

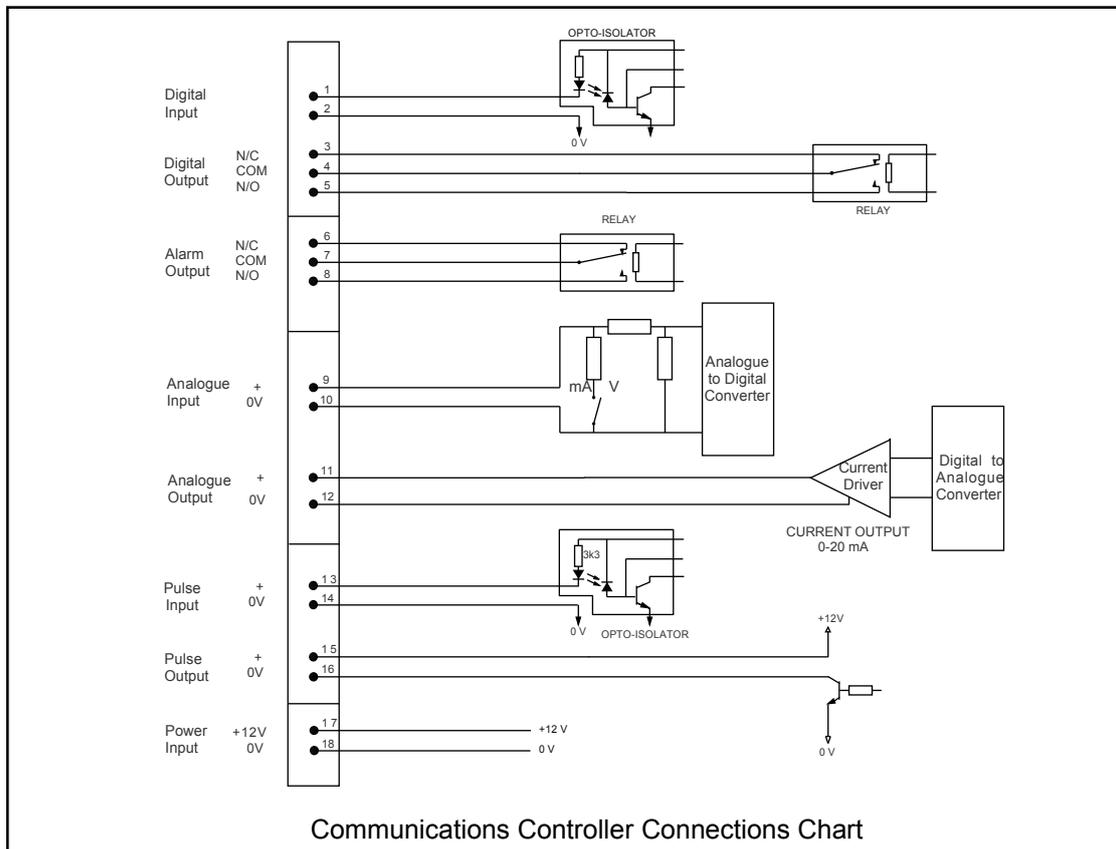


VersaNet2 Radio Data Network Communications Controller Part No. IRDN334 and IRDN334A

