

Wireless Telemetry Strain Gauge Acquisition Module

Features



- Miniature Acquisition Module for Wireless Strain Gauge Measurement
- Exceptionally low power for long battery life
- Transmits on license free 2.4GHz
- Remote 'on' and 'off' to preserve battery life
- 120m (400 feet) range
- Simple Configuration and Calibration via PC using Toolkit Software (included in price)
- Calibratable to provide any standard engineering unit output for given input



Introduction

Forming the core of the T24 range, the T24-SA strain gauge acquisition module is a high performance PCB board designed to be embedded alongside load cells or other strain input sensors to provide wireless strain gauge measurement. Options also available for wireless current (4-20mA) and voltage (0-10V) acquisition (T24-IA & T24-VA).

Miniature in size, the device transmits on license-free 2.4Ghz, avoiding local radio interference to ensure data integrity and security.

Data is provided in real time at variable speeds with a direct line of sight range of 120 meters (400 feet) which can be extended with the use of antenna's and passive repeaters.

The devices transmit to a range of receivers including handheld indicators, digital displays, analogue and serial outputs, PC display and wireless printer (please see separate sheets) and has various powering options.

Antenna options available to extend range. Also 2KHz fast version for high speed applications.

Specifications

General Radio

	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.

T24-SA - Embedded Strain Gauge Digitiser

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

Measurement	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

Maximum Strain Gauge Sensitivity (FR)			3.2	+/-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
Internal Resolution		16,000,000/ 24		Resolution/Bits
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

Electrical	Min	Typical	Max	Units
Power Supply voltage	2.1	3.0	3.6	V dc
Power Supply ripple			50	mV ac pk-pk
Power Supply current	Min	Typical	Max	Units
Normal Mode (1K Bridge)		60	65	mA
Standby / Low power mode		5	20	uA
Environmental	Min	Typical	Max	Units
Operating temperature range	-40		+85	C
Storage temperature	-40		+85	C
Humidity	0		95	%RH

Module Transmits & Receives giving:

1. Full error detection and correction
2. Ability to switch to low power modes
3. Calibration & configuration via radio telemetry
4. Ability to be switched from sleep to operating mode via radio
5. Calibration stored within the module
6. Remote battery check

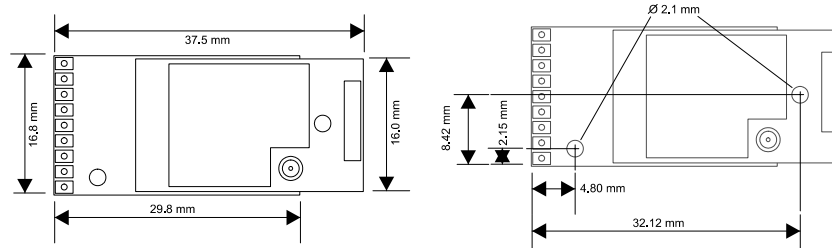
Product Order Codes

T24-ACM	Wireless Radio Telemetry Acquisition Enclosure	T24-HR	Wireless Radio Telemetry Handheld Display Unlimited Inputs
T24-ACMi	Wireless Radio Telemetry Acquisition Enclosure	T24-HS	Wireless Radio Telemetry Handheld Display Single Inputs
T24-ANTA	Wireless Radio Telemetry Antenna	T24-IA	Wireless Radio Telemetry Current (4-20mA) Acquisition Module
T24-ANTB	Wireless Radio Telemetry Antenna	T24-PR1	Wireless Radio Telemetry Printer
T24-ANTC	Wireless Radio Telemetry Antenna	T24-RM1	Wireless Radio Telemetry Data to Relay output
T24-AO1	Wireless Radio Telemetry Desktop Analogue Output Module	T24-SA	Wireless Radio Telemetry Strain Gauge /Load Cell Acquisition Module
T24-AO1i	Wireless Radio Telemetry Industrial Analogue Output Module	T24-Saf	Wireless Radio Telemetry 2KHz Strain Gauge Acquisition Module
T24-BC1	Battery Charger for T24 Acquisition Modules	T24-SO	Wireless Radio Telemetry Printer and Display Driver
T24-BSI	Wireless Radio Telemetry Industrial Base Station	T24-TK	Wireless Radio Telemetry Toolkit Software
T24-BSu	Wireless Radio Telemetry Base Station USB	T24-VA	Wireless Radio Telemetry Voltage (0-10V) Acquisition Module
T24-DPV	Wireless Radio Telemetry T24 Data Provider Viewer and Logger		
T24-HA	Wireless Radio Telemetry Handheld Display Multiple Inputs		

For more up to date information visit our website
www.mantracourt.co.uk/products/wireless-telemetry

Mechanical Dimensions

T24-SA - PCB Module



Approvals

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



Industry Canada Industrie Canada



In the interests of continued product development, Mantracourt Electronics Limited reserves the right to alter product specifications without prior notice.



Designed, Manufactured & Supported in the UK