressure plate			
3.5	The front face sensor (HU-touched) has sufficient distance to the pressure plate.	**min. 3 mm**	**Actual: _____ mm**		
3.6	The extension of the drive-in unit is visualized on the touch panel in the main menu. 2 sensors signalize the correct position during the movement of the drive-in unit.	Touch panel: menu "Sensors"			

No.	Description	Target value	Remarks	OK	Not OK
4	**Normal operation: Crane driver drives the current collector trolley into the conductor rails for DIU1 and DIU2 (if available)**				
4.1	The RTG moves with reduced speed further into zone 2 into the direction of the driving line center.	Maximum speed **15 m/min**			
4.2	The sliding contacts move gently through the pick-up guide into the conductor rails.				
4.3	Transition from zone 2 to zone 3: RTG is stopped and the control automatically switches to electric operation. The horizontal unit and the vertical unit are deactivated.	Touch panel: ready to switch			
4.4	Full speed is allowed in zone 3 for driving into the direction of the center of the track.	Maximum speed: **135 m/min**			
4.5	Sufficient space between current collector trolley and steel posts	**min. 30 mm**	**Actual: _____ mm**		
4.6	Current collector trolley runs smoothly and evenly in the track profile.				
4.7	After switching to electric operation, the diesel generator is automatically switched off / the battery is charged, if required.	Touch panel: Diesel not active / battery active			
4.8	Zone 4: Full speed is allowed – normal operation in the driving line.	Maximum speed: **135 m/min**			

5	**Normal operation: Travelling in the driving line for DIU1 and DIU2 (if available)**				
5.1	Travelling with the RTG forward and backward in the driving line, picking up a container, lifting a container and travelling (gantry travel) at full speed (depending on the crane type). Performing start and stop maneuvers with the RTG.	Maximum speed: **135 m/min**			
5.2	Vertical and horizontal unit have sufficient tolerance to compensate the movement occurring during the travel with the RTG along the driving line. Full function is ensured.				

No.	Description	Target value	Remarks	OK	Not OK
6	**Normal operation: Crane driver drives the current collector trolley out of the conductor rails for DIU1 and DIU2 (if available)**				
6.1	Transition from zone 4 to zone 3: The RTG slows down and travels at reduced speed.	Maximum speed: **15 m/min**			
6.2	When slowing down from maximum speed (max. 135 m/min) to slow speed (max. 15 m/min), the braking distance is sufficient.				
6.3	Transition from zone 3 to zone 2: The RTG is stopped and the control automatically changed to diesel operation, battery operation (diesel generator must be activated by the crane driver in advance / battery operation must be released by the RTG in advance). The horizontal unit and the vertical unit are being activated.	Touch panel: ready to switch			
6.4	Transition from zone 2 to zone 1: The laser sensor on the drive-in unit detects the drive-in/drive-out position (reflector foil). As soon as the RTG has reached the correct position, the drive-in unit retracts automatically.	Touch panel: drive-in/out position reached			
6.5	When driving out at slow speed (max. 15 m/min) the length of the pressure plate is sufficient.				

7	Normal operation: Retraction of the drive-in unit by the crane driver for DIU1 and DIU2 (if available)				
7.1	The DIU cannot be retracted before the laser sensor has reached the reflector foil.	Touch panel: main menu			
7.2	In zone 1: Once the laser sensor has recognized the reflector foil, the DIU is being retracted automatically. The DIU is fully retracted and locked.	Touch panel: main menu			
7.3	With the DIU locked up, the crane driver can move the RTG out of the drive-in/drive-out zone.	Touch panel: main menu			

No.	Description	Target value	Remarks	OK	Not OK
8	**Function test: Emergency off / emergency stop for DIU1 and DIU2 (if available)**				
8.1	Pressing the emergency stop button by the crane driver has the following effect on the DIU: The power supply for the system is interrupted immediately. *CAUTION! If the DIU is outside the steel structure and the vertical unit is lifted, the current collector trolley will fall down.*				
8.2	The RTG leaves the steel structure at low speed, the current collector trolley is still extended. The crane control triggers an emergency stop. All crane movement is blocked until the current collector trolley is locked.				

9	**Function test drive release RTG / entering the conductor rail for DIU1 and DIU2 (if available)**				
9.1	The RTG is located in the drive-in zone. The horizontal unit is extended and the current collector trolley presses against the pressure plate. The crane driver receives the drive release message into the direction of the center of the driving line. If the RTG is moved into the wrong direction, an error message will be displayed after a short time.	Touch panel: main menu			
9.2	If the opposite DIU is not in the basic position, driving with the RTG is not possible. The DIUL-control triggers a quick stop. All crane movement is blocked until the current collector trolley is locked. (Only in case of a DIU2)				
9.3	When the key switch SG1 is pressed, the respective DIU is deactivated. Traveling the RTG is then also possible when the deactivated DIU is not in the basic position. (Only in case of a DIU2)				
9.4	Personnel instructed in the operation of the system				