Publication IRDN334(A)/April 2014

Features

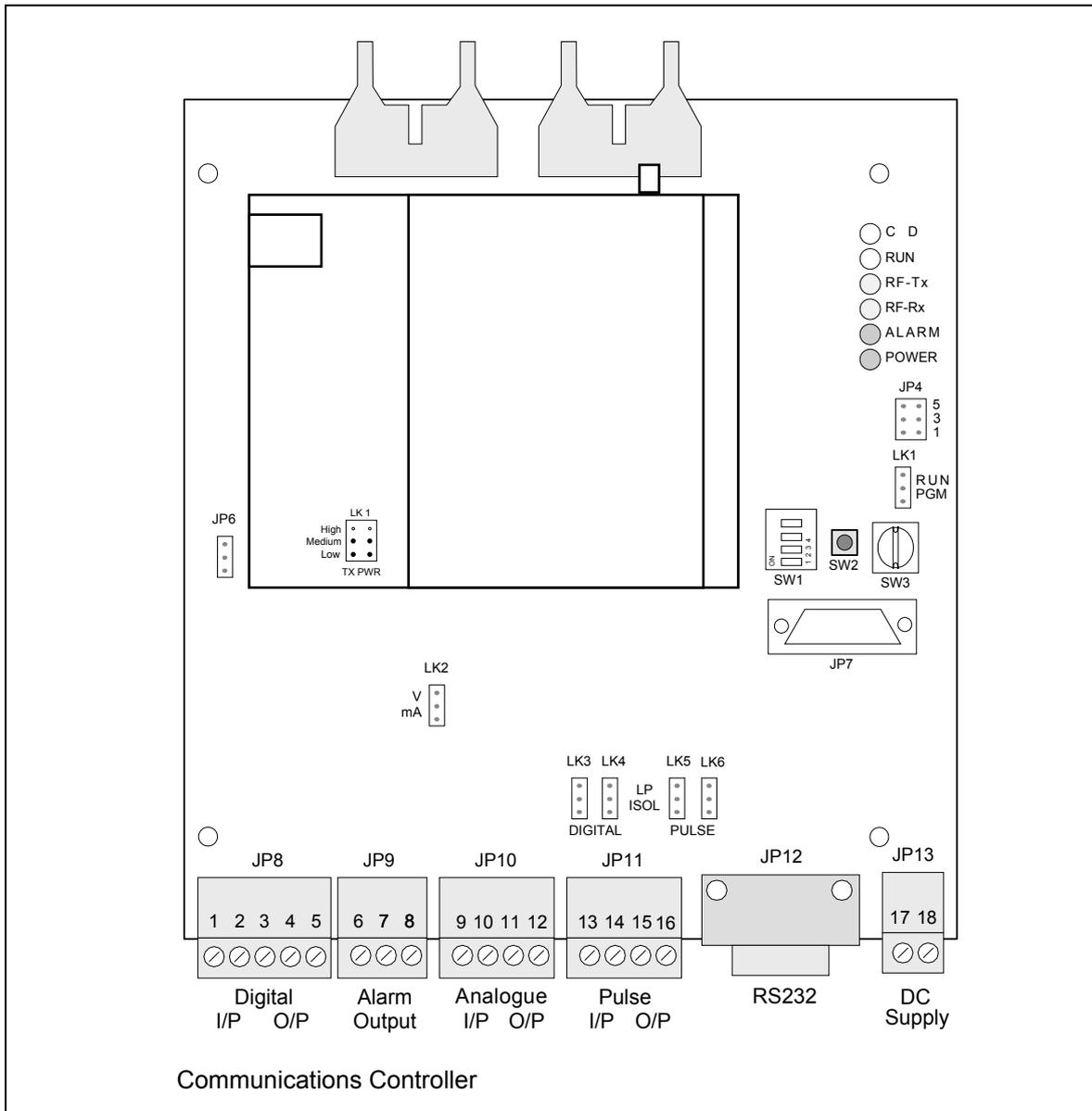
- ⌚ Communications Controller central to all VersaNet2 nodes
- ⌚ Includes main microcontroller circuitry and optional UHF synthesised FM transceiver.
- ⌚ On-board Analogue (334A Version only), Digital and Pulse I/O for monitoring and control applications
- ⌚ Alarm output for system health checks
- ⌚ Serial data highway to interface with intelligent systems
- ⌚ DC powered incorporating low current standby mode
- ⌚ GSM, SMS and PSTN Functions



Note: The IRDN334 and IRDN334A refers to the board fitted with a radio. The board on it's own, without a fitted radio, can be purchased as an IRDN300 or IRDN300A.

Brief Description

This module is at the heart of every VersaNet2 node, containing the main microcontroller circuitry, modem and an optional UHF synthesised FM transceiver. It handles the node management, data security, health checks and retains the node configuration in non-volatile memory. The module controls all communications within the node and over the radio channels. Connections provided on the module include ribbon cable (T2-BUS) plugs for communication with other modules, a digital input and output, an analogue input and output (on the IRDN334A only) and a pulse counting input and output. An alarm output is provided for system health checks and a serial data highway allows the controller to be connected directly to user equipment communicating using one of the industry standard SCADA protocols such as MODBUS. An additional serial port connects to a terminal for node configuration.



Connections

Connectors JP8 to JP12 are the input connections as labelled above.

JP 13 is the 12V DC supply. (12V pin 17 , 0V pin 18)

JP7 is the programming port for VersaNet Manager

JP4 position 5 Sets a 'brown out'. Node will switch off at 10.5V

JP4 position 1 or 3 at 10.5V will give a low battery alarm, but continue working.

JP6 factory test only.

LK1 Low = 50mW Medium = 500mW High = Consult Judd Telemetry

Switches

SW1 For factory test only (default should be, 1 to 4 - off, off, off, on)

SW2 and 3 not used.

LED's

Red	Power.	On all the time indicating 12V supply present
Red	Alarm.	Flashes to indicate alarm condition
Yellow	RX	Indicates radio is in receive mode
Yellow	TX	Indicates radio is transmitting
Bi-colour	Run	Green indicates normal operating mode Red, only when downloading new software
Tri-colour	CD	Red indicates a carrier has been detected Orange indicates data has been detected but not for this node Green indicates valid data being received

Radio

The IRDN034 UHF Radio, supplied with VersaNet (334 and 334A versions) is designed to operate within the European License Free bands. It is available in the frequency range 406 to 475MHz. Each radio is programmed with upto 64 channels at 12.5KHz spacing. The channels are software selectable using the VersaNet Manager. Spot frequencies can also be included to special order.

