

# T24-SA Wireless Telemetry Strain Gauge Load Cell Acquisition Module

TYPE: T24-SA

## Features

- Very low power consumption for long battery life
- Very small size – 18 x 40 x 7mm including signal conditioning module
- Worldwide license exempt 2.4 GHz radio
- 2 way radio system for data integrity
- Remote power on/off (sleep/wake)
- 120 metre (400 feet) range maximum
- Battery life up to 5 years in low power mode
- Configured and calibrated via PC using a base station and Telemetry Toolkit software provided
- Internal or external antenna option
- Can interface with a wide range of products from the T24 wireless product range

## Typical Applications

- Wireless shackle load cells
- Wireless link load cells
- Crane weighing
- Cable tension measurement
- Rotating machine force measurement

## Description

The T24-SA is a high performance strain gauge to radio telemetry converter module, offering precision measurement with high performance two-way telemetry. It is used in wireless load, force, pressure and torque applications. This new design offers battery life of up to 5 years with lithium cells.

The licence-free 2.4GHz radio provides a line-of-sight communication range of 120 metres (400 feet), extendable by the use of a repeater. The use of the latest DSSS radio technology minimises local radio interference and ensures data integrity and security.

The wide operating temperature range and the robust technology ensures that the module is not susceptible to harsh physical or electrical environments.

LCM Systems can supply the T24 products integrated into various sensors, to form a wireless sensor system. There are several standard products which utilise the T24 range, including the TELSHACK range and RILL ranges.

Please contact LCM's technical department to discuss your wireless load cell requirements.



## Specification

### General Radio

Parameter	Min	Typical	Max	Units
Licence	Licence Exempt			
Modulation method	MS (QPSK)			
Radio type	Transceiver (2 way)			
Data rate	250			K bits/sec)
Radio Frequency	2.4000		2.4835	GHz
Power	1			mw
Range RAD24i (Integrated antenna)			120 (400)	Metres (feet) *
Range RAD24e (External antenna)			200 (650)	Metres (feet) *
Channels (DSSS)	16			

\* Maximum range achieved in open field site with T24-SA at a height of 3 metres above ground and T24-HS held at chest height pointing towards the T24-SA.

### Approvals

**CE**, Complies with EMC directive. 2004/108/EC. The Radio Equipment and Telecommunications Terminal Equipment (R&TTE) Directive, 1999/5/EC.

**FC**  
Family: RAD24

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## Measurement

Parameter	Min	Typical	Max	Units
Strain Gauge Excitation System		4 Wire		
Strain Gauge Excitation Voltage	4, 5	5	5.25	VDC
Strain Gauge Drive Capability	85	-	5000	Ohms
Strain Gauge Sensitivity (FR)	3.2	3.3	3.4	+/-mV/V
Offset Temperature Stability		1	4	ppm/C
Gain Temperature Stability		3	5	ppm/C
Offset Stability with Time		20	80	ppm of FR (1)
Gain Stability with Time			30	ppm of FR (2)
Non Linearity before Linearization		5	25	ppm of FR
Noise Free where Sample Time < 10mS		50,000 / 15.5		Resolution/Bits
Noise Free where Sample Time < 50mS		65,000 / 16		Resolution/Bits
Noise Free where Sample Time < 100mS		150,000 / 17.25		Resolution/Bits
Noise Free where Sample Time < 1000mS		250,000 / 18		Resolution/Bits
Noise Free where Sample Time > 1000mS		400,000 / 18.75		Resolution/Bits

(Specification with 1000R bridge, 2.5mV/V, at 3V supply at 25 Deg C)

## Electrical

Parameter	Min	Typical	Max	Units
Power Supply voltage	2.1	3.0	3.6	V dc
Power Supply ripple			50	mV ac pk-pk

## Environmental

Parameter	Min	Typical	Max	Units
Operating temperature range	-40		+85	°C
Storage temperature	-40		+85	°C
Humidity	0		95	%RH

## Module Transmits & Receives using:

- Full error detection and correction
- The ability to be switched from sleep to operating mode via radio
- The ability to switch to low power modes
- Calibration stored within the module
- Calibration & configuration via radio telemetry
- Remote battery check

## Approvals



Complies with EMC directive. 2004/108/EC. The Radio Equipment and Telecommunications Terminal Equipment (R&TTE) Directive, 1999/5/EC.



Family: RAD24



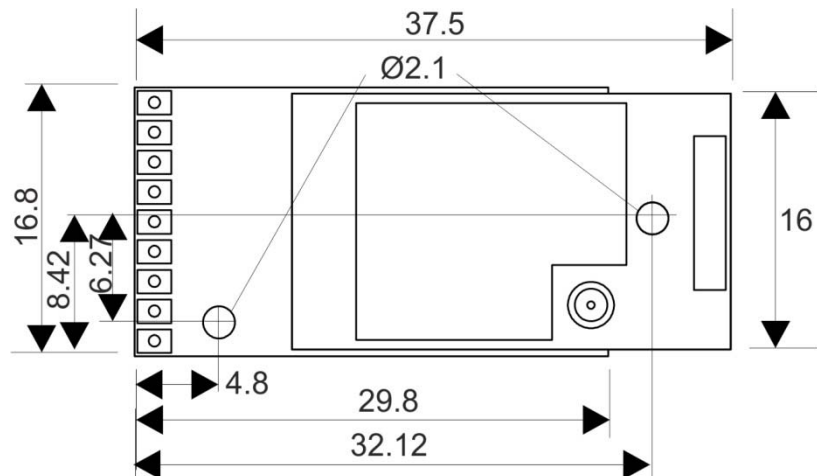
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## Product Order Codes:

T24-SAi	Strain gauge acquisition module internal antenna
T24-SAe	Strain gauge acquisition module external antenna

## Mechanical Dimensions

All dimensions in millimeters



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Due to continual product development, LCM Systems Ltd. reserves the right to alter product specifications without prior notice.

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