

Intrinsically Safe Automatic Conveyor Scales

REX-01

CE 1453

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KDB 05ATEX249



Functions and operating principle of the REX-01 conveyor scales

The scales measures the weight of the output carried on the conveyor belt and the belt travel speed. The measured values are used to calculate the weight of the output carried on the conveyor belt. The REX-01 conveyor scales can be installed on conveyor belts with the width from 40 to 300 cm.

Functional features of the conveyor scales:

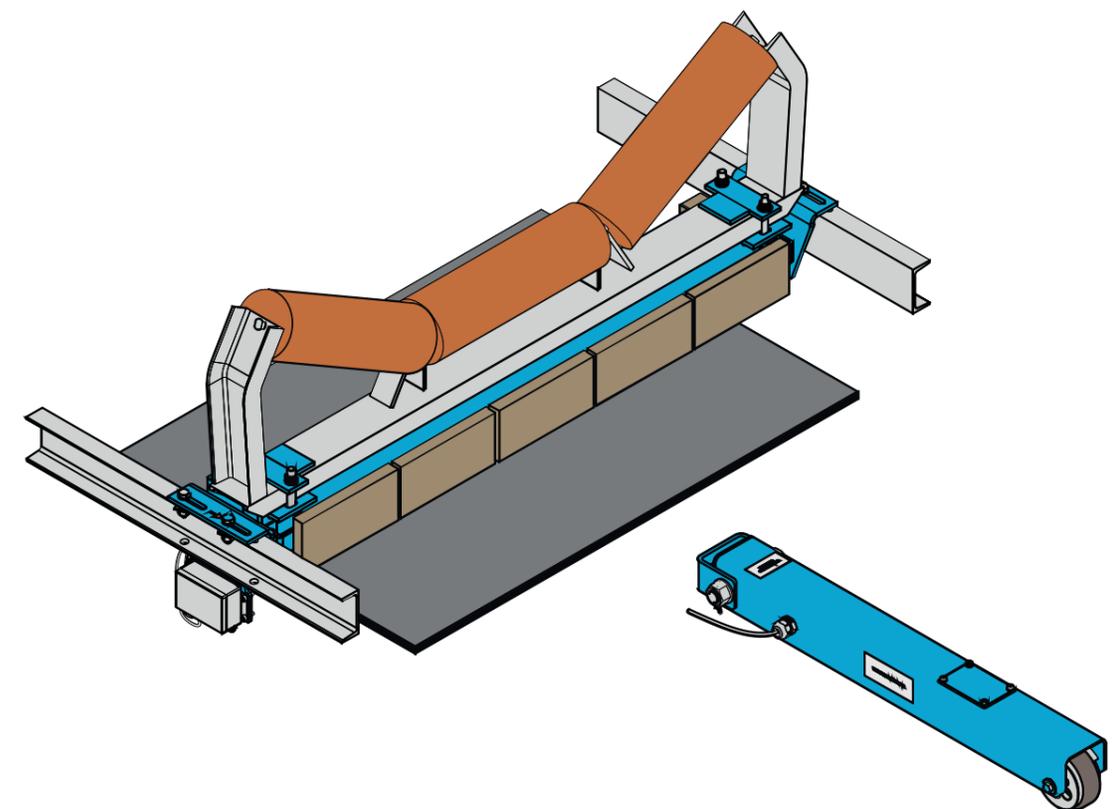
- Preset batch weighing: when the start command is received, the sales measures the preset batch of output (e.g. 30 tons) and sends back the information that the given output has been batched. This function is used in e.g. skip loading systems. The output batch value is present with the keyboard on the device enclosure door or via the serial communication interface.
- Output weight count: the scales features counters to measure the output carried by the conveyor. The standard counters include:
 - Total counter, not resettable.
 - Hour counter: automatically reset every full hour.
 - Workshift counter: automatically reset every 8-hour shift.
 - The 1st shift start time is input with the keyboard.
 - Day (24 h) counter: automatically reset every full 24 hours. The day start time is input with the keyboard.
 - Two additional counters, resettable by the user with an external input or with the keyboard.
- Scales taring: the scales is tared by averaging the belt pressure force during an empty run of the conveyor. It is recommended to tare the scales at the entire length of the belt run. The belt length for the taring is input with the keyboard.
- Scales calibration: the procedure serves to verify that the weight indications are true to actual values. The calibration can be static (when the belt is stopped) or dynamic (when the belt is running).
- In order to facilitate diagnostics, the scales display presents data of pressure sensed by strain gauges and the output from the strain gauge bridge in milli-volts.

The REX-01 conveyor scales can feature the following communication interface options:

- Intrinsically safe RS485 network
- Multi-mode optical fibre
- Single-mode optical fibre
- Intrinsically safe FSK 1200-Baud modem.

The communication interfaces are used to connect the scales to e.g. a flame-proof MDJ7001 computer or to a surface system. The communication interfaces enable remote operation of the scales, e.g. batch setting, readout and resetting of counters, etc.

The scales can be easily integrated with control systems, since it supports intrinsically MDJ315-2DPEX or ET2000Ex controllers available for operating advanced processes.



The REX-01 scales is an intrinsically safe device designed for application in the underground areas of mines. It can be operated, depending on the uploaded software, as a conveyor or a bunker scales. The bunker scales is used to measure the weight of material placed inside a container, whilst a conveyor scales performs the continuous measurements of weights for bulk materials transferred by means of a belt conveyor.

The REX-01 scales is integrated with the intrinsically safe controllers of the MDJ315-2DPEX or ET2000Ex and can be configured and programmed with use of the Step-7 development software from Siemens.

The conveyor scales Includes:

- Electronic module of the REX-01 scales, installed as an embedded module of the MDJ315-2DPEX or ET2000Ex controllers,
- Weighing platform with tensometric sensors of the SIWAREX WL200 type from Siemens,
- SIWAREX Junction Box for cable termination,
- Speed sensor for the conveyor belt

The bunker scales includes:

- Electronic module of the REX-01 scales, installed as an embedded module of the MDJ315-2DPEX or ET2000Ex controllers,
- Tensometric sensors of the SIWAREX WL200 type from Siemens installed in especially-designed enclosures to eliminate the effect of lateral forces where the bunker is placed
- SIWAREX Junction Box for cable termination

Technical data:

1.	Intrinsically safe rating	I M1 Ex ia op is I Ma
2.	Supply voltage	10-24 V DC
3.	Permissible operating temperature	-20 °C to +40 °C
4.	Enclosure IP rating	IP65 or IP54 IP68 for measurement sensors
5.	Measurement sensor enclosure material	stainless steel
6.	Processing accuracy	up to 0.5%
7.	Measurement sensor types	SIWAREX WL260, sensors from 5 kg to 200 kg SIWAREX WL250, sensors from 50 kg to 10t SIWAREX WL230, sensors from 10 kg to 500 kg SIWAREX WL270, sensors from 10 t to 100 t
8.	Maximum permissible weight for the bunker scales (incl. bunker)	400 tons