

# SERIAL COMMUNICATION PORT SETUP & FAULT DIAGNOSIS

For Autronic ECUs equipped with a RS232 Serial communication port, a serial communication port equipped PC running Autronic PC software is required for calibration, diagnosis and data retrieval. Reliable communication is only possible when the software is directed to use a correctly configured serial communication port and this communication port is correctly connected to the ECU serial port. The PC serial communication port can be a built-in type (when available) or added to the PC by installing a USB to Serial adaptor (see note i).

If the Autronic PC software fails to automatically establish communications with your Autronic ECU, the following procedure should resolve the problem (also see note ii).

# 1. DETERMINE THE COMMUNICATION PORT NUMBER

Use the computers "Device Manager" screen to confirm the presence of an installed Serial communication port. More than one communication port may be available. Note the number of the port that you intend to use, so that the Autronic software can be set accordingly. Example in figure 1 shows one available com port, COM5. (For SMC/SM2 ECU family software, only communication port numbers below 11 are supported. If the com port number is outside this allowed range, click on the chosen port to open its port properties screen. Select the "Port Settings" tab, then click on the "advanced" button. In the "Advanced Settings" window, select an unused com port number less than 11.)



Figure 1 Device Manager screen

### 2. CONFIGURE THE COMMUNICATION PORT

Communication performance will be slow and/or unreliable if large FIFO buffer or long latency time settings are used. In the computers "Device Manager" screen, click on "Ports (COM & LPT)" to display the available ports, then click on the chosen port (COM5 in the example) to open its port properties screen. Select the "Port Settings" tab, then click on the "advanced" button. One of the following two screens variants will be seen. Use the circled item setting of the relevant Advanced Settings window.

Betwice Manager         -         C           File Action View Help <th></th>	
Audio inputs and outputs	
Batteries     Bluetooth	
⊳ j≝ Computer	the second se
Disk drives	Prolific USB-to-Serial Comm Port (COM5) Properties
DVD/CD-ROM drives      Human Interface Devices	General Port Settings Driver Details Events
Gai IDE ATA/ATAPI controllers     Aimaging devices	Bits per second: 9600 V
Exploards     COM P     Mice and other pointing devices	Data bits: 8
Monitors     Metwork adapters	Parity: None
Ports (COM & LPT)	
Prolific USB-to-Serial Comm Port (COM5)	Stop bits: 1 V
Processors	Row control: None Y
Software devices	UNCHECK BOX TO
Sound, video and game controllers	Advanced Restore Defaults DISABLE FIFO BUFFER
System devices	Advanced Settings for COM5
Oniversal Serial Bus controllers	
	Use FIFO buffers (requires 16550 compatible UART)
	Select lower settings to correct connection problems.
	OK Select higher settings for faster performance.
	Defaults Peceive Buffer: Low [1]
	Transmit Buller: Low (1) High (16) (16)
	COM Port Number: COM5 V

Figure 2 Device Manager Screen for Communication port (variant 1)

Image: Second Point Controllers       USB Serial Port (COM27) Properties         Image: Second Point Controllers       Image: Second Point Controllers         Image: Second Point Second Point Point Controllers       Image: Second Point Controllers         Image: Second Point Second Point Point Controllers       Image: Second Point Point Controllers         Image: Second Point Point Controllers       Image: Second Point Point Controllers         Image: Second Point Point Controllers       Image: Second Point Point Controllers         Image: Second Point Poi	alia       Advanced Settings for COM27         xond:       9600         bits:       8         vary:       None         bits:       1         rtrol:       None         rtrol:       None         Advanced       Resto         BM Options       Select lower settings to correct response of Latency Timer (insec):         Iminum Read Timeout (insec):       0         Minimum Write Timeout (insec):       0	Concel Cancel C

Figure 3 Device Manager Screen for communication port (variant 2)

# 3. CONFIGURE THE AUTRONIC SOFTWARE

Connect the ECU to PC serial data link cable, power-up the ECU and run the Autronic software. If the connection is not automatically established and no popup boxes appear, push the "F3" to initiate communication. If the following popup box is visible, use "DOWN ARROW" key to highlight "Go on line" then push the "ENTER" key.



Figure 4 About – Welcome pop-up

If the connection is not established and the following popup error box appears, move the cursor down (using "DOWN ARROW") to "Try another port" and push the "ENTER" key to open the Port Selection screen.

