Xerox Electronic Documentation
Solution for Xerox Printers

Xerox FS 5250 /
Xerox FS 5250 IPC
User's Guide

Doc. no. D60262 Revision 01

WARNING:
This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart B of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

EMC directive
This product observes the rules and regulations of the EMC directive. If so required, a declaration of conformity in local language stipulating the applied rules and regulations can be obtained.

Trademarks:

SAFETY NOTICE

Caution
Do not attempt to disable any safety features designed for this equipment.
If this equipment is connected to an outlet that has been incorrectly connected to the building wiring, serious electric shock could be the result.

To protect yourself against electric shock, follow these instructions.

1. Connect the machine only to an outlet with the correct voltage. The correct voltage appears from the information plate of the equipment.

2. Make sure that the equipment is turned off, before you connect or disconnect the power cord or other cables.

3. Do not use the equipment in an area, where it can become wet.

4. Refer service or repairs to qualified personnel.

5. There may be increased risks of electric shock and personal injury in connection with disassembling and servicing of this equipment. Professional service personnel should understand this and take necessary precautions.

6. The safety features of some parts may not always be obvious. Therefore, spare parts must have the identical or equivalent characteristics of the original parts.

7. The maintenance information for this equipment has been written for professional service staff and is not intended for use by others.

8. Make sure that the power outlet is properly grounded.

Table of Contents

1. Introduction to the Xerox FS 5250 6
1.1. What is the Xerox FS 5250? 6
1.2. Printer Driver Selection 6
2. Items Supplied 8
3. Product Features 9
4. Supported Control Units 10
5. Installation Requirements 11
5.1. Pre-Installation Requirements 11
5.1.1 National Language 11
5.1.2 EU or US Settings 12
5.2. Working Environment 12
6. Connections and Installation of the Xerox FS 5250 13
6.1. The Rear Panel 13
Changing the Driver: 15
6.2. Emulation 15
6.2.1 Via the Line 15
6.2.2 Via the Address Switch 16
6.2.3 Address Setting 18
6.2.4 Dual Printer Emulation 18
6.3. Upgrading to IPDS 20
6.4. Connecting the Xerox FS 5250 to the Printer 21
6.4.1 Connecting via Centronics output 21
6.5. Connecting the Xerox FS 5250 to the System 22
6.5.1 TEST Function 23
6.5.2 Timeout 24
7. Operation of the Xerox FS 5250 25
7.1. Top Panel of the Xerox FS 5250 25
7.1.1 CU 25
7.1.2 PAR (Parallel input) 25
7.1.3 SER (Serial input/output) 26
7.1.4 READY (Printer Ready) 26
8. Function Selection via the Line 27
8.1. Syntax of an FSL Function 27
8.2. The Escape Character 28
8.3. Defining a Temporary Escape Character 29
8.4. Removing Temporary Escape Character 29
8.5. Defining a Permanent Escape Character 30
8.6. Removing Permanent Escape Character 30
8.7. Commands for Storing and Restoring Settings 32
8.8. Pass-Through Mode 33
8.8.1 Pass-through mode - XES 34
8.9. Transparency Mode Limitations 35
9. idaSetup - IPDS Programming 36
10. Programming the Xerox FS 5250 - Non-IPDS 37
11. Selected FSL Functions 38

11.1. Paper Size 38
11.1.1 Trays 38
11.1.2 Changing paper size 38
11.1.3 Saving the command 40
11.1.4 Changing paper size example 40
11.1.5 Other commands 40
11.2. Paper Trays 41
11.2.1 Basic printer set-up 41
11.2.2 Changing paper trays 41
11.2.3 Other commands 42
11.3. Page Format 42
11.3.1 Formats 42
11.3.2 Changing Page Format 43
Saving the command 43
11.3.3 Changing page format example 44
11.3.4 Other commands 44
11.4. Automatic Page Orientation 45
11.4.1 Automatic Page Orientation Chart 46
Explanation to the chart on Automatic Page Orientation 47
11.5. Fonts 48
11.5.1 Selecting Fonts - ☞ PCL 48
What to consider 48
Changing font 49
11.5.2 Default GFID Table 50
11.5.3 Scaleable Fonts 52
11.5.4 Defining Fonts - ☞ PCL 53
What you need to know 54
Font definition example 58
Other commands 58
11.5.5 Selecting Fonts - ☞ XES 58
What to consider 58
Changing font 59
Changing font example 59
Other commands 59
11.5.6 Defining Fonts - ☞ XES 60
What you need to know 60
Font definition 60
CPI / GFID Relation 64
COR CPI / GFID Relation 64
11.6. Optional Scaling 64
Font definition example 65
Other commands 65
11.7. Duplex Printing 66
11.7.1 System or interface? 66
11.7.2 What to consider 66
11.7.3 Binding option 67
11.7.4 Selecting duplex printing 68
11.7.5 Orientation 68

Duplex selection example, PCL 69
Duplex selection example, XES 69
11.8. Output Data 70
11.9. Port Share Option 72
11.9.1 Sending the commands from the system 74
11.9.2 Sending the commands from the PC 75
Printer sharing example 75
12. Programming via Shareport 76
12.1. Activating the Y249 Engineering Function 76
12.2. Deactivating the Y249 Engineering Function 77
12.3. Limitations when Y249 is active 77
12.4. Updating firmware 77
13. PC Support Virtual Printer 78
14. Error Messages 79
14.1. Recoverable Errors 79
14.2. Non-Recoverable Hardware Errors 81
Appendix A: Supported Setup Functions 82
XES Mode 82
PCL Mode 84
Quick Reference Guide to the Supported FSL Functions 86
Appendix B: Test Printout 100
Appendix C: Use of Xerox FS 5250 Serial Port (Out) 102
Appendix D: Related Manuals 103
Index 104

1. Introduction to the Xerox FS 5250

This manual applies to the Xerox FS 5250 protocol converter. The Xerox FS 5250 supports twinax Centronics and RS232 inputs. The default output is Centronics.

