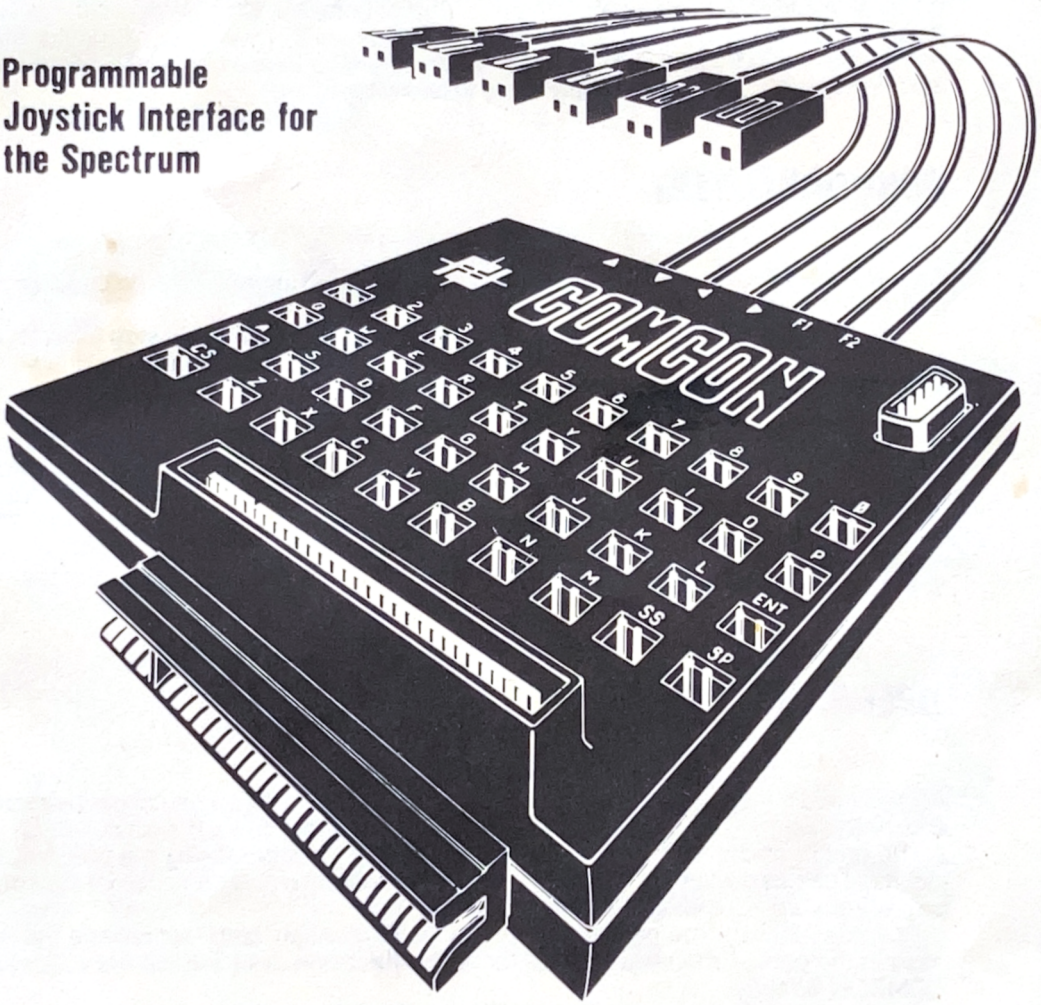
COMCON

Programmable
Joystick Interface for
the Spectrum



INSTRUCTION MANUAL

FREL LTD.

INSTALLATION

Ensure that your ZX Spectrum is switched off by disconnecting the power lead. Plug the COMCON interface gently with its edge connector into the rear extension port of the ZX Spectrum. If further add-ons are required such as rampacks, sound amplifiers, light pens, printers etc., connect these either before or after the COMCON depending on the physical layout. Any peripherals without extension ports (or ZX81 ports only) must be plugged into the COMCON (Currah uSpeech, Alphacom 32 printer etc.). Plug the Atari compatible joystick into the joystick port of the interface located on the top righthand side. Your Spectrum system is now ready to be switched on.

