The DesignaKnit Serial E6000 Link 1
for the Passap / Pfaff Electronic 6000

What this link does

This link enables downloading of stitch patterns to the Passap E6000 console.

Patterns can be transferred in one direction only: the E6000 console is not able to upload patterns to a computer. When the selected knitting machine is the E6000, the following options on the Stitch Designer Transfer menu are therefore disabled: Upload, Extract, & Restore.

The cable link can be used in conjunction with the E6000 Link Switch. This enables the link to stay connected to the E6000 console without needing to disconnect for knitting. For more information please see https://softbyte.co.uk/cablelinkspassap.htm

This cable does not support interactive knitting. The serial and USB E6000 Link 2 both support interactive knitting: for more information please see https://softbyte.co.uk/cablelinkspassap.htm

The USB E6000 Links 1 and 2, and the Serial E6000 Link 2, are described in separate documents.

Connecting the link to the E6000 console and computer

This cable may be used with a DesignaKnit USB-to-serial converter. Other converters might not work for this purpose. If using a converter, install it first, referring to its own manual, which is available here: https://softbyte.co.uk/cablelinkmanuals.htm

Connect the E6000Link to a free serial port on your computer or to a USB-to-serial converter. If the E6000Link has a 25 pin connector, use a 25 to 9 serial adapter.

Prior to downloading a pattern from DesignaKnit, disconnect the cable that normally connects the E6000 console and the locks. Connect the DesignaKnit cable link's round DIN plug to the console. After downloading and before knitting, the cable that leads to the locks must be reconnected to the E6000 console.

Excess cable should not be tightly coiled as this can cause electromagnetic effects that can interfere with the operation of the link.

Finding out the console memory size

To be able to accept a download from a computer, the console must have the necessary chips. The serial number underneath the console indicates whether the console had the chips in when it was purchased new. A console with serial number 6025980 or later will have the chips. A console with a serial number that begins with 6 has an 8K memory, or if it begins with 7 it has a 32K memory. If the console was upgraded at some point after purchase, the serial number cannot be used as an indicator of which chips it contains.

Telling DesignaKnit which cable and port number to use

This applies whether you are using a true serial port or a USB to serial converter.

The automatic detection doesn't support this type of cable link. Please see https://softbyte.co.uk/usingdevicemanagertofindport.htm for instructions on how to find the port number. This applies whether you are using a true serial port or a USB to serial converter. When you have worked out which port number you are using:

1. Open Stitch Designer and select Options / Method of Knitting.

2. At the list of knitting machines, highlight the Passap Electronic 6000 with the appropriate memory size (8K or 32K) by left clicking it, then click the Setup button.

3. At the top of the Knitting Machine Setup dialogue box there is a place to enter the port number. Enter the port number that was found in Device Manager and click OK.

4. When back at the list of knitting equipment, finish by clicking OK.

Passes per row and tensions

When a Passap electronic machine is currently selected, there is a special version of the Tensions Dialogue. This enables the vertical tension to be entered as passes of the lock, instead of rows of finished fabric, and it therefore needs to take into account the currently entered technique number.

DesignaKnit row tensions are entered either as the number of lock passes in 10 cm (or 1 inch or 4 inches) or as the height of the fabric made by 100 lock passes.

It is more normal for Passap knitters to enter the measurement of 100 lock passes rather than the number of lock passes per 10 cm. Whichever method you use it is vital to realize that, for most techniques, a single lock pass does not normally complete a pattern row. Therefore, to produce a swatch which consists of 60 complete pattern rows it is necessary to multiply 60 by the number of passes per row to find out how many lock passes are required.

The number of passes per row is shown in the E6000 Technique dialogue box that opens whenever you enter or change the technique number.

The number of passes per row of stitch pattern, and for multicolour techniques the sequence of yarn colours, are defined by the Passap technique number. DesignaKnit knows about the technique numbers by referring to the file E6000.tec which is in the DesignaKnit installation folder. This is a plain text file that can be opened using Notepad or a word processor. If you make any additions to this file please be sure not to alter the existing technique numbers or the formatting.

