

# 12A RECEIVER

## UNIVERSAL DATA RECEIVER

### HIGH PERFORMANCE PAGING DATA RECEIVER

The 12A is a sophisticated high performance radio paging receiver.

A multifunctional product designed to be truly flexible with fully customisable features allowing for unlimited applications.

This receiver opens the possibility for standard POCSAG paging systems to carry conventional data. Achieved using existing paging systems, carrying data has the advantage over more complex networks by delivering data to groups as well as single users at very competitive costs.

Some typical applications include:

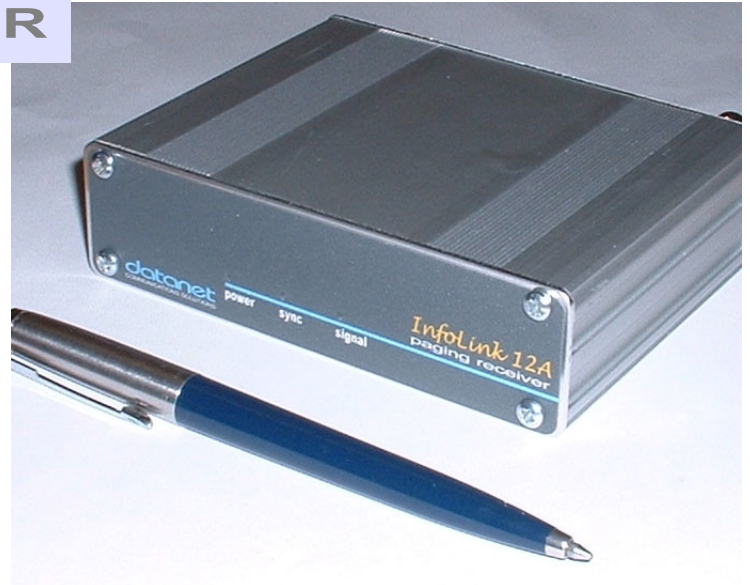
- Mobile data receipt
- Control room display systems
- Wide area national broadcast data delivery
- Telemetry control applications
- Confirmation of message receipt
- Broadband paging data monitoring
- Network testing
- As a custom core processor within other applications



### STATUS LED'S

The 12A's front panel carries 3 LEDs:

- Line power indicator
- Off air data network activity
- Received signal quality indicator



### FEATURES

- Rugged construction
- Ideal for system integrators
- Fully configurable using programming software
- Optional flange mounting brackets
- Standard RS232 output format (1200 to 115200)
- Auto text word wrapping for printer connection
- Message headers and footers
- Low signal indicator
- Out of range/network failure indicator
- Broadband receive mode (receive all paging data)
- Wide operating voltage (5 and 7 to 40Volt)

### ADVANCED RECEPTION ALGORITHM

The advanced algorithm enables the 12A's high speed RISC (reduced instruction set) microprocessor to decode, perform error correction, process paging data and communicate with the host in real time.

This efficient platform forms the basis for application firmware to sit on top and therefore introduces the concept of customisation of this product...

### CUSTOMISATION

Since all operations are carried out within one microprocessor, customisation for specific applications is welcomed.

Typical applications include our MS413 paging control switch which uses a 12A core as its main control element.

# 12A

## Universal Paging Receiver

Parameter	12A Standard	12S High IP3
<b>Radio Specifications</b>		
Operating frequency range	137 to 174MHz (Banded)	
Architecture	Double superhet	Double superhet passive high Level 7™ mixer)
Screening	Extruded aluminium outer case assembly. Internal brass screen.	
Input	50 ohm (<2.0 VSWR) BNC connector	
Input configuration	Matched low noise amplifier (LNA)	
Paging sensitivity 512 bps	-125dBm	-125dBm
Paging sensitivity 1200 bps	-123dBm	-123dBm
Paging sensitivity 2400 bps	-120dBm	-120dBm
Spurious rejection	>60dB	>65dB
Image rejection	>55dB	>60dB
IMD	-20dBm	0dBm
Channel spacing	25KHz	25KHz
Selectivity	>65dB@+/-25KHz	>65dB@+/-25KHz
Frequency stability	+/-10ppm	+/-10ppm
Operating temperature range	-0 – 40DegC	-10 – 40DegC
Modulation	NRZ FSK	NRZ FSK
Signal format	POCSAG	POCSAG
Bit rate (bps) Programmable	512, 1200, 2400 bps	512, 1200, 2400 bps
<b>Data Specifications</b>		
Identification codes (RIC)	20 individual receiver ID codes. Time frame independent	
Function (Sub-address)	Individually configurable (4 per ID code)	
Sync detection	2 errors allowed	
ID detection	1 error allowed	
Error correction	2 random or 4 burst	
Message deformatting	Alphanumeric	Alphanumeric and numeric
8 bit data format hex 01 to FF	Hexadecimal representation 0xHH	
Data Connectors	RJ8 and RB9 way D male	
Interface data speed (bps)	RS-232 (1200, 2400, 4800, 7200, 9600, 38400, 57600, 76800, 115200)	
Output text formatting	Automatic word wrapping (0, 15-99 characters)	
Serial data flow control	RTS/CTS and Echo	
Trigger Inputs	2 interrupt configured TTL inputs – pull-up resistor included	
Trigger outputs	1 x TTL output (0 – 5V) 1 x Open collector output	
Header and footer	24 characters (hex 01 to FF)	
Last message timeout	Range 1 to 240 minutes	
Power up messages	Power up message A: 1 x 16 characters Power up message B: 1 x 12 characters	
Out of range indicator	Panel LED and serial data using internal message or power up message	
Low signal indicator	Panel LED	
Architecture	Single chip RISC micro controller running at (14MHz) 3.5MIPS	
Standard engineering modes	Broadband (receive all data), air data on audio	
<b>Power Specifications</b>		
Line filter	Common mode	
Operating voltage range	5V, 7-16V, 7-40V	
Operating current (mA)	20, 30, 40	
Power connection	2.3mm concentric female, RJ8 female, RB9 male	

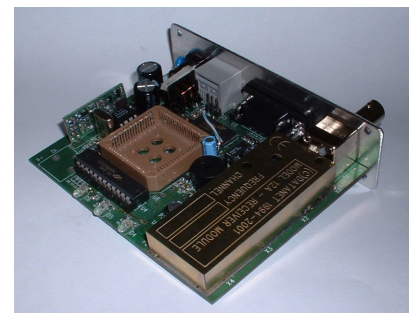


Front panel view (above).



Rear panel view (above), showing all connectors, from left to right:

Antenna BNC, RB9 and RJ8 data, 2.3mm power socket.



Internal view of the 12A showing the screened receiver section at the foreground.

The microprocessor and associated digital section is at the rear of this image together with power regulation and conditioning.

External connectors are seen running along the rear panel.

**datanet**  
THE COMMUNICATIONS SOLUTION

Unit 5, Glebe Close Farm,  
Cublington Road,  
Wing, Leighton Buzzard,  
Bedfordshire. LU7 0LB.  
United Kingdom

Telephone: +44 (0)1296 682552  
Facsimile: +44 (0)1296 682551  
Web: <http://www.datanet.org.uk>  
Email: [info@datanet.org.uk](mailto:info@datanet.org.uk)