

Introduction of **DST P650** Pressure Transmitter

Presenter



Component Overview Mobile Hydraulics

Pressure transmitters & Electric pressure switches



MBS 1250



MBS 1350



DST P650



DST P92S
SIL2



MEP 2250/
MEP 2650

Temperature sensors



MBT 3270



MBT 3560



- ✓ Optimized product packaging of the thin-film sensor and the signal-conditioning electronics deliver excellent vibration resistance, thermal management properties, and protection against moisture ingress.

DST P650 Pressure Transmitter

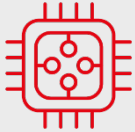
Technical Features

- Pressure range: 0-40 bar to 0-600 bar
- Operating temperatures up to 125°C
- Output signal: 10-90% ratiometric voltage
- EMC immunity ensuring a failsafe measuring signal
- Integrated pulse-snobber
- Compact design
- Fully-welded design
- Functional safety applications up to PLC
- MTTFd > 100 years (ISO13849-1)
- Scalable customized clipping level
- Harness fault detection (*under preparation*)
- Diagnostic features (*under preparation*)

Pressure Sensors

A pressure transmitter has three general functional elements:

All Danfoss pressure transmitters are produced **according to IATF16949**



1. Electronics

Danfoss MBS pressure transmitters are available with analogue/digital electronic solutions and offer unique specifications in terms of:

- Accuracy
- Temperature range coverage
- EMI/RFI protection



2. Packaging

The transmitter design offers long-life stability through:

- High shock and vibration stability
- High IP enclosure grade
- Pulse restriction solution which prevents liquid hammering and cavitation (pulse-snubber)
- Wetted parts that are all made from stainless steel (17-4PH /AISI 304)



3. Sensing element

Thin film technology covering pressure ranges from 7 – 2200 bar UK facility / 40 – 600 bar German facility

It is the solution of each of these elements and the combination that determines the performance of the products.



Construction Applications



Wheel Loader

- Pump pressure
- Transmission pressure



Excavator

- Pump pressure
- Control valve



Backhoe Loader

- Pump pressure
- Control valve
- Stabilizer pressure



Concrete Pump

- Pump pressure
- Pressure concrete pump



Surface Rock Drill

- Pump pressure
- Pressure drill



Agriculture Applications



Tractor

- Pump pressure
- Hydraulic suspension pressure
- Transmission pressure



Bale Wrapper

- Pressure control wrapping of bales



Sprayers

- Pump pressure
- System pressure pulverizer



Combine

- Pump pressure
- Belt tension
- Levelling cutting board
- Transmission pressure



Windrower

- Pump pressure
- Belt tension
- Levelling cutting board
- Transmission pressure



Material-handling Applications



Forklift

- Pump pressure
- Pressure overload
- Tilt control
- Weighing



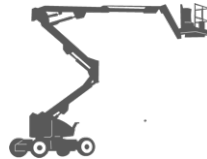
Truck-mounted Crane

- Pressure overload
- Tilt control
- Weighing
- Stabilizers



Tele-handler

- Pump pressure
- Lift pressure
- Pressure overload
- Stabilizers
- Weighing



Aerial Work Platform

- Pressure overload
- Tilt control
- Stabilizers



Garbage Truck

- Pressure control
garbage
compression



Forestry Applications



Forestry Harvester

- Pump pressure
- Control valve
- Hydraulic oil temperature



Forestry Forwarder

- Pump pressure
- Hydraulic oil temperature



Log Skidder

- Pump pressure
- Hydraulic oil temperature



Forest Crane

- Pump pressure
- Control valve
- Hydraulic oil temperature



Woodchipper

- Pump pressure
- Hydraulic oil temperature

Long-term Stability

— Features & Benefits

- High burst and over pressure capabilities due to fully-welded design. Plus, safe ingress protection even in the harshest environment.
- Excellent EMC immunity ensuring a failsafe measuring signal—and zero drift due to excellent long-term stability ensures safety of the machine.
- A powerful ARM-based micro-controller offers diagnostic functions and intelligent performance features.
- High tolerance to mechanical shock and vibrations.
- For use in functional safety applications up to PLC. With a MTTFd > 100 years in accordance with ISO13849-1
- The DST P650 provides a +/-2% Total Error Band across the application-focused temperature range.



Diagnostics

- Features & Benefits

Release pending!

- Sensor self-monitors for internal fault conditions, sending an error signal to the controller for fast remote troubleshooting.
- Improves machine up-time and decreases field failures.
- Reduced number of “failure not found” messages — allowing users to fix the specific malfunction without replacing the entire subsystem.
- Fast complaint handling and root cause analysis ensures lower warranty costs

Power-up
diagnostics

Run-time
diagnostics

Software
defined
features

Harness
fault
detection





Danfoss Sensing Solutions factory

Minden, Germany

- In 2017, Danfoss acquired Kavlico thin-film sensor technology assets from US company Sensata Technologies as a response to increasing customer demand for heavy duty pressure sensors
- The 6,000m² building houses a cutting-edge production facility, including a 700m² clean room
- The expansion includes additional production equipment, a 25% increase in employees, and three working shifts
- Thin-film technology is increasingly used in mobile hydraulic applications as it enables the development of robust sensors that withstand higher application temperature and pressure



Our increased production capacity supports our ambitious growth plans for the mobile hydraulics pressure sensor portfolio. We now have a full understanding of the market's needs, and that's why ensuring free capacity is one of my primary must-win battles—alongside safety and quality—for 2022."

Kasper Kristiansen, Plant Manager,
Danfoss Sensing Solutions GmbH.



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TOMORROW**