

**J A F A   S Y S T E M S**

***USER GUIDE***

**for the**

**RS423  
INTERFACE  
CARTRIDGE**



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The RS423 cartridge is guaranteed against defect due to manufacture for a period of six months from date of purchase. Any mis-use of, or modification to, the unit during this time will invalidate the guarantee. The unit contains no user-serviceable parts.

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## **1. Introduction.**

The RS423 interface cartridge allows the Electron to deal with the reception and transmission of asynchronous serial data. This enables it to be used with devices such as serial printers and modems. With the latter and a Mode 7 system you can telephone viewdata style bulletin boards or British Telecom's Prestel computer and interchange data with them.

The software for driving the RS423 interface is already present in the Plus 1 or ROMbox Plus unit that the cartridge is plugged into.

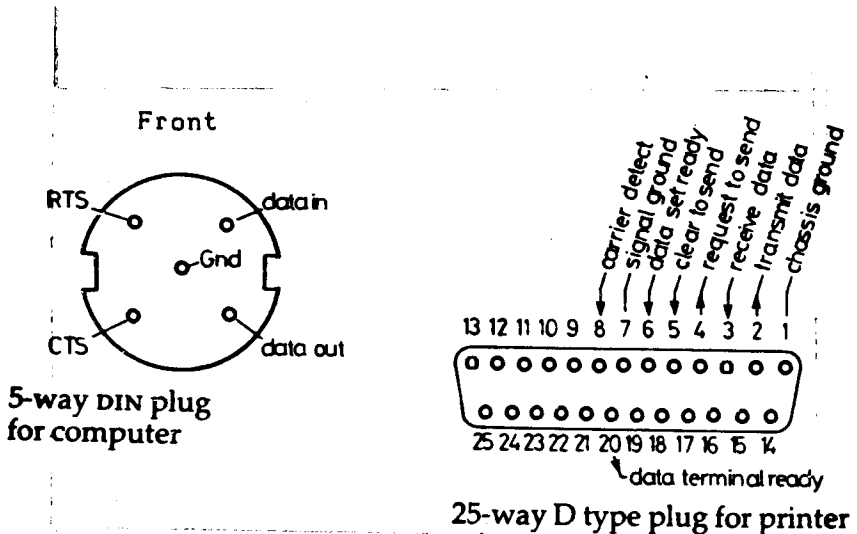
For the benefit of those who understand, the Electron RS423 system does not use a 6850 chip as in the BBC micro. The actual Signetics chip used is far more complicated, with sixteen times as many registers. However the software contains a '6850 emulator' which is driven by Osbyte (\*FX) commands.

## 2. RS423 connections

The RS423 interface may be connected to RS232 serial units such as printers and modems. Unfortunately, although there is a standard way of labelling RS232 connectors there is no standard way of wiring them. So trial and error often comes into making up a lead!

In general, because the socket on the RS423 interface is wired the same as on the BBC computer, cables made to work on the BBC machine will normally function correctly.

The diagrams below show the RS423 socket and a standard RS232 connector looking from outside the case into the respective sockets.



### 3. RS423 OSMYTE (\*FX) commands

#### **OSMYTE 2 (\*FX 2)**

##### **Select input stream**

Entry parameters: X determines input device(s)

\*FX 2,0 X=0 keyboard selected, RS423 disabled

\*FX 2,1 X=1 RS423 selected and enabled

\*FX 2,2 X=2 keyboard selected, RS423 enabled

Default: \*FX2,0

#### **OSMYTE 3 (\*FX 3)**

##### **Select output stream**

Entry parameters: X determines output device(s), Y=0

- Bit 0 - Enables RS423 driver
- Bit 1 - Disables VDU driver
- Bit 2 - Disables printer driver
- Bit 3 - Enables printer, independent of  
CTRL B or C
- Bit 4 - Disables spooled output
- Bit 5 - not used
- Bit 6 - Disables printer driver unless  
character is preceded by VDU 1  
(or equivalent)
- Bit 7 - Not used

