

TYPE: T24-SA



T24-SA Telemetry Strain Gauge Load Cell Acquisition Module

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.

Low power modes allow the OEM wireless strain gauge sensor transmitter module to 'power down' between transmissions or to 'power off' completely and can be controlled by other T24 products such as the handheld displays or a base station. The wireless strain gauge sensor can be configured to last several years on 2 x alkaline AA batteries or alternatively be powered from 2 x NiMH or 1 x 3V Lithium.

The high accuracy, low noise measurement electronics in the T24-SA deliver high resolution, low drift results which can be user calibrated over 9 points to enable linearization and to deliver results in user definable engineering units. The results can be transmitted at rates up to 200 per second to other T24 devices such as handheld displays, analog outputs and base stations etc.

The licence-free 2.4GHz radio provides a line-of-sight communication range of 800 metres (2,600 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.

Specification

Strain gauge excitation system	4 wire
Strain gauge excitation	5 V dc
Strain gauge resistance (min)	85Ω
Strain gauge sensitivity (max)	±3.1mV/V
Offset temperature stability (max)	4 ppm/°C
Gain temperature stability (max)	5 ppm/°C
Non linearity before linearization (max)	25 ppm of FR
Internal resolution/Bits	16,000,000 / 24
Noise free resolution at 1 sample per second	400,000 / 18.75
Transmission rates	From 5 ms to 1 day
Battery life (pair AA cells constantly on)	3 weeks *
Battery life (pair AA cells 12 sessions/day of 5 mins)	2 years *
Battery life (pair DD cells constantly on)	3.5 months *
Battery life (pair DD cells 12 sessions/day of 5 mins)	5 years *
Power supply ACMi and OEM module	2.1 to 3.6 V dc
Power supply ACM	5 to 18 V dc
Radio type	Licence exempt transceiver
Radio frequency	2.4GHz
Transmit power	10mW
Range	Up to 800m (2,600ft)
Operating temperature range	-20 to +55 °C
Storage temperature (no batteries)	-40 to +85 °C
Maximum humidity	95% non condensing
IP rating (ACM & ACMi)	IP67/Nema4

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

* Based on transmitting results at 3 per second, 350Ω strain bridge

Available Options

- Internal antenna (T24-SAi)
- External antenna (T24-SAe)

Features

- Miniature PCB for fitting inside sensors
- Very low power consumption for long battery life (up to 5 years)
- Very small size (18 x 40 x 7mm including signal conditioning module)
- 2 way radio system for data integrity
- Remote power on/off (sleep/wake)
- Up to 800m (2,600ft) wireless range
- Worldwide licence exempt 2.4GHz radio
- Configured and calibrated via PC using a base station and telemetry toolkit software provided

Typical Applications

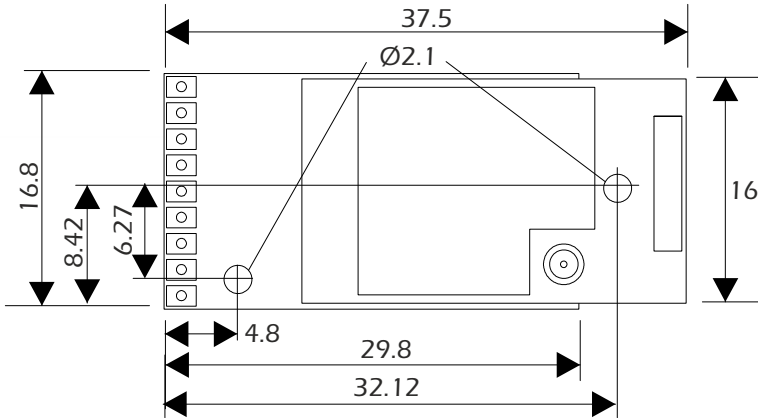
- Wireless load shackles/load links
- Crane weighing
- Cable tension measurement
- Rotating machine force measurement

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Dimensions



All dimensions are in mm

Module transmits and receives using:

1. full error detection and correction
2. The ability to be switched from sleep to operating mode via radio
3. The ability to switch to low power modes
4. mV/V Calibration stored within module
5. calibration and configuration via radio telemetry
6. Remote battery check



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

CE Complies with EMC directive. 2004/108/EC

FC The Radio Equipment and Telecommunications Terminal Equipment (R&TTE) Directive, 1999/5/EC. Family: RAD24

Industry Canada Industrie Canada IC:7224A-RAD24

Issue No. 1

Issue date: 28/02/2019

APPROVED

(unapproved if printed)