

**Splitter 525/1125
& Splitter Control Chip
Instruction Manual**

V1.30

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Splitter 525 & Splitter 1125

Introduction

Features common to both Splitter 525 and Splitter 1125

1. Simple, low-cost way of duplicating a VGA, SVGA, or XGA signal from a computer to several monitors*.
2. Unit can drive a cable up to 25m in length (cable not supplied).
3. Splitter 525 has 5 outputs, and the Splitter 1125 has 11 outputs.
4. Dedicated 'Local' output goes to the 'local' monitor, near the computer.
5. Dedicated 'Chain' output goes to another splitter box, allowing a number of splitter boxes to be 'daisy-chained' together to increase the total number of outputs - but can be used for output to a monitor instead.
6. High-quality signal buffering using fast surface-mount components.
7. Each unit has a socket inside for the optional 'Splitter Control Chip'.
8. Power LED for easy identification of active units.

Additional features when 'Splitter Control Chip' is present

1. Features controlled with simple-to-use WindowsTM-based software.
2. Software compatible with Windows 3.x and Windows 95.
3. Each Splitter output can be turned on or off (ie. any or all of the screens can be blanked).
4. DPMS (Display Power Management System) is supported, and allows DPMS-compatible monitors to be put into Standby mode, or even be completely turned off. (The 'Local' monitor is always active.)
5. When 'daisy-chaining' more than one unit, each output can still be controlled individually as long as a 'Splitter Control Chip' is in each unit.
6. 'Control' LED shows whether 'Splitter Control Chip' is present, and allows easy identification of 'daisy-chained' units.

***Please note: Whilst this manual refers mostly to the term 'VGA', this term also includes SVGA and XGA.**

Credits

Splitter 525, Splitter 1125, Splitter Control Chip, Splitter Windows Software
(c)1995 Vine Micros Ltd.

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Designed and Manufactured in the United Kingdom.

Hardware and Software designed by R.P.D.Mallett.

Splitter Instructions release 1.30 January 1997 by R.P.D.Mallett, with thanks to
A.S.J.Mallett.

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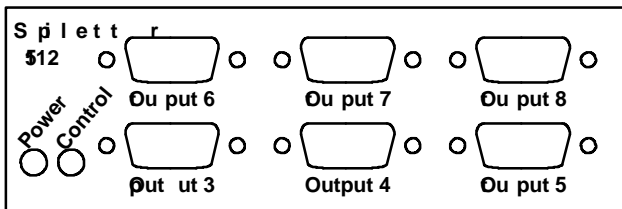
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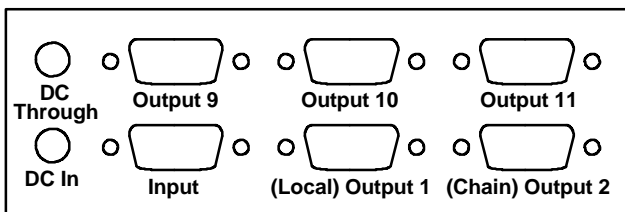
Identifying the hardware

Checklist

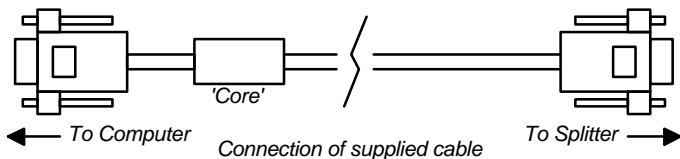
1. Splitter box. This should have either 6 'VGA' style 15 way connectors for the Splitter 525, or 12 'VGA' style 15 way connectors for the Splitter 1125.
2. Splitter lead. This is a short lead consisting of a 'VGA' style 15 way plug on both ends, with a single pin removed on each. Note that one end has a 'core' around its cable - this end must be plugged into the computer.
3. Mains adaptor. If you have not purchased a mains adaptor with this unit, you will need to use one with the following specification: 12volts DC, minimum of 300mA, 2.1mm DC power-plug centre pin positive.



Front of Splitter 1125 (525 version has fewer connections).



Back of Splitter 1125 (525 version has fewer connections).



Connecting the hardware

Connection to your computer

Simply use the supplied Splitter cable to link from your computer's VGA output to the connection marked 'Input' on the Splitter. The cable has the same connections on both ends, but make sure that the end with the 'core' around it is plugged into the computer.

Connecting your 'local' monitor

Your 'local' monitor is the one that you have next to, or on top of, your computer. It is important that this monitor is connected to the special 'Local' output, as it is through this connection that the 'ID' signals (indicating what kind of monitor is attached) are passed back to your computer, thus specifying the maximum resolution that the monitor can handle. If no monitor is connected to the 'Local' output, then your computer may give an error.