Default: \*FX 3,0  
RS423 disabled,  
VDU, printer and spooled output enabled

**OSBYTE 5 (\*FX 5)**

**Select printer destination**

Entry parameters: X determines print destination

*FX 5,0	X=0	Printer output ignored
*FX 5,1	X=1	Parallel output
*FX 5,2	X=2	RS423 output (ignored if RS423 selected with *FX3)
*FX 5,3	X=3	User printer routine
*FX 5,4	X=4	Net printer
*FX 5,5-	X=5-	User printer routine
255	255	

(For the last three see the Advanced User Guide)

Default: \*FX 5,0

This call is not reset to default by a soft break



**OSBYTE 7 (\*FX 7)**

**Set RS423 baud rate for receiving data**

**Entry parameters: X determines baud rate**

*FX 7,1	X=1	75	baud receive
*FX 7,2	X=2	150	baud receive
*FX 7,3	X=3	300	baud receive
*FX 7,4	X=4	1200	baud receive
*FX 7,5	X=5	2400	baud receive
*FX 7,6	X=6	4800	baud receive
*FX 7,7	X=7	9600	baud receive
*FX 7,8	X=8	19200	baud receive

**OSBYTE 8 (\*FX 8)**

**Set RS423 baud rate for data transmission**

*FX 8,1	X=1	75	baud transmit
*FX 8,2	X=2	150	baud transmit
*FX 8,3	X=3	300	baud transmit
*FX 8,4	X=4	1200	baud transmit
*FX 8,5	X=5	2400	baud transmit
*FX 8,6	X=6	4800	baud transmit
*FX 8,7	X=7	9600	baud transmit
*FX 8,8	X=8	19200	baud transmit

## OSBYTE 5 (\*FX 5)

### Select printer destination

Entry parameters: X determines print destination

*FX 5,0	X=0	Printer output ignored
*FX 5,1	X=1	Parallel output
*FX 5,2	X=2	RS423 output (ignored if RS423 selected with *FX3)
*FX 5,3	X=3	User printer routine
*FX 5,4	X=4	Net printer
*FX 5,5-	X=5-	User printer routine
255	255	

(For the last three see the Advanced User Guide)

Default: \*FX 5,0

This call is not reset to default by a soft break

## OSBYTE &9C (\*FX 156)

### Direct control of Signetics serial chip

#### Entry parameters:

If Y=&E3 (227), X determines serial format

If Y=&9F (159), X controls output break level

#### Y=&E3:

\*FX 156,0,227 X=0 7 bits + even parity + 2 stop bits

\*FX 156,4,227 X=4 7 bits + odd parity + 2 stop bits

\*FX 156,8,227 X=8 7 bits + even parity + 1 stop bit

\*FX 156,12,227 X=12 7 bits + odd parity + 1 stop bit

\*FX 156,16,227 X=16 8 bits + 2 stop bits

\*FX 156,20,227 X=20 8 bits + 1 stop bit

\*FX 156,24,227 X=24 8 bits + even parity + 1 stop bit

\*FX 156,28,227 X=28 8 bits + odd parity + 1 stop bit

#### Y=&9F:

\*FX 156,0,159 X=0 Stop transmitting break level

\*FX 156,96,159 X=96 Transmit break level on serial  
output

#### 4. Using the ROM socket

The ROM socket on the RS423 board will accept a 2764 (8k) or a 27128 (16k) EPROM or a 43256/62256 32k static RAM.

You may find that the leads on the EPROM or RAM you are using are splayed apart. In that case you will need to carefully bend them until they are perpendicular to the body of the chip.

The device should be inserted into the socket with the notch representing the pin 1 end to the right (there is a figure 1 on the board to remind you). Carefully push the chip home, ensuring that none of the pins get bent over or broken.

If you are using a RAM you next need to decide what sort of ROM images you are going to load into it.

Some ROMs, including those in the VIEW range, try to corrupt themselves to ensure that they cannot be run in RAM. If you are using these the jumper next to the socket has to be set to the protected (P) position.

Some ROMs, including PRES's ADFS E00, use some of their own address space as scratchpad RAM. For these the jumper must be set to the unprotected (U) position.

Note that the protection only prevents a ROM modifying itself. It does not stop a utility program loading in another ROM image