FUNCTIONAL TEST

To ensure satisfactory operation of the unit, the COMCON interface can be checked by performing the following test procedure:

Power up the Spectrum. After a couple of seconds the usual Sinclair logo will appear on the screen. Plug the six function leads into the six matrix positions shown in table A. On activating the joystick the appropriate letters or functions (depending on the current cursor indication) will appear in the editing area of the screen, i.e. pressing up will display 1, pressing down w or draw etc. If the six functions display the correct lettering on the screen, the six function leads should be plugged into the matrix according to table B and the screen test repeated. If again all six functions provide the correct screen display, the unit is fully operational. The test checks all five data lines (10 columns) and the eight memory address lines (8 half rows).

THE UNIT IS READY FOR ACTION !

OPERATING INSTRUCTIONS

Always handle the function wires with care. Do not pull the wires with excessive force and always remove the connector by gripping the receptacles, not the wires.

The programming may be executed before,during or after loading the program. In fact,most games display the function keys in the introduction screen ,so the joystick may be programmed according to these instructions.

Plug the function wire connector into the matrix position which represents the key used in the game.When this is done for all the functions including the fire action,the COMCON is ready.

Switching the Spectrum on and off will not affect the programming. Your favourite keys will not have to be programmed again and again.

As COMCON operates parallelto the keyboard,there is no incompatibility problems with any other peripherals you may have connected such as the ZX interface 1, microdrives, printers etc.

COMCON does not disable the keyboard. Keyboard and joystick may be operated for multi-key games.

If a two-player game requires two independent joysticks, there is the possibility of plugging a further COMCON into the extension port of your COMCON.The two COM-CON interfaces will not interfere with each other and the power required can be met by the Spectrum power supply.

Two joysticks can be connected in parallel (same function keys) by using a D connector splitter which plugs into the normal joystick position.

The second fire option is only available with special joysticks such as the FLIGHTLINK,the QUICKSHOT2+2(modified QUICKSHOT 2) and the VOLTMACE DELTA 3S.All other Atari compatible joysticks will function perfectly well, but with one fire action only.

TROUBLE SHOOTING

Should your COMCON fail in one of the sequences of the functional test,then switch the Spectrum off and remove the COMCON interface.Clean the edge contacts on the Spectrum printed circuit board with a cleaning fluid and check for damaged contacts or shorts.

Check that the joystick is in good working condition and properly connected.

If this doesn't help,check the COMCON on a friends machine and with a friends joystick to make absolutely sure that the problem lies with the interface.

Should the COMCON interface prove to be faulty, then give us a call before sending in the unit, as this can save both parties time and money.

The following faults may occur:

If all functions work except the fire 2 action, you may not have connected a Flightlink, Voltmace Delta 35 or Quickshot 2+2 joystick. Please note that the standard Quickshot 2 or any other Atari compatible joystick does not provide two independent fire actions.

If the Sinclair logo does not appear,there is a short on the system edge connector. Check your Spectrum without the COMCON. If it works alright,the COMCON is faulty and should be returned.

If you are experiencing loading problems with your cassette recorder with or without the ZX interface 1 connected, it is unlikely that the COMCON is the cause. Check that your cassette recorder and Spectrum function correctly. The COMCON operates parallel to the keyboard and should not affect any peripherals unless one of the peripherals is faulty.Check again the Spectrum edge contacts for shorts.

An intermittent fault points to a dry joint within the COMCON. Please check that the edge connector is properly inserted. If this doesn't help,please return the unit.

SERVICE

Should the trouble persist and the fault point to the COMCON, please return the unit, in the original packing, making sure that the unit is sufficiently protected, to the retailer that you purchased it from. Enclose your name, address and invoice, and explain in detail the nature of the fault – this will allow us to swiftly identify the problem, and will save unnecessary delays.

GUARANTEE

The COMCON interface is guaranteed for a period of three months.

This guarantee is only valid if the unit has been used in a correct manner. Any mechanical damage to the edge connector,the enclosure or function wires and connectors which is due to improper usage is not covered.

The cost of postage for the return is not refunded and any damage to the unit due to bad packing is not covered in the guarantee.

This guarantee does not affect customer's statutory rights.

FUNCTIONAL TEST :

	A	B
UP	1	V
DOWN	W	B
LEFT	D	N
RIGHT	C	K
F1	V	O
F2	B	Ø

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