If you prefer to enter the row tensions as rows of finished fabric rather than passes of the lock, use Options / Knitting Machine and set the current knitting machine to any non-Passap machine. After the tensions have been entered, select the E6000 machine again.

Preparing colour patterns for downloading

- The method of Jacquard separation that is selected in Options / Knitting Machine / Jacquard is not used for downloading to the E6000, or for knitting from the screen. The sequence of yarns is controlled instead by the Passap Technique. Similarly, suppression of blank rows is never used when downloading to the E6000 or knitting from the screen with the E6000.

- DesignaKnit works out which yarn goes in which feeder position and the printout shows the result. Yarn numbers are allocated by selecting Yarn Numbers/Feeders from the View menu.

- For downloading to Passap machines, colour patterns must be assigned a Jacquard knitting method from 2 to 4: Fair Isle and 5 or 6 colour Jacquard are not available. Open the stitch pattern in Stitch Designer and check that it has the correct knitting method allocated. The sequence of colours is controlled by the memo numbers. For a pattern with 4 colours per row, each of the 4 colours must be given a number from 1 to 4. If colour 2 changes from red to blue at a certain row, both red and blue must have memo number 2 assigned.

- No special preparation is required for texture patterns that have the Right facing or Wrong facing knitting method.

- It is not possible to download more than one pattern in one operation.

Preparing the E6000 console to accept a download

Ensure that the E6000 Link is connected to the console. Power on, then wait until the WAIT message disappears. If it doesn't show PROGR already, then press the key with 3 triangles pointing right until it says PROGR, then press ENT, ENT again, the required cast-on number (such as 1, 2, etc), ENT, NO, the unlabelled key, and finally the Zero key. The console should show PC START. If it doesn't do that, it probably means that it doesn't have the chips that are required for accepting a download.

Downloading an Unintegrated Stitch Pattern

1. In Stitch Designer, open the stitch pattern you want to download to the E6000 and select Transfer/Download.

2. At the list of knitting machines, make sure that the Passap Electronic 6000 with the appropriate memory size (8K or 32K) is highlighted and click OK.

3. Enter the required E6000 Technique number. This number is checked to make sure it is compatible with the knitting method that has been assigned in Stitch Designer's Options / Method of Knitting. The number of passes of the lock and the colour numbers that will be used to knit each row of the pattern are shown.

4. Connect the E6000Link to the console and to the computer. Or, if using the E6000 Link Switch, move the switch to the Xfr position (away from the red spot).

5. Click the Download button in the next dialogue and follow the on-screen instructions. A bar indicates the progress of the download. The time taken to download varies according to the size of the pattern.

Downloading an Integrated Stitch Pattern

An integrated stitch pattern is one which has been positioned on a garment piece, either by dragging the outline of the garment piece over the stitch pattern in Stitch Designer, or by dragging the stitch pattern over the garment piece in Original Pattern Drafting. The filename and position of a stitch pattern may be stored independently for each piece in a shape file.

Whichever way a garment piece is integrated with a stitch pattern, it is unlikely that row 1 of the garment piece will end up coinciding with row 1 of the repeating stitch pattern unit as shown on the Stitch Designer screen. It is also unlikely that the centre stitch of the garment piece will coincide with the centre stitch of the repeating pattern unit, though the interactive knitting instructions include centring each garment piece on the needle bed. DesignaKnit manages this situation by automatically shuffling the pattern vertically and horizontally by the required number of rows and stitches before downloading it. The end result is that the knitted piece exactly matches the display of the integrated piece on the Stitch Designer or Original Pattern Drafting screen.

In Stitch Designer, when Transfer / Integrated Download is selected, a garment piece is first chosen. The stitch pattern that has been integrated with that piece is then downloaded to the E6000 console, correctly positioned at the centre of the needle bed.

