

# WIRELESS TRANSMITTER DUOS MULTITEMP



DUOS Multitemp is the perfect wireless solution to monitor up to 5 temperature sensors with one transmitter. It allows to monitor applications, automation and centralization of temperature measurements throughout the production substances, distribution and storage of refrigerated foods, frozen and deep-frozen, HVAC and other industries processes.

#### Product References

	Black	White
868MHz	PA210310510	PA210310520
915MHz	PA210310530	PA210310540

## KEY FEATURES

### −40°C TO 90°C

TEMPERATURE SENSOR MEASUREMENT RANGE\*

### UP TO 5 TEMPERATURE SENSORS

### LONG COMMUNICATION RANGE

### DUAL TEMPERATURE PROBE

INTERNAL AND EXTERNAL PROBES

### WIRELESS LINK STRENGTH (RSSI)

AUTO DISCOVERY OF THE BEST WIRELESS LINK

### LOW POWER AND LONG BATTERY LIFE

MEASUREMENT AND TRANSMISSION OF BATTERY VOLTAGE

### WATER RESISTANT

IP67 PROTECTION

\* The temperature measurement sensor range is related with the external temperature probes.

DS\_DUOS\_MULTITEMP\_E01C

**TECHNICAL SPECIFICATIONS**

RADIO SPECIFICATIONS	868MHZ	915MHZ
Range <sup>1</sup>	Up to 4 Km LoS	
Minimum communication distance	3 m @ 27 dBm (500mW)	
Radio transmit power <sup>2</sup>	0 to 27 dBm	8 to 27 dBm
Radio receiver sensitivity <sup>2</sup>	-97 to -110 dBm	
Frequency band <sup>2</sup>	868 to 869 MHz	902 to 928 MHz <sup>5</sup>
Radio channels	16	50 <sup>6</sup>
Radio transmission rate <sup>2</sup>	1,2 to 76,8 kbit/s	
Modulation	GFSK	
Encryption method	AES 128 (Advanced Encryption Standard)	

**WIRELESS NETWORK**

Maximum devices	55
Maximum hops	13
Communication period	1 to 43200 seconds (configurable)

**TEMPERATURE MEASUREMENT – EXTERNAL PROBES**

Range	-40 to 90°C
Resolution	0,1 °C
Accuracy	Typical: ± 0,25 °C / Maximum: ± 0,5 °C
Sensor type	I2C digital sensor
Response time	1 second
Connector	M8 female socket, 4 poles

**TEMPERATURE MEASUREMENT – INTERNAL PROBE**

Range	-40 to 60 °C
Resolution	0,1 °C
Accuracy	Typical: ± 0,25 °C / Maximum: ± 0,5 °C
Sensor type	I2C digital sensor
Response time	1 second

**POWER SUPPLY**

3x1,5 V AA Lithium/Alkaline/Rechargeable(Ni-MH) batteries <sup>3</sup>
3 years of estimated battery life <sup>4</sup>
External power supply with 5 VDC ± 5%
Peak current < 100 mA <sup>2</sup>
Supply voltage measurement accuracy ± 100 mV
Sleep mode current consumption < 30 µA

**OPERATING ENVIRONMENT**

Temperature range	-40 °C to 60° C
Humidity	95% maximum relative humidity (non-condensing)

**INTERFACE**

2 blue LED (LED 1 and LED 2) for wireless network address identification and general operation status

1 green LED (LED 3) and 1 red LED (LED 4) for wireless network operation status

1 magnetic reed switch for system reboot

1 M8 female socket with 5 poles for device configuration through host computer

**CASING**

Dimensions 162 x 88.5 x 25 mm

Weight 100 g

Material ABS UL94HB

Protection index IP67

**FACTORY DEFAULT SETTINGS**

	868MHZ	915MHZ
Frequency (MHz)	869,525	915,000
Radio transmit power	27 dBm	
Radio transmission rate	76,8 kbit/s	
Wireless channel	13	26
Transmitter ID	1	
Communication period	10 seconds	
Configuration time window at startup	10 seconds	
Reconnection period	30 minutes	
Wireless network ID	16777217	

**CERTIFICATIONS AND APPROVALS**

EN 300 220 -2 V3.1.1

EN 301 489-1 V2.2.0

EN 301 489-3 V2.1.1

<sup>1</sup> Range depends on the RF propagation environment and Line of Sight (LoS). Always verify your wireless network's range by performing a Site Survey.

<sup>2</sup> Dependent on radio channel selection.

<sup>3</sup> Batteries not included.

