# Simultaneous detection of weight, volume and identity

DWS Dynamic – ready-to-install system for processing freight

Waldkirch, March 2018 – SICK is presenting its improved DWS Dynamic dimension-weighing-scanning system at LogiMAT 2018 (Hall 1, Stand F51). The system solution is used to determine the volume, weight and identity of freight. It meets the legislative requirements for legal-for-trade measurement systems – the measurement data can therefore be used to invoice freight and warehousing costs. The latest generation of volume measurement and identification systems, as well as sensors, are mounted and wired in the DWS Dynamic ready for integration, together with the weighing technology and control system. The complete solution is used by courier, express and package service providers, in distribution centers, at airports, and at companies that want to use the measurement data to find the most economical freight service provider.

The flexible system design of the DWS Dynamic from SICK, as seen at LogiMAT 2018, provides individual and ready-to-install solutions for the automatic detection of freight data at throughput rates of up to 12,000 units per hour. In hardware and control terms, it is easily integrated in the most varied of plant topographies and impresses through its low need for maintenance during operation. The system components are state-of-the-art, ensuring high functional reliability and future security.

**Modular system structure – complete sensor and control system technology on a single scanner frame**

The DWS Dynamic dimension-weighing-scanning system can consist of several modules, depending on the application – for example with integrated individualization of objects (gapping) before the weighing system. The standard version consists of the feed conveyor, the belt weighing unit with integrated sensors and control system from SICK, and the discharge conveyor.

During throughput, the belt scale determines the weight of each individual piece of freight with maximum accuracy. The systems for volume and weight measurement, as well as for identification of the freight, are integrated in a scanner frame around the conveyors for the weighing unit. The scanners of the VMS5200-MID volume measurement system scan the freight on the conveyor belt from above. Alternatively, transparent and very dark objects can be reliably measured regardless of their surface qualities with the VML520-MID with a certified measurement accuracy of up to 5 mm x 5 mm x 2 mm (L x W x H). The active systems determine the length, width and height as well as the volume of the smallest enclosed cuboid and transfer the data to the central logic unit via CAN-Bus. At the same time, several Lector®650 camera-based code readers find all the 1D and 2D labels located on the top, front and back, as well as on the left and right sides of the object. In the case of a bad reading, the codes can be recorded manually with an IDM160 hand-held scanner. A high-end ICR880 camera system also reads labels (e.g. dangerous goods, 1D bar codes, 2D matrix codes) on the bottom of the freight by scanning in the gap between the feed conveyor and the belt weighing unit. If transponder-coded containers are transported through the DWS Dynamic, the RFU620 UHF read/write device reads out the ID of the container. The speed of passage past the belt weighing unit is measured with a SICK DBS36 high-resolution measuring wheel encoder. The volume measurement system uses the encoder’s incremental signal for determining object length and tracking objects through the measurement field.

The feed conveyor is equipped with photoelectric switches that trigger the DWS Dynamic. A reflex array sensor is used to ensure that irregularly shaped pieces of freight are also correctly detected. The discharge conveyor removes the freight again after measurement.

**All components efficiently networked**

The scanner frame mounted above the weighing unit conveyor system not only bears all the bar code and volume measurement scanners, but also the display, the signal column, the weighing unit itself and the PLC control cabinet. The SIM2000 Sensor Integration Machine is accommodated in another control cabinet. The central logic unit monitors all CAN-Bus data traffic to the volume, weight and identification system and combines its data. The powerful multicore processor with hardware support allows the handling of input and output signals in real time. The SIM2000 assigns the data to the appropriate packages, stores them in the integrated alibi memory for legal-for-trade data, and finally transfers them to the host system. Ethernet-based fieldbus interfaces ensure rapid data transmission.

**Legal-for-trade system solution**

The DWS Dynamic has proven itself as a camera-based system for measuring, weighing and scanning objects at courier, express and package service providers, in distribution centers, and at airports – as well as in the packaging and dispatch departments of companies that want to reduce their freight costs. Its rapid amortization is impressive and, as a legal-for-trade system solution, it meets the requirements of OIML R129 and R51-1, as well as the Measuring Instruments Directive 2014/32/EU (MID). Its data can therefore be used to invoice freight and warehousing costs (for revenue recovery).

Picture: DWS-Dynamic.jpg  
The DWS Dynamic dimension-weighing-scanning system from SICK is used to determine the volume, weight and identity of freight.

SICK is one of the world’s leading producers of sensors and sensor solutions for industrial applications. Founded in 1946 by Dr.-Ing. e. h. Erwin Sick, the company with headquarters in Waldkirch im Breisgau near Freiburg ranks among the technological market leaders. With more than 50 subsidiaries and equity investments as well as numerous agencies, SICK maintains a presence around the globe. In the fiscal year 2016, SICK had more than 8,000 employees worldwide and achieved Group sales of just under EUR 1.4 billion.  
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