		AUTRONIC	
ERROR COM3 19.2kbp	Packets/sec 0.0		
<u>FileCal</u> <u>E</u> dit-Window	<u>Logger Win H</u> elp(F1)		
_			_
	Commu	unication error	
		be opened of not available	
	Select from list           Wait           2 Go off line           3 Check data link           4 Try another port	Select another COM port if cannot find an ECU	
PC Logger: Armed 03	%		

Figure 5 "Port cannot be opened or not available" pop-up

In the Port Selection screen use the "UP & DOWN ARROW" and "ENTER" keys to select the port number determined in step 1 above (e.g.: COM5)

			AUTRO	VIC	
ERROR COM3 19.2	kbps	Pack	ets/sec 0.0		
FileCal Edit-Window	₩ Lo	ager Wi	n Help(F1)		
			Select a communication port		
			Select a communication port		
			Select from list		
			C0H1		
			COM2		
	_				-
			COM3 COM4		
			COM5		
			СОМЕ		
			COM7		
			COM8		
			COM9		
		Select fro	COM10	< (Last 2	
			COM11	ta cable	
		Wait	COM12		
		Go off lin	COM13		
	3	Lheck da	COM14		
	-	Try anoth	COM15		
			COM16		
			CUM17		
			COM20		
			COM22		
			C0M23		
			COM24		
			C0M25		
			COM26		
PC Logger: Armed	0%		COM27		

Figure 6 "Communication port selection" pop-up

If after port selection, the connection is not automatically established, try restarting the Autronic software. If still unsuccessful, see item 4 below.

## 4. DIAGNOSE SERIAL CONNECTION LINK

If the serial port has been configured correctly and the Autronic ECU software is set for the correct com port number, and communication cannot be established, either of the two error conditions are possible.

### 4.1 COMMUNICATION LINK IS BROKEN

AUTRONIC	
ERROR COM3 19.2kbps Packets/sec 0.0	
EileCal <u>E</u> dit-Window <u>Logger Win H</u> elp(F1)	
Communication error	
COME Contract End of End data End	
Select from list       Continue to edit off-line press ENTER key         1       Wait         2       Go off line         3       Check data link         4       Try another port	
PC Logger: Armed 0%	

Figure 7 "Cannot find an ECU. Check data link" pop-up

For the "Cannot find an ECU. Check data link" error popup window perform the following tests:

Disconnect the 3.5mm Data link cable connector from the ECU and then temporarily short the middle contact to the tip contact using a piece of wire or a paperclip. If the popup error box changes to "Short circuit detected in data link" then the ECU is either unpowered or faulty, or its Serial communication socket is faulty or the software being used is incompatible with the ECU. Or the Data link ground connection is broken.



Figure 8 Short link applied to 3.5mm ECU plug

If the "Cannot find an ECU. Check data link" error persists disconnect the Data link cable from the PC serial port and temporarily short the serial port connector pins 2 & 3 together with a metal screw driver blade or piece of wire. If error message popup box changes to "Short circuit detected in data link", then the most likely cause is a faulty data link cable. If the error persists then the wrong com port number has been selected, or the selected Serial communication port is faulty or has been incorrectly installed.



Figure 9 Short serial port pins 2 - 3

If shorting middle and tip contacts together (see Figure 8) produced a "Short circuit detected in data link" message add an additional short circuit to the body of the connector (ie: simultaneously short all 3 contacts of the 3.5mm plug together). If this does not cause the message to revert back to "Cannot find an ECU. Check data link" then the Ground wire of the data link cable is broken.

## 4.2 COMMUNICATION LINK IS SHORT CIRCUITED

		AUTRONIC	
ERROR COM3 19.2kbps	Packets/sec 0.0		
FileCal Edit-Window Logger Win Help(F1)			
	Com	aunication error	
	Contraction	iunication error	
Select 1 Wait 2 Go o 3 Chec 4 Try a	ct from list  ff line :k data link another port	Restore power to ECU or check that serial cable is connected	
PC Logger: Armed 0%			

Figure 10 "Short circuit detected in data link" pop-up

For the "Short circuit detected in data link" error popup window perform the following test:

Disconnect the 3.5mm Data link cable connector from the ECU. If error message popup box changes to "Cannot find an ECU. Check data link", then the ECU or its Serial communication socket is most likely at fault. If the error persists disconnect the Data link cable from the PC serial port. If error message popup box changes to "Cannot find an ECU. Check data link" then the most likely cause is a faulty data link cable. If the error persists then the Serial communication port is faulty or has been configured in loopback mode (i.e.: internally returns any data output).

#### Notes:

- If a USB to Serial adaptor is used, connect the adaptor to the same USB port for every use. This will ensure that the COM number remains unchanged, avoiding the need to adjust the port advanced settings or reconfigure the Autronic software to use the new COM number.
- Do not make the serial connection between the PC and a powered ECU before the PC has finished its boot-up process. Many PC operating systems (including Windows versions starting with XP and NT) will interpret the data stream output from Autronic ECUs as being from a serial pointing device (i.e.: mouse). The PC serial communications port is then automatically configured for mouse use and will become unavailable for PC to ECU communication. Disconnect or power down the ECU, and then restart the PC to restore normal serial communication port functionality.