Connecting other monitors

Connect other monitors to the other Splitter outputs. All monitors will display the same image on their screens. Remember that if your computer is outputting a high-resolution image (eg. 1024x768), then each monitor must be capable of displaying at this resolution - or you will get unstable pictures. The Splitter box is not capable of changing the resolution to suit each monitor.

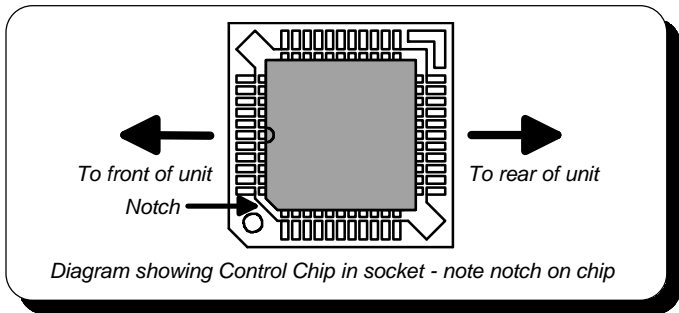
Connecting other Splitters

Details of connecting multiple Splitters are given later in this manual. If you are connecting other Splitters (of the same or different make), then you can connect them to any of the remaining outputs. However, if you are connecting another Splitter 525 or Splitter 1125 and it has its own Splitter Control Chip within it, then you must connect it to the 'chain' output. The 'DC Through' connection (1125 only) lets you use one mains adaptor to power more than one unit, but make sure that your mains adaptor is capable of supplying enough current (ie. 300mA times the number of Splitter 1125's connected) - ask your supplier for the necessary cable.

Turning on

Once you've connected all your equipment correctly, turn on the power to the Splitter. All connected monitors should function as normal, and the 'Power' LED on the Splitter should be on. If there's no output, or the Splitter LED is not on, then check the 'Problems?' section at the back of this manual.

Installing the Control Chip



Description

The Control Chip allows you to control each of the Splitter's outputs independently. The 'Control' LED on the front of the unit will be on if a chip is currently installed.

Static: Please be aware at all times that 'static electricity' can damage electronic circuitry, so please 'earth' yourself (eg. touch your computer's case) before handling the 'Control Chip' or the inside of the Splitter unit.

Installation

1. Dis-connect all power to your computer, mains adaptor and monitors.
2. Dis-connect all cables, including power, from the Splitter unit.
3. Remove the two retaining screws from the underside of the box.
4. Lift off the lid of the unit.
5. Locate the empty square chip socket. This is where the Control Chip will be put. First note the correct 'orientation' of the chip and socket - ie. that there is a notch on one corner of chip and socket.
6. Place the chip loosely over the empty socket, checking that it is the correct way round and that the chip's pins line up with the socket's 'gaps', and then press it home firmly.
7. Replace the lid and retaining screws, and re-connect all cables and power.

Installing the Splitter Control Software

The Splitter Control Software allows control over Splitter 525 or Splitter 1125 units that have the 'Control Chip' installed. This is easily detectable because the 'Control' LED will be on if the chip is installed, or off if it is not.

README file

The supplied disk may have a README file on it, which would contain any information that has changed since this manual has been released. It would also detail any changes to the software not mentioned in this manual. To view the README file (if there is one), simply load it into the Notepad program (which you'll find in your Windows' Accessories group).

Software Installation from Windows 3.x

1. Put the supplied software disk in drive A: (or B:).
2. Select 'Run' from the 'File' menu from 'Program Manager'.
3. Type A:SETUP (or B:SETUP) in the box, and click on OK.
4. Follow the instructions that follow (if any). The supplied software uses 'Visual BASIC', and during installation you may be asked to close other software that is programmed using this language.
5. The Program Manager window may change size - simply click on the maximise button to correct this.
6. Once completed, you may move the Splitter icon to another window group for ease of use.

