

New Generation Telemetry Voltage & Current Acquisition Modules

Features



- 2 way radio system for data integrity
- Very low power consumption for long battery life
- Very small size
- Worldwide licence exempt 2.4 GHz radio
- Option of hand held remote display or PC interface for data capture
- Remote power on/off (sleep/wake)
- 120 metre (400 feet) range maximum
- Simple configuration and calibrated via PC using base station with Telemetry Toolkit software
- Internal or external antenna options



Introduction

The T24-VA & IA are high performance voltage (0-10V) and current (0-21 mA - calibrated to a 4-20mA range) to radio telemetry converter modules, offering precision measurement with high performance two-way telemetry. Usable around the globe on licence-free 2.4GHz frequency, the T24 range avoids local radio interference to ensure data integrity and security. For use in any measuring applications, from torque to weight, vibration to flow, the T24 offers users a complete solution to your measurement requirements.

The modules form part of a simple measurement system that offers the opportunity to collect measurements from a variety of sources, enabling accurate and immediate data collection without the requirement for extensive and labour intensive cabling operations.

Transmitting from a analogue module on 2.4 GHz to a variety of receivers including a user friendly simple 2 button handheld T24-HS which captures this data and displays it providing a line of sight communication range of typically 120 metres. The T24-HS also performs the function of waking the T24-VA when it is turned on and sending it to deep sleep module when it is turned off.

The wide temperature operating range and the robust technology ensures that the module is not susceptible to harsh physical or electrical environments. Options include internal or external antenna and a growing range of interface modules.

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-VA/IA at a height of 3 metres above ground and T24-HS held at chest height pointing towards the T24-VA/IA.

T24-VA - Embedded Voltage 0-10V Digitiser

Specification at 3V supply at 25 Deg C

Measurement	Min	Typical	Max	Units
Input Range Sensitivity (FR)	0	-	10	Volts
Gain Temperature Stability		-	50	ppm/°C
Non Linearity before Linearization		5	25	ppm of FR
Internal Resolution		16,000,000/ 24		Resolution/Bits
Input Impedance	-	100,000	-	Ohms
Input Calibration Accuracy	-	-	0.1	%FR
Noise Free where Sample Time < 10mS		7,000 / 12.25		Resolution/Bits
Noise Free where Sample Time < 100mS		8,000 / 13.0		Resolution/Bits
Noise Free where Sample Time < 1000mS		11,000 / 13.5		Resolution/Bits
Noise Free where Sample Time > 1000mS		15,000 / 13.75		Resolution/Bits

T24-IA - Embedded Current 0-20mA Digitiser

Specification at 3V supply at 25 Deg C

Input Range Sensitivity (FR)	0	-	21	mA
Calibrated Range	4		20	mA
Gain Temperature Stability		-	50	ppm/C
Non Linearity before Linearization		5	25	ppm of FR
Internal Resolution		16,000,000/ 24		Resolution/Bits
Input Impedance	-	47	-	Ohms
Input Calibration Accuracy	-	-	0.1	%FR
Noise Free where Sample Time < 10mS		5,000 / 12.5		Resolution/Bits
Noise Free where Sample Time < 100mS		6,000 / 12.75		Resolution/Bits
Noise Free where Sample Time < 1000mS		10,000 / 13.25		Resolution/Bits
Noise Free where Sample Time > 1000mS		30,000 / 14.75		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 on constantly		40	45	mA
Sleep Mode		5	20	uA
Battery Life in Low Power Mode Generating Results at 3Hz	Usage	Battery Life		
Pair AA cells	Constantly on	1 month		
Pair AA cells	12 sessions per day of 5 minutes	2 years		
Pair D cells	Constantly on	2.5 months		
Pair D cells	12 sessions per day of 5 minutes	5 years		
Environmental	Min	Typical	Max	Units
Operating temperature range	-40		+85	C
Storage temperature	-40		+85	C
Humidity	0		95	%RH

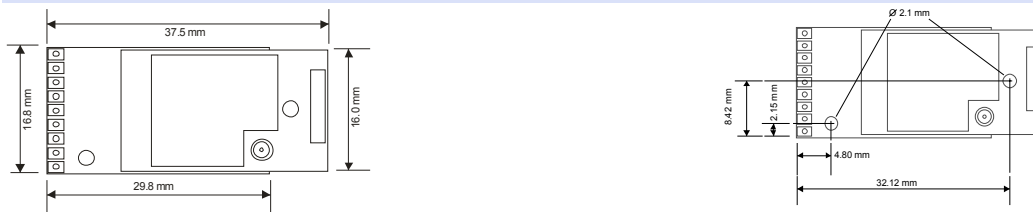
Module Transmits & Receives giving:

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-SAi	Strain Gauge Acquisition Module internal antenna	T24-HS	Handheld Reader Simple
T24-SAe	Strain Gauge Acquisition Module with socket for external antenna	T24-HA	Handheld Reader Advanced
T24-VAi	Voltage Acquisition Module internal antenna	T24-BSu	Base Station USB
T24-VAe	Voltage Acquisition Module with socket for external antenna	T24-BSi	Base Station Industrial
T24-IAi	Current Acquisition Module internal antenna	T24-SO	Serial Output
T24-IAe	Current Acquisition Module with socket for external antenna	T24-BC1	Battery Charger
T24-SAfi	'Fast' Strain Gauge Acquisition Module internal antenna	T24-ACM	Single Channel Acquisition Connectivity Module
T24-SAfe	'Fast' Strain Gauge Acquisition Module with socket for external antenna	T24-PR1	Thermal Printer

Mechanical Dimensions



Approvals

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



Family: RAD24



Industry Canada IC:7224-
RAD24

In the interests of continued product development, Procter & Chester (Measurements) Ltd reserves the right to alter product specifications without prior notice