



## Addressable SDA User Manual

### 1. Introduction

Obonok Addressable Serial Data Adaptor (ASDA) is designed to work with Obonok Blu-Wire™ **XP series** products.

When configured to operate in broadcast mode, Obonok ASDA is also compatible with non-addressable SDA.

ASDA works as a pair of adaptors, ASDA-TX and ASDA-RX.

### 2. Connecting ASDA to Blu-Wire™ XP Products

*ASDA adaptors are connected to the AUX ports of XP products through regular TIA/EIA 568B CAT5/CAT6 Ethernet cables.*

**Please note crossover cables cannot be used.**

ASDA-TX adaptors can only be connected to XP transmitters, such as T1-XP, T3-XP and T1F-XP.

ASDA-RX adaptors can only be connected to XP receivers, such as RD1-XP, RD2-XP and RD1F-XP.

ASDA adaptors are hot swappable.



### 3. Addressing

16-bit Hex addressing scheme is used.

*0x is used to signify the following bytes are hexadecimal.*

0xFF is a broadcast address, so 0xFFFF, 0xFF-- and 0x--FF should not be assigned to any device.

Example:

- 1) 0xFFFF – it will not check address, so it will receive data from any address;
- 2) 0xFF23 – it will not check the high 8-bit address, so it will receive data from any high 8-bit address as long as low 8-bit address is 0x23 or 0xFF.
- 3) 0xABFF – it will not check the low 8-bit address, so it will receive data from any low 8-bit address as long as high 8-bit address is 0xAB or 0xFF.

Addresses 0x0--- are reserved.

Addresses 0x7A--, 0x7B--, 0x7C--, 0x7D--, 0x7E--, 0x7F-- are reserved.

Addresses 0x--7A, 0x--7B, 0x--7C, 0x--7D, 0x--7E, 0x--7F are reserved.

### 4. ASDA-RX Operation

Each ASDA-RX has only one address, and it is programmed at the factory and cannot be changed in the field. This address is used for both receiving and transmitting.

ASDA-RX can only receive data if its address matches the destination address sent by ASDA-TX or the destination address is a broadcast address.

ASDA-RX also uses this address as source address when transmitting data to ASDA-TX.



## 5. ASDA-TX Operation

ASDA-TX has only two addresses: a source address for its receiver to receive data only from a specific address; and a destination address for its transmitter to send data only to a specific address. These two addresses are set to broadcast addresses (0xFFFF) after power up.

### 5.1 Source Address

The source address can be displayed from the DB9 serial port using the following ESCAPE sequence.

```
<256msGAP><ESC>@0000<ESC>
```

The source address can be configured from the DB9 serial port using the following ESCAPE sequence.

```
<256msGAP><ESC>@xxxx<ESC>
```

The source address is used for reception only.

If this address is set to a broadcast address, ASDA-TX will receive data sent by any ASDA-RX as long as it matches the broadcast address.

For example:

- 1) Source address = 0xFFFF – it will receive data from any ASDA-RX;
- 2) Source address = 0xFF23 – it will receive data from any ASDA-RX with address of 0x--23;
- 3) Source address = 0xABFF – it will receive data from any ASDA-RX with address of 0xAB--;

If this address is set to a non-broadcast address, ASDA-TX will only receive data sent by the ASDA-RX with this address.

For example:

- 1) Source address = 0xAB23 – it will receive data from the ASDA-RX with address of 0xAB23;



## 5.2 Destination Address

The destination address can be displayed from the DB9 serial port using the following ESCAPE sequence.

```
<256msGAP><ESC>#0000<ESC>
```

The destination address can be configured from the DB9 serial port using the following ESCAPE sequence.

```
<256msGAP><ESC>#xxxx<ESC>
```

The destination address is used for transmission only.

If this address is set to a broadcast address, all ASDA-RX will receive data sent by ASDA-TX as long as it matches the broadcast address.

For example:

- 1) Destination address = 0xFFFF – any ASDA-RX will receive data sent from this ASDA-TX;
- 2) Destination address = 0xFF23 – any ASDA-RX with address of 0x—23 will receive data sent from this ASDA-TX;
- 3) Destination address = 0xABFF – any ASDA-RX with address of 0xAB-- will receive data sent from this ASDA-TX;

If this address is set to a non-broadcast address, only the ASDA-RX with this address will receive data sent by the ASDA-TX.

For example:

- 1) Destination address = 0xAB23 – only the ASDA-RX with address of 0xAB23 will receive data sent from this ASDA-TX;

## 5.3 Notes

Please note:

- 1) <ESC> means the ASCII “ESC” character, or the “ESC” key on the keyboard.



- 2) For the ESCAPE sequence to be properly recognized, there must be at least a time period of 256ms idle (gap) before the first <ESC>; and the byte received immediately after the first <ESC> must be either '@' or '#'; and the sixth byte received after the first <ESC> must be another <ESC>. Otherwise it will be treated as regular data.
- 3) The source address and destination address cannot be saved. The configured values will be lost after reset.

## 6. Bandwidth

The standard DB-9 serial port to connect to XP products is set to 9600 baud rate, 1 stop bit and no handshake, which is fixed and cannot be configured.

Because the bandwidth through XP products is shared, the maximum sustainable throughput for each ASDA adaptor is about 100 bytes per second.

Each ASDA adaptor has the ability to buffer up to 100 bytes for burst traffic.