

Hexagon Belt Monitor 2D Flow

Real-time material flow monitoring for marine and offshore operations

Radar-based material flow monitoring

Hexagon Belt Monitor 2D Flow is a radar-based material flow measurement and monitoring solution that delivers real-time volumetric insight to maximise productivity, reduce downtime, and improve safety across dredgers, fallpipe vessels, and shipboard conveyors.

When combined with modern marine and offshore workflows, Belt Monitor 2D Flow supports effective material handling across vessel-based and port operations, helping deliver improved performance and reliability.

Reliable performance in harsh marine and offshore environments

Belt Monitor 2D Flow uses radar, which ensures reliable performance in fog, spray, humidity, dust, vibration, and temperature extremes. Because radar is not affected by low visibility or airborne particulates, operations can continue confidently when optical technologies such as LiDAR or laser-based systems may degrade.

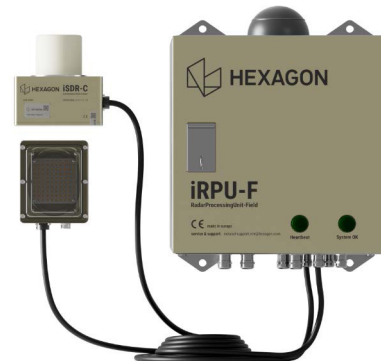
Positioned above the material flow, the contactless sensor of Belt Monitor 2D Flow avoids abrasion, corrosion, and fouling, which are commonly associated with belt scales, idlers, and mechanical sensors in the material stream. This reduces the need for ongoing maintenance and recalibration, helping minimise downtime and support more reliable operations.

Precision measurement and monitoring

High-resolution radar measurements provide continuous visibility into material flow, enabling accurate volume monitoring for improved process control. Real-time observation enables throughput optimisation, more efficient asset utilisation, and safer operations while minimising operational disruption and material waste.

Installed in a single shift

Easy-to-use hardware components and intuitive software enable customers to install and commission the system themselves, minimising downtime. Designed for rapid deployment, Belt Monitor 2D Flow can be fully installed within a single shift.



Hexagon Belt Monitor 2D Flow

Benefits:

- Continuous material volume flow visibility in m³/s
- Optimised production rates and vessel utilisation
- Reliable operation in harsh marine and offshore conditions
- Enable and improve remote operation and process automation

Features:

- Contactless radar technology with no wear parts or recalibration requirements
- High-resolution data logging and historical trending
- Integration with supervisory control and data acquisition (SCADA) and control systems
- Cumulative volume tracking with reset capability

Performance:

- Ultra-high measurement precision (up to 99%)
- Optional contactless belt speed/material speed measurement
- Performs in rain, spray, fog, humidity, dust, vibration, and extreme temperatures
- Simultaneous volumetric measurement and mass flow calculation (with density input)

System architecture

Radar-based system with distributed sensing and centralised processing, consisting of the following:	
Processing unit	iRPU-F
2D radar sensor	iSDR-C
Speed sensor	iDVR-C

Measurements

Primary measurements

2D material profile
Material or belt speed [m/s]

Derived parameters

Cross sectional area [m²]
Volumetric flow rate [m³/s]

Optional

Mass flow rate [t/h] (density input)
Belt load [kg/m or m³/m]
Material distribution

Performance

Volume accuracy	±1–2.5% (typical)
Speed accuracy	Up to ±1%
System latency	100–300 ms (typical, end-to-end)
Update rate	10 Hz

Communication

Ethernet IP
Modbus TCP
PROFIBUS DP
PROFINET
DeviceNet
Analogue 4–20 mA
Note: Other interfaces are available upon request

Conveyor requirements

Suitable for standard bulk material conveyors (troughed or flat belts)

Belt width	500–3,000 mm (typical)
Belt speed	1–6 m/s (typical)
Throughput	500–10,000 t/h

Installation

Supported belt widths	500–3,600 mm width
Optimum belt clearance	1–1.5x belt width
Maximum sensor height from belt	10x belt width

Environmental

IP Rating	IP67
-----------	------

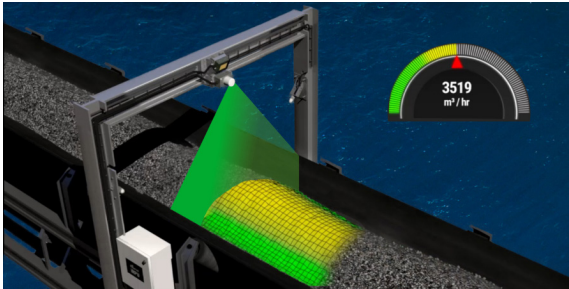
Operating temperature

iRPU-F	-20°C to +65°C
iSDR-C	-40°C to +70°C
iDVR-C	-40°C to +70°C

Compliance	CE, FCC, RED, RoHS, UL/UR
------------	---------------------------

Features

- Dedicated processing unit (iRPU-F) enabling integration with industrial control systems
- Overhead gantry-mounted installation
- Full belt-width coverage
- Real-time visualisation featuring gauge-style dashboards and visual profiling



Hexagon Belt Monitor 2D Flow measuring and monitoring the materials on a conveyor belt

Contact Hexagon | VERIPOS

sales.ver.ap@hexagon.com +44 1224 965800
For the most recent details of this product visit veripos.com

© Copyright 2026 Hexagon AB and/or its subsidiaries and affiliates. All rights reserved. This document and the information contained herein are provided AS IS and without any representation or warranty of any kind. All warranties, express or implied, are hereby disclaimed, including but not limited to any warranties of merchantability, non-infringement, and fitness for a particular purpose. Nothing herein constitutes a binding obligation. The information contained herein is subject to change without notice. Veripos is a trademark of Hexagon AB and/or its subsidiaries and affiliates, and/or their licensors. All other trademarks are properties of their respective owners