<sup>4</sup> Considering a communication period of 10 minutes, and maximum transmit power (27dBm) at 25 °C

<sup>5</sup> In some countries, the frequency band admitted is not so extended as the default range.

<sup>6</sup> The radio frequencies admitted in Australia are available from channel 26 to channel 50.

**CALIBRATION SETTINGS**

Linear Calibration (y=mx+b)*	m	b
External temperatures	1 (default)	0 (default)
Internal temperature	1 (default)	0 (default)

\* Software configurable values

**BATTERIES**

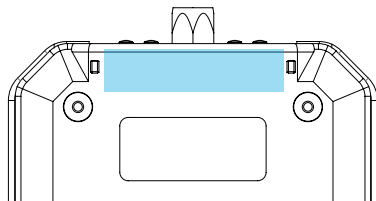
RECOMMENDED BATTERIES

BRAND	ENERGIZER	PANASONIC	DURACELL	DURACELL
Model	Ultimate Lithium L91	Alkaline Power	MN1500	DX1500H
TME Part Number	BAT-FR6/EGL-B4	BAT-LR06/P-B4	BAT-LR6/DR-B12	ACCU-R6/2500/DR
Classification	Lithium	Alkaline	Alkaline	Rechargeable
Chemical System	Li/FeS <sub>2</sub>	Zn/MnO <sub>2</sub>	Zn/MnO <sub>2</sub>	Ni-MH
Nominal Voltage	1,5 V	1,5 V	1,5 V	1,2 V
Type	AA	AA	AA	AA
Operating Temperature	-40°C to 60°C	-20°C to 54°C	-20°C to 54°C	-10°C to 50°C

**RSSI LEVELS**

SIGNAL [DBM]	QUALITY
0 to -50	Excellent
-51 to -60	Good
-61 to -70	Acceptable
-71 to -100	Poor

**MAGNETIC SWITCH**



The DUOS Wireless Transmitters have a magnetic switch that allows to reset the devices.

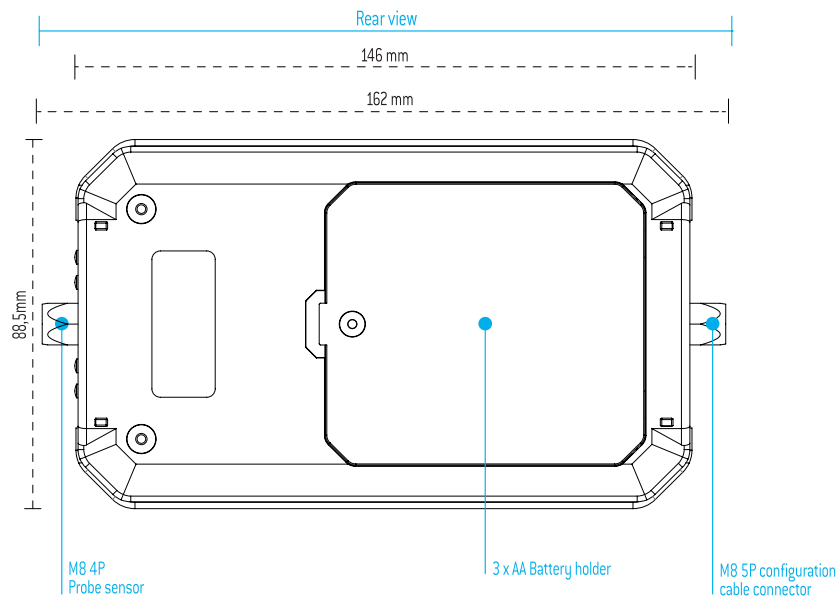
**Operation Mode:**

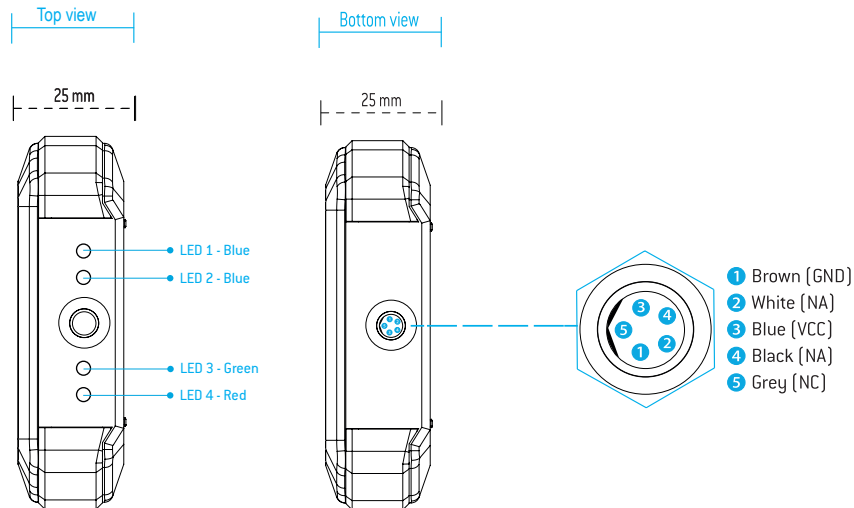
Slide a magnet in the area marked in the image. All LED's will be active and the transmitter will be restarted.