Software Installation from Windows 95

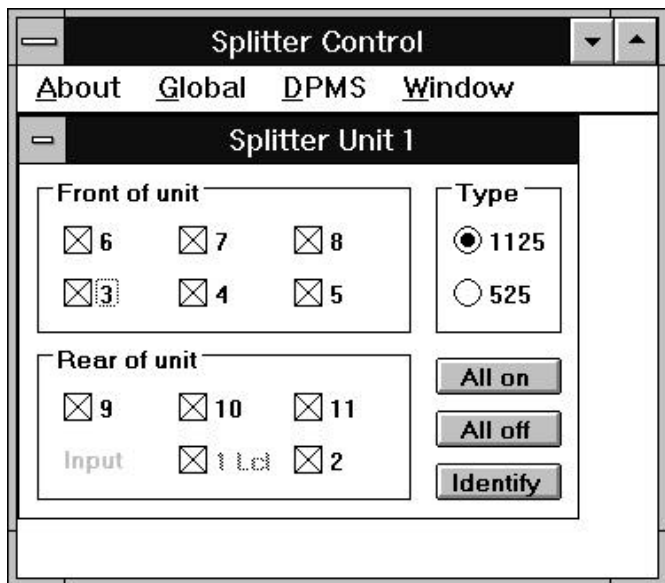
1. Put the supplied software disk in drive A: (or B:).
2. Select 'Run' from the main 'Start' button on the desktop.
3. Type A:SETUP (or B:SETUP) in the box, and click on OK.
4. Follow the instructions that follow (if any). The supplied software uses 'Visual BASIC', and during installation you may be asked to close other software that is programmed using this language. If the error 'Warning - Can not copy file A:\DDEML.DL_....' appears, just click on OK.
5. Once completed, you may move the Splitter icon to the main desktop for ease of use.

Using the Splitter Control Software

The Splitter Control Software lets you control any Splitter 525 or Splitter 1125 units that have 'Control Chips' inside them. If you're using more than one, make sure that these Splitter units are 'chained' together (see 'Connecting the Hardware', and 'Connecting Multiple Splitters').

Running the software

Simply double-click on the Splitter Control icon.



NB. The above window will appear slightly different under Windows 95.

Selecting the number of units connected

If you have more than one unit with a 'Control Chip' inside it, then specify how many you have by selecting the 'Configuration' option from the 'Global' menu. Once you have changed the number of units connected, the software will change the number of 'control panels' to match the number of units connected. If you cannot see all the panels, re-size the main window and move the panels around until you can. Note that the more units that are connected, the slower they will be to control.

Identifying each control panel's unit

Each control panel is numbered, starting from 1, to represent each subsequent Splitter unit that is connected. If at any time you do not know which unit is associated with a particular control panel, click on the 'Identify' button. This will make the 'Control' LED flash on and off for about 5 seconds on the correct Splitter unit, making it easy to determine which unit is under control of each panel.

Selecting the correct type of unit

Since the appearance of the Splitter 525 is different to the Splitter 1125, you can tell the control panel which one is in use so that it only shows the available connections. This is done within the 'Type' option - selecting either 525 or 1125.

Turning the outputs on and off

The 'check-boxes' (small squares that are either empty or filled with a cross), represent whether an output is enabled or not. When filled with a cross, the output is enabled. When empty, the output is disabled. Clicking on the 'All on' button turns every output on, whilst clicking on the 'All off' button turns every output off. Note that the effects apply only to that particular unit, and that your 'Local' monitor will always remain on.

Re-initialising

If for some reason you need to temporarily dis-connect the power from a Splitter unit, then it will forget which outputs are on and off, and even forget that it is under the control of the software. Selecting 'Initialise' from the 'Global' menu will re-send all information to the units, and re-establish the computer's control.

DPMS modes

The 'Display Power Management System' is supported to control the energy consumption of the connected monitors. Most (but not all) modern monitors support this feature, which lets the Splitter Controller put all compatible monitors into either 'Normal' (monitors turned on), 'Standby' (monitors blanked, but ready to be turned back on quickly), or 'Off' (monitors turned off) states. The circuitry inside the monitor that does this is extra to the 'on-off' button that you normally use on the monitor, and please be aware that it can sometimes be difficult to determine whether a monitor is turned off from its power switch, or from the DPMS setting. Selecting the required option from the 'DPMS' menu will perform these functions. A 'tick' is placed next to the currently selected option in the menu.

Some shortcut keys can be used for quick access to these options when the main Splitter Control window is active.:

CTRL + N selects 'Normal' use.

CTRL + S selects 'Standby' mode.

CTRL + O turns DPMS monitors off.

Determining the software version

The 'About' menu will display relevant copyright and version information. Click on 'Done' when you have finished reading it.

Window activation

If you are using a number of Splitter units connected together, you can use this option to activate a specific unit's control panel.

