

ALL-IN-ONE

WS800-J All-in-One Weather Sensor

Measure More. Maintain Less. Lightning Detection Integrated into Every Weather Decision

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 new WS-J you gain improved accuracy at higher output rates on all measured data as well an improved feature set in measured parameter, connectivity, and housekeeping functions. Achieved by implementing a new processor generation allowing higher sampling rates and a redesigned temperature stabilized A/D conversion.



METEOROLOGICAL OBSERVATION

SOLAR ENERGY

ROAD WEATHER

WIND ENERGY

RESEARCH

KEY BENEFITS

1. Enhanced Severe Weather Awareness

Integrated design offering WMO compliant wind gust calculation and present weather reporting (Synop 4680/WaWa) adding lightning count detection on top. Fast 5s output rates on air temperature, relative humidity, air pressure, radiation and precipitation. Wind speed is reported up to 75 m/s and as our measured parameters 100% tested in our certified calibration process. Each WS-J comes with a FAT certificate.

2. 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.

3. Smarter Lightning-Based Stow Decisions

The WS800-J detects lightning count alongside key weather parameters, providing early warning of approaching thunderstorms. Integrated lightning data helps operators automate tracker stow decisions and reduce the risk of weather-related damage.

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: WS800-J

01 – GENERAL

Article number North America	J8381.1
Radar frequency range North America	24.075 to 24.175 GHz
Article number Europe	J8381.2
Radar frequency range Europe	24.150 to 24.250 GHz
Dimensions	Ø150 × 344 mm
Weight	1400 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	1.7 A / 40 VA at 24 V
Current consumption normal 12v	120 mA
Current consumption normal 24v	100 mA
Current consumption power safe mode 1 at 12v	25 mA
Current consumption power safe mode 1 at 24v	13 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- WIND DIRECTION

Measuring range	0 to 359.9 deg
Unit	deg
Accuracy	<3 deg (>1 m/s), RMSE
Resolution	0.1 deg

07- WIND SPEED

Measuring range	0 to 75 m/s
Unit	m/s; km/h; mph; kts
Accuracy	+/-0.3 m/s or +/-3 % (0 to 35 m/s); +/-5 % (>35 m/s), RMS
Resolution	0.1 m/s

08 – 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 %

09 - COMPASS

Measuring range	0 to 359.9 deg
Unit	1.0 deg
Accuracy	+/-10 deg
Output rate	5 s

10 - EXTERNAL TEMPERATURE

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

11 - GLOBAL RADIATION

Measuring range	0 to 1400 W/m ²
Response time (95 %)	-
Global Radiation Class	-

12- LIGHTNING

Bandwidth	Approximately 33 kHz
Sampling rate	1 s
Update rate	5 s
Unit	Events / counts

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