**TECHNICAL DRAWINGS**

DIMENSIONAL DRAWINGS AND INTERFACE DESIGN

POWER SUPPLY AND COMMUNICATIONS CONNECTOR





**ACCESSORIES**



**DUOS MULTITEMP PROBE SPLITTER BOX TK-PSB-015**

REF.: PA160413910

Junction box for digital temperature probes. Up to 5 probes simultaneously.



**DUOS MULTITEMP DOUBLE PROBE 2M TK-DP-20**

REF.: PA160414010

External double digital temperature probes. Temperature range: -40 to +90°C.



**DUOS MULTITEMP DOUBLE PROBE 5M TK-DP-50**

REF.: PA160414110

External double digital temperature probes. Temperature range: -40 to +90°C.



**DUOS MULTITEMP SINGLE PROBE 0.5M TK-SP-05**

REF.: PA160414210

External single digital temperature probe. Temperature range: -40 to +90°C.



**DUOS MULTITEMP SINGLE PROBE 2M TK-SP-20**

REF.: PA160414310

External single digital temperature probe. Temperature range: -40 to +90°C.



**DUOS MULTITEMP SINGLE PROBE 5M TK-SP-50**

REF.: PA160414410

External single digital temperature probe. Temperature range: -40 to +90°C.



**DUOS TRANSMITTER SARC**

REF.: PA160410005

Cable used to configure DUOS Transmitter using Tekon Configuration software.



**DUOS POWER SUPPLY 230VAC/ 5V DC**

REF.: PA160413610

230V/50Hz Power supply cable to be used with DUOS wireless transmitters with the new hardware version.



**DUOS EXTERNAL POWER CABLE**

REF.: PA160410008

Cable for external power supply to DUOS wireless transmitter.

REVISION HISTORY

VERSION	
E01B	New product references for 868 MHZ and 915 MHz frequencies Update of "Accessories" table with new related references
E01C	Inclusion of Reconnection Period on "Factory Default Settings Table"

© BRESIMAR AUTOMAÇÃO, S.A.

All rights reserved.

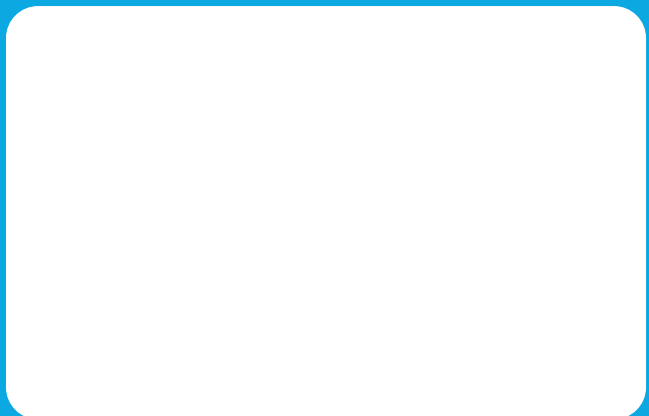
The contents of this document (texts, images, brands, corporate image, trade name, designs, methodological and product descriptions, among others), as well as its structure and design, are owned by Bresimar Automação, SA (herein in referred to as Bresimar) or, it has legitimacy for its use, being strictly prohibited the modification, exploitation, reproduction, communication to third parties or distribution of all or part of the contents of this document, without the prior express written consent of Bresimar .

Bresimar will not be liable for any claim, loss or damages resulting from or arising from a cause over which Bresimar has no control, whether by acts or omissions, breach of contract or non-compliance with applicable laws by the Supplier , as well as incidents caused by the client's systems.

**TEKON ELECTRONICS**  
a brand of Bresimar Automação S.A.

Avenida Europa, 460  
Quinta do Simão  
3800-230 Aveiro  
PORTUGAL

P.: +351 234 303 320  
M.: +351 933 033 250  
E.: sales@tekonelectronics.com



Cofinanciado por:



UNIÃO EUROPEIA  
Fundo Europeu  
de Desenvolvimento Regional