Even if the same stitch pattern has been integrated with more than one garment piece, the positioning of the pattern on each piece is likely to vary, so the automatic shuffling of the pattern will be different, and a separate download is required for each piece.

The garment shaping cannot be transferred to the console memory: only the stitch pattern can. The procedure is as follows.

1. In Stitch Designer, open the shape file that has been integrated and select Transfer / Integrated Download.

2. At the list of knitting machines, make sure that the Passap Electronic 6000 with the appropriate memory size (8K or 32K) is highlighted and click OK.

3. Enter the required E6000 Technique number. This number is checked to make sure it is compatible with the knitting method that has been assigned in Stitch Designer's Options / Method of Knitting. The number of passes of the lock and the colour numbers that will be used to knit each row of the pattern are shown.

4. The Integrate window opens. In the left column, select a garment piece. The filename of the stitch pattern that has been integrated with the selected piece should be shown in the middle column. Click OK.

5. Connect the E6000Link to the console and to the computer. Or, if using the E6000 Link Switch, move the switch to the Xfr position (away from the red spot).

6. Click the Download button in the next dialogue and follow the on-screen instructions. A bar indicates the progress of the download. The time taken to download varies according to the size of the pattern.

Large patterns

The memory space required for a given pattern is roughly proportional to the total number of stitches. For a given pattern DesignaKnit is able to calculate whether the memory required will fit into the console's memory, taking into account whether you have selected the 8K or 32K memory size E6000.

If the pattern is too large for the memory, DesignaKnit will give a message saying how many sections it must be divided into and asking which of those sections you want to download. Dividing into sections is done automatically - you do not have to decide how to divide the pattern. When a section number is chosen, a message shows how many rows must be knitted before the next section needs to be downloaded.
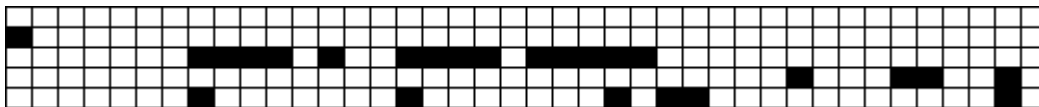

After downloading

After downloading a normal stitch pattern to the E6000 console, the console shows the prompt "ALTER?". After responding to that prompt, the next one is "KNIT.TECH". The normal choice here is to enter a 3-digit technique number, but you could instead create and download a custom

technique using DesignaKnit version 9.07.00 or later. If you don't want to use a custom technique, go to the section titled "Preparing to knit".

Creating a custom E6000 technique

A custom technique is created in the form of a special stitch pattern that encodes the technique as a series of binary numbers. When creating such a stitch pattern, the knit method must be set to either R or W. If W is used, bear in mind that the stitch pattern will be inverted before being downloaded, so R is the natural choice. The E6000 technique number assigned to that pattern in DesignaKnit 9 must be 999.

Starting at the leftmost stitch of row 1 and working to the right and then upwards, the stitch pattern is to be edited using the pencil so that it contains the numeric data that constructs the technique, in binary form. Each group of 8 stitches contains one byte of data, with the most significant bit to the left.

The first row of the above example pattern encodes numbers 1, 1, 1, 96, and 2. The second row encodes 0, 0, 0, 2, and 50. And so on.

The yarn colour that generates 1 in the downloaded image data must have opaque status selected in the Stitch Designer Palette, and the background colour that generates zeros must be transparent. In this example, black yarn is opaque and white yarn is transparent. A technique may optionally include its own built-in pattern comprising up to 8 stitches and 15 rows.

What those numbers mean is outside the scope of this manual, and Soft Byte isn't able to offer support for it.

The E6000.tec file is a simple text file that is located in DesignaKnit 9's installation folder, and which contains a list of all the E6000 techniques that DesignaKnit is able to use. As far as the E6000 console is concerned, custom techniques don't have a number. DesignaKnit only needs to assign a number for doing Interactive Knitting, and as that isn't supported using the serial E6000 link 1, numbers for custom techniques are not discussed here.