Help

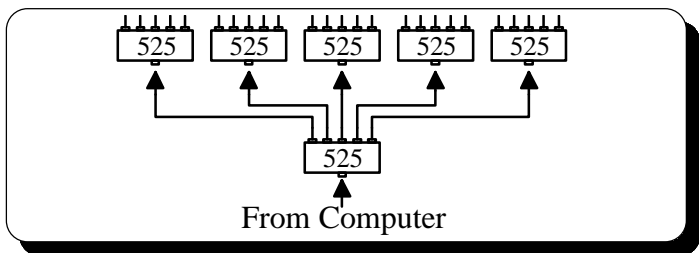
Help is available by pressing F1.

Connecting Multiple Splitters

There are two main methods of connecting two or more Splitter units together.

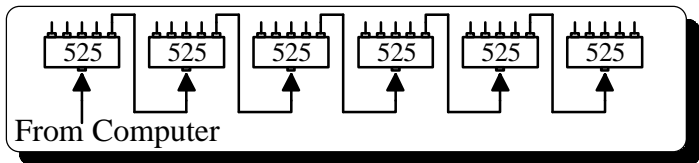
'Star' Arrangement

This is where the outputs from one unit feed the inputs of many others, as shown in the diagram below - where 25 outputs are created from 6 Splitter 525's. This has the advantage of negligible loss of image quality, because (in this example) there are only a total of two 'buffer' stages before any output goes to a monitor. This method of connection is best suited where the monitors are grouped together.



'Daisy-Chain' arrangement

The example below shows a different way of getting 25 outputs from 6 Splitter 525 units. This method of connection takes one output from a Splitter unit, and feeds it to the input on the next. It is best suited for when the monitors are in a long line, although subsequent units will have undergone a number of 'buffer' stages, and image clarity will start to suffer slightly. **When using multiple units with Control Chips inside they *must* be connected using this method, using the special 'Chain' output on the Splitter unit if they are to be controlled.**



Problems?

Use this section as soon as you have a problem. Should none of the suggestions below help, please contact Customer Services at the number listed at the beginning of this manual.

My graphic card is SVGA/XGA, not VGA. This does not matter. The Splitter 525 and Splitter 1125 units can work with VGA, SVGA, and XGA graphic cards and monitors.

The 'Power' LED does not come on. Check that the mains adaptor is connected properly and turned on, and that its polarity is correct (if it has a polarity-reversal switch).

The 'Control' LED does not come on. This LED only comes on when the 'Control Chip' is installed. If you have just installed it, then check that the chip is correctly oriented. If you need to remove the chip, you will need to lever it out at two corners simultaneously using two small thin screwdrivers (see diagram earlier). The chip may be damaged by incorrect insertion.

The control panel does not control the Splitter unit. Does the Splitter unit have a control chip in it? - ie. is the 'Control' LED should on? Make sure that it's connected directly to the computer or to the 'chain' output of another Splitter unit with a 'Control Chip' in it. Click on the 'Global - Initialise' option and try again, in case power to the Splitter was lost at some point. Make sure that you are using the Splitter connection cable supplied with the unit (which has all pins connected, rather than just some). See the 'Connecting Multiple Splitters' section to check your connections when using more than one unit.

When I click on the identify button, two of the units flash their LEDs instead of one. Check that you have set the correct number of units in the 'Global - Configuration' menu. Also check that you are using the 'daisy-chain' connection method - see the 'Connecting Multiple Splitters' section.

- Some monitors stay on in DPMS modes.* Not all monitors support DPMS. For those that don't, the Splitter Control Software blanks them instead - but they will still consume power.
- Some monitors are unstable.* Are you sure that they are **all** capable of working at the resolution your graphics card is outputting? The Splitter cannot adjust the resolution to suit each monitor - only use resolutions that all your monitors can handle.
- My local monitor is blank.* Is there power to the Splitter box (ie. 'Power' LED on) ? This is required even when using just the 'Local' output. Make sure that you have connected the input from the computer into the correct socket on the Splitter.
- When a display is blanked, I can see a very faint 'outline' of the image.* The blanking circuitry inside the Splitter unit may sometimes 'leak' a very slight signal to the output. This can only be seen if the monitor's brightness level is set too high.
- Can the Splitter work with CGA and EGA?* The Splitter can work with CGA and EGA *resolutions* when working on a VGA graphics card, but is not compatible with the output from a CGA or EGA graphics card. Vine Micros do not supply such Splitters.
- What resolutions does the Splitter support?* Technically, all screen resolutions look the same to the Splitter - the only differences being the timings of the horizontal and vertical synchronisation signals, and the 'bandwidth' of the red, green and blue signals. So, it can support just about any resolution - but the higher the resolution (ie. the more pixels there are), the more likely you'll find problems with smearing when using long cables.
- How can I reduce smearing?* Smearing usually only occurs when using high resolutions (eg. above 640x480) with long cables (eg. above 10m). To reduce smearing, use a lower resolution, and as short a cable as you can. Higher quality (lower-loss) cables are available, and these reduce smearing further.

