

SERIES LINE: J-SERIES WEATHER SENSORS

TYPE: ALL-IN-ONE, COMPACT, SMART

CATEGORY: WEATHER & ENVIRONMENTAL

ALL-IN-ONE

WS400-J All-in-One Weather Sensor

Measure More. Maintain Less.

Full Precipitation Sensing, No Moving Parts.

The professional Lufft WS-J Series of Compact Weather Sensors, builds on the previous WS-UMB weather sensor reputation for consistent, long-lasting performance in all weather situations. With the WS400-J you gain improved accuracy at higher output rates and improved feature set in measured parameters, connectivity, and housekeeping functions. Achieved by implementing a new processor generation for higher sampling rates and a redesigned temperature stabilized A/D conversion.



METEOROLOGICAL OBSERVATION

SOLAR ENERGY

ROAD WEATHER

RESEARCH

AIR QUALITY

KEY BENEFITS

1. Comprehensive Precipitation Intelligence

The WS400-J uses radar technology to measure precipitation type, intensity, quantity, and event characteristics in real time. Fast, 5 sec output rates on air temperature, relative humidity, air pressure and precipitation.

2. Low Lifecycle Cost by Design

The WS400-J delivers continuous precipitation measurements without the moving parts commonly associated with traditional sensors. Radar-based operation reduces maintenance requirements while providing dependable performance in demanding weather conditions. The sensor is the optimal choice when wind should be separated from and AiO weather sensor to be measured at 10 m height.

3. Reduced Risk, Improved Self-Diagnostics

The WS-J's incorporates improved house-keeping functions, live heating-voltage monitoring, and automatic self-diagnostics to catch a failing component before it corrupts the rest of the instrument and finally your decision making data set.

4. One Platform Across Networks

The J-Series is a drop-in replacement for legacy WS units, sharing size, weight, mounting, cable connections, available protocol formats and interfaces, and software across the platform. One calibration reference, one spare pool, one standard.

SUPPORTS EXTERNAL
SENSOR CONNECTIVITY

READ/ WRITE: UMB,
MODBUS RTU, NMEA
SDI-12 1.4, ASCII

UPGRADED ADC
HARDWARE

EXPERIENCE 20+ WS
SENSORS MADE BY LUFFT

Technical Specifications

PRODUCT MODEL: WS400-J

01 – GENERAL

Article number	J8369.2
Radar frequency range Europe	24.150 to 24.250 GHz
Dimensions	Ø150 × 279 mm
Weight	1160 g
Communication Interface	Non-isolated RS485; SDI-12

02- ELECTRICAL

Power supply operational range	4 to 28 V DC
Power supply best performance heater, fan for aspirated mode	Below 24 V DC
Current consumption heater	850 mA / 20 VA at 24 V
Current consumption normal 12v	100 mA
Current consumption normal 24v	90 mA
Current consumption power safe mode 1 at 12v	10 mA
Current consumption power safe mode 1 at 24v	5 mA

03 – TEMPERATURE

Measuring range	-50 to +60 degC
Unit	degC; degF
Accuracy	+/-0.2 degC
Resolution	0.1 deg C

04 - RELATIVE HUMIDITY

Measuring range	0 to 100 % RH
Unit	% RH; g/m ³
Accuracy	+/-2 % RH
Resolution	0.1 % RH

05 - AIR PRESSURE

Measuring range	300 to 1200 hPa
Unit	hPa
Accuracy	+/-0.5 hPa (0 to +40 degC)
Resolution	0.1 hPa

06 – PRECIPITATION, RADAR

Droplet size	0.3 to 5.0 mm
Detection sensitivity	Response threshold: 0.002 mm
Particle velocity	-
Precipitation types	Rain; snow
Solid precipitation	Snow detection
Intensity range	0 to 200 mm/h
Intensity resolution	0.01 mm/h
Amount resolution	0.01 mm
Accuracy (Field Accuracy under all conditions)	20 %
Repeatability	Typically >90 %

07 - EXTERNAL TEMPERATURE

Measuring range	-40 to +80 degC
Accuracy	+/-1 degC; WST1 +/-0.3 degC from -10 to +10 degC

12 MODELS & 15 DERIVATIVES

J-Series Overview

MODELS WS200-J - WS800-J

PARAMETER	WS200-J	WS300-J	WS400-J	WS401-J	WS500-J	WS501-J	WS502-J	WS510-J	WS600-J*	WS601-J*	WS700-J*	WS800-J*
WIND												
Speed	✓	—	—	—	✓	✓	✓	✓	✓	✓	✓	✓
Direction	✓	—	—	—	✓	✓	✓	✓	✓	✓	✓	✓
Gust (WMO-Compliant 3-Sec)	✓	—	—	—	✓	✓	✓	✓	✓	✓	✓	✓
TEMPERATURE & HUMIDITY												
Temperature	—	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Relative Humidity	—	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Barometric Pressure	—	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
PRECIPITATION												
Measuring Principle	—	—	radar	gauge	—	—	—	—	radar	gauge	radar	radar
Quantity	—	—	✓	✓	—	—	—	—	—	✓	✓	✓
Type	—	—	✓	—	—	—	—	—	✓	—	✓	✓
Intensity	—	—	✓	✓	—	—	—	—	✓	✓	✓	✓
Doppler Radar Precipitation Technology	—	—	✓	—	—	—	—	—	✓	—	✓	✓
Tipping Bucket Precipitation Technology	—	—	—	✓	—	—	—	—	—	✓	—	—
SOLAR RADIATION												
Silicon Photocell	—	—	—	—	—	—	—	—	✓	✓	✓	✓
Thermopile	—	—	—	—	—	✓	—	✓	—	—	—	—
LIGHTNING												
Strike Count	—	—	—	—	—	—	—	—	—	—	—	✓
INTERFACE												
External Precipitation input	✓	✓	—	—	✓	✓	✓	✓	—	—	—	—
Temperature Sensor input (PT1000 connection)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

✓ Parameter supported on this model

— Not available on this model

* WS600-J, WS700-J, and WS800-J include North America (NA) regional variant



J-SERIES MANUAL