Please see the Appendix below for an example of a custom technique that is supplied with DesignaKnit 9.

Downloading a custom E6000 technique

When the "KNIT.TECH" message appears, the stitch pattern that encodes the required E6000 technique should be opened in DesignaKnit. Select Transfer and then Download, just as if downloading a normal stitch pattern, but when prompted for a technique number, make sure that 999 is entered. This tells DesignaKnit not to do the usual error checking that applies to normal stitch patterns, and it also provides slightly different on-screen instructions during downloading.

Finally start the download of the technique by following the on-screen instruction to press the unlabelled key and then the zero key on the console; the prompt on the console changes to "PC START". Click DesignaKnit's OK button and the brief download will take place.

If a custom technique is to be used, it must be downloaded after downloading each normal stitch pattern that requires it. Custom techniques do not stay in memory from one normal pattern download to another.

Preparing to knit

Turn the E6000 console power off, reconnect the console to the E6000 locks, and turn the console power on. Or, if using the E6000 Link Switch, move the switch to the Knit position
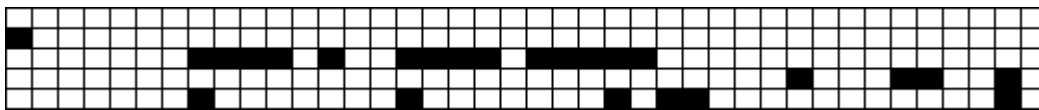
(towards the red spot).

Interactive Knitting

Interactive Knitting is not supported for this cable link. If Interactive Knitting is required, the USB ScreenLink or the E6000 Link 2 cable links enable interactive knitting on almost any knitting machine. Or without using a cable link, Interactive Knitting may be followed using the arrow keys to progress through the work.

Appendix: an example E6000 custom technique for Jacquard

An example of a technique-encoding stitch pattern is "E6000 technique for hi-res Jacquard.stp". As its name suggests, it encodes an E6000 technique for knitting high resolution Jacquard. This stitch pattern was contributed by Joe Tye and is distributed as part of maintenance updates for DesignaKnit 9.08.25 onwards. Here it is:

For the normal E6000 Jacquard techniques, each row of a DesignaKnit stitch pattern translates to 2 rows of knitted fabric, but with the above technique, each row of a DesignaKnit stitch pattern translates to just one row of fabric. This means that Jacquard patterns have twice the vertical resolution when knitted with this technique.

This technique has been integrated with DesignaKnit 9, and the current E6000.tec file contains these 3 custom technique numbers:

902 2 1122

903 3 112233

904 4 11223344

This 902 to 904 number is the technique number that is assigned to each Jacquard stitch pattern knitted using this technique. (It is only the special technique-encoding pattern that requires 999.)

This technique has been further integrated with DesignaKnit 9: when the selected technique number is 902 to 904, that now overrides the selection of Jacquard separation method in Knitting Machine Setup: method A is always used for these techniques. When using this hi-res Jacquard technique, care should be taken to use Stitch Designer's Check option to check Jacquard patterns for errors before downloading them. (When using the normal Passap technique numbers, there is no possibility for Jacquard errors, as every row is doubled.)

The left-hand photo shows an example of fabric created using the above custom technique, with technique number 903 selected in DesignaKnit. The right-hand one is the normal E6000 3-colour Jacquard with every row doubled. The 903 technique has double the vertical resolution: it contains more detail.

Troubleshooting

For problems with downloading, please see
https://softbyte.co.uk/downloadingwithpassape6000links.htm

For problems with interactive knitting, please see
https://softbyte.co.uk/interactiveknittingwithbrotherpassapscreenlinks.htm

Updates to this manual

The document you are reading was updated in December 2021.

The most recent editions of cable link manuals may be found at
https://softbyte.co.uk/cablelinkmanuals.htm