The power output is also selectable up to a maximum of 500mW (the limit of the license free band). Power output upto 5 Watts and different frequency versions are available - please contact Judd Ltd

Specification

Frequency Range	10MHz band in the range 406 – 475MHz
Channel Spacing	12.5KHz
Modulation	FFSK
TX Output Power	50/500mW (adjustable) 5 Watt to special order.
TX FM Deviation	+/- 2KHz (12.5KHz chan)
RX Sensitivity	-115dBm for 15dB SINAD
RX Co-channel Rejection	>-12dB
RX Adj.Channel Selectivity	>65dB
Meets R&TTE directive	EN300-113

GSM Modem

The VersaNet2 software has been specifically designed to interface with the Wavecom WMOD2B dual-band GSM Modem. Other GSM Modems may work perfectly well with VersaNet2, but their operation cannot be guaranteed. For example, most modems use a similar command set in normal point to point mode, but they seem to use different protocols for SMS messaging.

Before using the modem, it will be necessary to purchase a SIM Card and set up a service agreement with a network provider. Make sure that the network provider selected has good coverage in the proposed area. In general it is better to select a 900MHz system because the coverage is more widespread and the modem operates at a higher power level.

Specification

Part number	WMOD2B
Dual Band	900/1800MHz
Size	98 x 54 x 25cm
Supply	12V DC @ 130mA typical (900) 12V DC @ 95mA typical (1800)
Current Idle Mode	4mA
Antenna Connection	SMA
RS232 Connection	15 pin sub 'D'
Power In	4 pin Micro-Fit

For further information, see manufacturers handbook.

Wire Line Modem

VersaNet2 will work with many of the commonly available wire-line modems. However, because of the vast number of variations in specifications and settings, RDT have standardised on the Westermo TD- 32. This modem is a rugged industrial design offering all the facilities required for either dial-up or leased line operation.

Specification

The TD-32 is available in two standard versions for power supply by either 230V AC or 12-36V DC.

A watchdog facility continually monitors the power supply and internal hardware as well as the operational software. In the event of a problem the modem automatically resets. This feature has been included to make the unit more suitable for use in unmanned locations.

Leased line connections can be made on 2 or 4 wires. The modem can also be used on ordinary twisted pair cables to provide long distance asynchronous communications.

Part Number	TD-32
Size	100 x 55 x 128cm
Weight	0.6kg
Power Consumption	25mA @ 230V AC 200mA @ 12V DC Isolation 500V line, RS-232, power
Temperature	5 –50C
Humidity	0 –95%RH without condensation

For further information and AT-commands summary, see manufacturers handbook.

Technical Specification

Module Name	Communications Controller	
Part Number	IRDN300 (Digital I/O only) (<i>IRDN334 with radio</i>) IRDN300A (Digital + Analogue I/O) (<i>IRDN334A with radio</i>)	
Number of Modules per Node	1	
Processor	Hitachi H3048	
Internal interface	2 x T2-BUS Master	
Digital Inputs	1 opto-isolated, volt free	
Digital Outputs	1 changeover relay, 8A @ 250V AC, 8A @ 30V DC	
Alarm Output	1 changeover relay, 5A @ 240V AC, 5A @ 30V DC	
<i>Analogue Input (IRDN334A)</i>	<i>1, 0-5V DC or 0-20mA</i>	
<i>Precision</i>	<i>12 bit</i>	
<i>Scan Rate</i>	<i><0.25S</i>	
<i>Analogue Output (IRDN334A)</i>	<i>1, 0-20mA</i>	
<i>Precision</i>	<i>10 bit</i>	
<i>Load Resistance</i>	<i>250 ohms</i>	
<i>Output settling time</i>	<i>500mS maximum</i>	
Pulse Input	1	
Input Pulse Width	5mS minimum	
Input Pulse Frequency	100Hz maximum	
Maximum Pulse Count	65535	
Scan Rate	<1S	
Pulse Outputs	1	
Serial Ports	1 x RS232 Serial Data Highway 1 x RS232 Configuration ASCII Port	
Power Supply	11-14V DC via JP3	
Current Consumption	Sleep Mode	400µA typical
	Operating (RX)	300mA
	Operating (TX)	950mA (@500mW) 550mA (@50mW)
Operating Temperature	-10° to +55°C	
User Connection	Configuration –9-way D Male Serial Data Highway –9-way D Male All others 2 part screw terminals	
Dimensions	152 x 167 x 42mm 0.6kg	

Rack Mounting

A rack mount version of the IRDN334 and IRDN334A is available –Part code IRDN334R and IRDN334AR

The basic card is mounted on a carrier plate that allows it to slide into the card guides of a 4U rack.

Note: The expansion cards are all available to fit a 4U rack.

Judd Ltd

Lower Voakes, West Chiltington
Pulborough, Sussex
RH20 2LU
'Phone - +44 (0)1798 815046
Email - juddtelemetry@gmail.com