How can I make a long cable? Never try to extend the Splitter cable which connects the Splitter unit to the computer - only ever use longer 'output' cables. These are available from Vine Micros (or their representative). Alternatively, you can wire up your own - use a high-quality low resistance shielded multi-core cable, with a 15pin High Density plug at one end, and a socket on the other. Make sure that you connect the following pins from plug to socket: 1,2,3,4,5,6,7,8,10,11,12,13,14. Cable shields should be connected to the plug and socket metal outers.

When driving a very long cable, the display on the monitor at the end is not stable. Sometimes, the horizontal and/or vertical synchronisation signals in the cable become distorted when using long cables (usually above 25m). The monitor may then have problems, resulting in an unstable display. Contact Vine Micros' Customer Services for advice.

My keyboard has stopped working. Vine Micros' engineers have sometimes experienced problems like this. Sometimes a monitor's DPMS power-up and power-down switching will cause electromagnetic glitches that temporarily disable a keyboard located directly beside it. The easiest solution is to dis-connect and then re-connect the keyboard from the computer. Ideally, locate the keyboard in a slightly different place, further away from the monitor.

NB. This is not a fault with the Splitter unit's design!

The VGA cable does not have a core around one end. You have a unit supplied before 1st January 1996. The core does not enhance performance, but merely prevents electromagnetic radiation emanating from the computer from being radiated or conducted by the Splitter system.

Warranty & Returns Procedure

Warranty

Your unit comes with a two year warranty (valid from date of purchase), which covers faults in the Splitter unit that arise from defects due to material or construction, when under normal use. The Splitter device will be repaired or replaced, as Vine Micros sees fit, free of charge within this period.

This warranty does not cover damage due to negligence, mishandling, accident, improper maintenance, modification, or repair of the unit by anyone other than Vine Micros or their authorised representative.

Note that under all circumstance the warranty only covers losses up to the value of the replacement cost of the unit(s) described in this manual (see 'Disclaimer' on Page 2 of this manual).

Are you sure there's a fault?

Please consult the previous section on problem-solving before sending a unit back. Most 'faults' are due to incorrect usage.

If you need to return a unit...

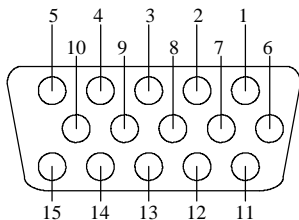
First contact your supplier, who will obtain an authorisation number from Vine Micros. Please enclose with the unit details of why it has been returned, and failure details if appropriate. Proof of purchase should also be included.

Units should be returned via insured courier or registered post (thus allowing a trace to be made if goods are lost in transit), clearly stating the returns number allocated as this will speed up processing. Goods on their way to Vine Micros are the responsibility of the sender, and Vine Micros cannot be responsible for transit losses.

Technical Details

- Input** Requires standard VGA signal:-
Red, Green and Blue @ 0.7v peak white (terminated with 75 Ohm resistors). HSync and VSync @ TTL levels.
- Outputs** Standard VGA outputs:-
Red, Green and Blue @ 0.7v peak white (can drive 75 Ohm impedance). HSync and VSync @ TTL levels.
- Power consumption** Consumes approx. 300mA when outputting to 11 displays.
Requires an absolute minimum of 9volts DC input.
Requires 'centre-pin positive' 2.1mm DC power plug input.
Reverse polarity protected. Internal (non-serviceable) 1A fuse.
- 'DC through' connection** Available on Splitter 1125 only.
This is internally connected directly to the 'DC In' connection, and is rated at 600mA maximum, allowing 'power chaining' of an additional two units from the first Splitter unit - but make sure your mains adaptor is capable of supplying at least 300mA times the number of Splitter 1125's connected to it.
- Control Chip** Custom designed logic using proprietary control method.

Pin	Function	Volts/Ohms
1	Red signal	0.7v/75 Ohms
2	Green signal	0.7v/75 Ohms
3	Blue signal	0.7v/75 Ohms
4	ID 2	TTL
5	Ground (self-test)	
6	Red ground	
7	Green ground	
8	Blue ground	
9	No pin or hole	
10	Ground	
11	ID 0	TTL
12	ID 1	TTL
13	Horizontal sync	TTL
14	Vertical sync	TTL
15	Reserved	



VGA/SVGA/XGA socket