

# APPLICATION NOTE

## Fibre optic link between PS721 Wireless Option Module and PS722 Coordinator



### Introduction

This document describes how a generic fibre optic link can be used to extend the distance between the PS721 Wireless Option Module and PS722 Coordinator from the standard 200m maximum to 5km or more.

### Standard Connection

The PS721 Wireless Option Module and PS722 Coordinator are linked by a 6 core screened cable, see Pakscan P3 Wireless Quick Start Guide PUB059-004 for details. The 6 core cable provides 24V DC power from the PS721 to the coordinator and RS422 communications between the two devices, see figure 1.

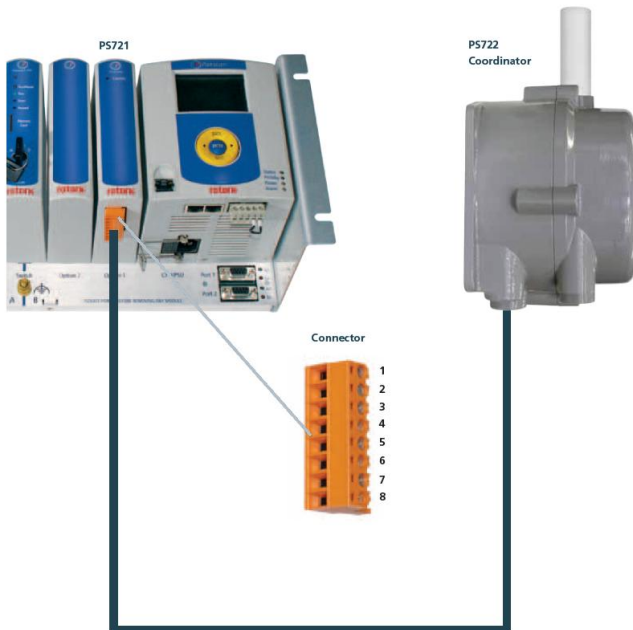


Figure 1 – PS721 linked to PS722 with 6-core screened cable

### Fibre Optic range extension

The above RS422 communication link can be extended using a fibre optic communication link which is completely immune to electromagnetic interference and can extend to distances of 5km or more. An RS422 to fibre optic converter module must be installed at each end of the link, as shown in figure 2.

Note that no modification to P3 hardware or software settings are required; the fibre optic converter is transparent in operation.

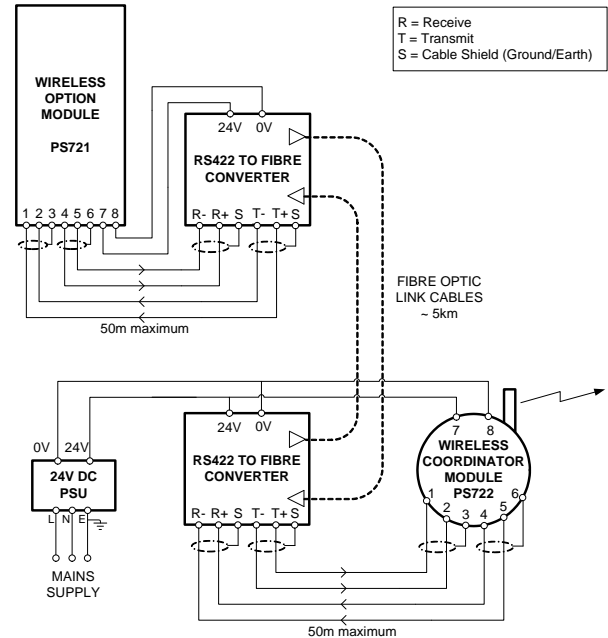


Figure 2 – PS721 linked to PS722 using fibre optic converter

Optionally, the converter nearest the PS721 module in the P3 master station could be powered by an external 24V DC supply rather than from the PS721 Option Module. This is recommended if the current of the converter chosen is greater than 100mA or if the converter is not mounted physically close to the master station.

The wireless coordinator mounting location should be in accordance with both the Pakscan P3 Wireless Quick Start Guide PUB059-004 and any guidance given following an onsite survey.

### Fibre optic converter requirements

- RS422 compatibility.
- Protocol independent.
- Capable of operating at RS422 speed of 500 kbaud or greater.
- Fibre optic mode (single or multi-mode), connection type and frequency is not important, as long as it meets the

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customer's requirements for distance and availability of fibre optic cable.

- Temperature and operating characteristics suitable for the environment that the customer wishes to install the unit into.

### Recommended Converter

Any fibre optic RS422 converter meeting the above requirements is suitable; however Rotork has tested the following converter which has been proven to operate correctly and is available worldwide.

- Manufacturer: EKS
- Part number: DL-422/13-MM-ST
- Fibre Type: Multi-Mode
- Max Distance: 5 km
- Wavelength: 1300 nm
- PSU: 12 – 30 VDC @ 200 mA (< 100mA at 24V DC)

### Cable Connections

For cable connections please refer to figure 2, table 1 below and the manual for your RS422 to fibre converter.

Note that the function in the table below is the function of the PS721 wireless option module and that Tx and Rx for each device are joined together. Polarity is maintained, i.e. Tx +ve connects to Rx +ve, Tx -ve connects to Rx -ve.

Master Station	Coordinator	Function
PIN1	PIN4	RS422 Rx +ve
PIN2	PIN5	RS422 Rx -ve
PIN3	PIN6	Shield
PIN4	PIN1	RS422 Tx +ve
PIN5	PIN2	RS422 Tx -ve
PIN6	PIN3	Shield
PIN7	PIN7	Module +ve supply (24 VDC)
PIN8	PIN8	Module -ve supply

Table 1 – Connections between PS721 and PS722



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