

ALL-IN-ONE

WS700-J All-in-One Weather Sensor

Measure More. Maintain Less. Comprehensive Weather and Radiation Monitoring

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 WS700-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

HYDROMET

RESEARCH

KEY BENEFITS

1. Performance & Tender- Readiness

Integrated design offering WMO compliant wind gust calculation and present weather reporting (Synop 4680/WaWa). IEC 61724-1:2021 Class A compliant 5s output rates on air temperature, relative humidity, air pressure and precipitation and wind. 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. Low Lifecycle Cost by Design

With built-in irradiance, ultrasonic wind and the radar precipitation sensing, the WS700-J has fewer failure points. The new aspirated radiation solution ensures lifetime performance and the single sensor; single cable connection drops total costs of ownership over the full life of your sensor's deployment.

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: WS700-J

01 – GENERAL

Article number North America	J8380.1
Radar frequency range North America	24.075 to 24.175 GHz
Article number Europe	J8380.2
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	-40 to +80 degC
Accuracy	+/-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 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