Environmental Monitoring Solutions

Radio Multiparameter Sensors

- Radio sensor for measurement of: temperature, RH%, contact temperature and lux depending on the models
- Version with air temperature and RH% (EXP812.1)
- Version with additional external wired sensors: N.2 surface temperatures (EXP811.2); lux and surface temperature sensors (EXP813.2)
- Replaceable integrated T and RH sensor
- Design and features made for Museums applications
- Long distance line of sight (600 m)
- Because of 869,450 MHz radio frequency, good ability to cross the barriers, such as perimeter walls
- Long battery life: 2 years
- Connection to LSI LASTEM's data loggers by means of EXP301 radio receiver

Wireless sensors for ambient air temperature, relative humidity, contact temperature and lux measurements depending on the models, with radio communication (869.450 MHz) to data logger.
Three sensor versions are available, two of them have additional inputs for not included external sensors:
- EXP811.1 (N.2 temperature sensors)
- EXP813.1 (N.1 temperature sensor, N.1 lux sensor)

Technical Specifications

PN	EXP812.1	EXP811.1	EXP813.1
			
Measurements	Temperature + Relative Humidity		
Aditional inputs for wired sensors	-	N.2 Temperatures Pt100 (see Accessories)	N.1 Temperature Pt100 N.1 Lux sensor (see Accessories)
Output values	• Temperature • Relative Humidity • Battery voltage • Battery charge (%)	• Air Temperature • Relative Humidity • Battery voltage • Battery charge (%) • N.2 Temperatures (external sensors)	• Air Temperature • Relative Humidity • Battery voltage • Battery charge (%) • Temperature (external sensors) • Lux sensor (external)

Common Technical Specifications

Temperature	Principle	C-MOS (Silicon)
	Range	-20...60°C
	Accuracy	0.1°C (20...60°C); 0.2°C (<20°C, >60°C)
	Resolution	0.01°C
	Response time (T90 in air)	30 s (@ 0.2 m/s)
RH%	Range	0...100%
	Accuracy	±1.5% (0...80% @25°C); ±2% (>80% @25°C)
	Resolution	0.01%
	Response time (T90 in air)	8 s
Radio	Output	Radio
	Frequency	869.450 MHz
	Canalization	25 kHz
	Radio Transmission Power	25 ± 3 mW
	Radio Transmission distance (line-of-sight)	600 m
	Radio Bit rate	9600 bps
	Transmission rate	10'
	Radio antenna	Esternal (DEC254)
	Configuration	Dip switch
	Battery	AA 3.6 V, non rechargeable lithium battery
	Battery life	>2 years
	Power supply	Battery
	Power consumption	<10 µW stand-by, 250 mW during transmission
	Receiver	Model EXP301, RS232 output
General Information	Dimensions	0,20 x 0,14 x 0,06 m
	Weight	0.7 kg
	Protection grade	IP30
Surface temperature (for EXP811.2, EXP813.2) (see Accessories)	Principle	Pt100 DIN A (Class A EN60751)
	Measurement range	-20...60°C
	Accuracy	0.15°C (@ 0°C)
	Resolution	0.01°C (Alpha/M/E-Log)
	Response time (T90)	35 s
Lux (for EXP813.2) (see Accessories)	Principle	Photodiode
	Measurement range	0...5000 lx
	Accuracy	3%
	Resolution	1 lx

Accessories

	**EXP301**	Radio signal receiver from EXPnnn radio sensors, RS232 output, compatible with data loggers (M/E-Log) Maximum number of receivable sensors: N.200 Battery: NiCd 9 V, Power supply: 12 Vdc Protection grade: IP54
	DEC254R	Omni-directional antenna EXP301
	DWA601A	Serial cable L= 10 m for connecting EXP301 to E/M-Log data logger RS232 port
	DWA601A.2	Serial cable L= 2 m for connecting EXP301 to E/M-Log data logger RS232 port
	EXP401	Repeater EXPnnn sensors. Protection grade: IP54
	DEA260.2	IP54 Power unit 230V AC->13,8V DC 0,6A for EXP401
	EXP402	Repeater EXPnnn sensors. Protection grade: IP65
	DYA056	Arm for EXP301-401-402 to D=45...65 mm pole
	DWA505A	Cable for EXP402, L=5 m
	DWA510A	Cable for EXP402, L=10 m
	MG0510	AA 3.6 V spare battery for EXPnnn sensors
	**CLO311**	Transparent plexiglass wall support for EXPnnn sensors
	**ESR002**	Lux sensor, measure range: 0...5000 lx, cable: 2 m, 4P connector. For EXP813.1 sensor.
	**PRTEA0020**	Surface temperature sensor Pt100, cable: 5 m flat, 3P connector. For EXP811.1 and EXP813.1 sensor.
	PRTHA0700	Thermo-hygrometric sensor (spare part) for EXP81n sensors
	CCDCA0901	Extension cable for T/HR sensor for EXP81n sensors. L= 1 m

EXP81n sensors range is especially designed for application where advance technical specifications are needed, but even where the monitoring system design must fit the architectural requirements, as in museums. In the picture on the left, two sensors used to monitor Temperature and RH% in the "Last supper" room are shown.

Last Supper is a late 15th-century mural painting by Italian artist Leonardo da Vinci housed by the refectory of the Convent of Santa Maria delle Grazie in Milan, Italy.

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