NOTE:
Both products: *"Xerox FS 5250"* and *"Xerox FS 5250 IPC"* will be referred to as *"Xerox FS 5250"* unless specific reference is made to the IPDS functionality of the *Xerox FS 5250 IPC.*

The manual describes how the Xerox FS 5250 is connected and operated. We recommended that you read it before you start using the protocol converter. Keep the manual in a safe place for future reference.

It is assumed that the reader has a basic knowledge and understanding of IBM computer systems, especially the IBM 5250 *Information Display System*. It is also assumed that the reader has adequate knowledge of the printer which is going to be connected to the Xerox FS 5250 .

The Xerox FS 5250 can be used with most Xerox decentralised printers .

1.1. What is the Xerox FS 5250?

The Xerox FS 5250 is a protocol converter which enables most Low End or Midrange Xerox printers (or other output device) to be connected to an IBM computer system. See Supported Control Units for information on the IBM systems to which the Xerox FS 5250 connects.

The printer or device should have a Centronics parallel connector in order to be connected to the Xerox FS 5250 protocol converter.

1.2. Printer Driver Selection

With the Xerox FS 5250, you have the option of selecting between 2 printer drivers: **XES** and **PCL** on the rear panel B, A, T -address switch.

NOTE:
PCL = factory default. "A" position

Note
Operation mode is *outside* the B, A, T position. If you wish to operate in PCL mode, do *not* change the default position of the switch!

XES [1]) = "B" position.

Note
To change the driver from default PCL to FSL, you must follow the instructions in the section "Changing the Printer Driver"

If you wish to change to the FSL driver, the printer driver must be selected before you start the operation of the Xerox FS 5250 box. See the section on "Changing the Printer Driver".

For details as to the selecting of other output data types in XES mode, you are referred to the chapter "Output Data".

1 The XES mode selection handles XDPM and XPPM data streams.

2. Items Supplied...

Please check that your Xerox FS 5250 kit is complete. The complete contents of the kit consists of the following items:

- Xerox FS 5250 box
- Wall plug power supply
- Parallel printer cable
- Auto-terminating twinax T-cable
- Xerox FS 5250 /Xerox FS 5250 IPC, User's Guide, Document no. D60262 (electronic format)
- Xerox FS 5250 /Xerox FS 5250 IPC, Quick Guide, Document no. D10262 (hardcopy format)

In addition the following accessories can be used:

- Printer cable, Centronics (Order no. 999023 030)
- Serial input cable (Order no. 999010 030)
- Serial output cable has to be ordered for the specific printer you are going to connect to. Please contact your i-data dealer for more details. (See also Appendix A)
- Printer sharing cable, Centronics (Order no. 999022-030)

IPC Upgrade Kit

- IPC option (for upgrade) (Order no. 293011-001)

3. Product Features

Non-IPC

- Support of 5224, 5225, 5256, 4234 printer emulations as alternatives to 3812/5219/3816
- Twinax setup via share port or twinax port
- Flash prom allowing downloading of new firmware via the twinax o r the Centronics port
- Support of ida PSS
- Automatic input sharing between Twinax, Centronics and RS 232 input ports
- Support of duplex printing
- Support of bar code printing
- Support of Automatic Page Orientation

If equipped with the optional IPC module:

- Support of IPDS printer emulation
- Support of additional non-IPDS emulation

4. Supported Control Units

The Xerox FS 5250 will connect to the following control units :

- IBM /34
- IBM /36, all models
- IBM /38, all models
- IBM AS/400
- IBM 5294 and 5394 remote controllers

5. Installation Requirements

This chapter gives a short description of the requirements for the installation of the Xerox FS 5250.

When you have made certain that all the components have been included and you have carried out the pre-installation tasks (see below) according to your needs and requirements, you are ready for operation.

5.1. Pre-Installation Requirements

Prior to installation and connection you must first make sure that you have:

1. Set the desired national language - do this via the line (using function Y8).

2. Checked the paper size (EU / US) settings.

NOTE:
From the factory, the controller will come with the correct language settings. Therefore, you will normally not have to alter any original settings.

5.1.1 National Language

Via the Line

National language can be set via the line in function Y8.

To change the language in Y8, you will have to send the command below to the Xerox FS 5250. You can do this either in a file you transmit to the printer or by entering the command on your screen and make a local copy (print screen).

%Y8,<number of new language>%

In function Y8 you can select the following languages:

Option	Description
37	English (US) EBCDIC
256	International
273	Austrian/German
274	Belgian

275	Brazilian
276	Canadian French
277	Danish/Norwegian
278	Finnish/Swedish
280	Italian
281	Japanese (English)
282	Portuguese
283	Spanish Speaking
284	Spanish
285	English (UK)
297	French
500	Multinational
871	Iceland

NOTE: Factory default depends on your initial order.

5.1.2 EU or US Settings

When you receive the *Xerox FS 5250*, the interface is already in the box and is ready to connect to the system and to the printer. From the factory, the *Xerox FS 5250* is set up for either US (Letter) or European (A4) paper size depending on what you specified when ordering the *Xerox FS 5250*.

5.2. Working Environment

The Xerox FS 5250 protocol converter can be installed in the following environment:

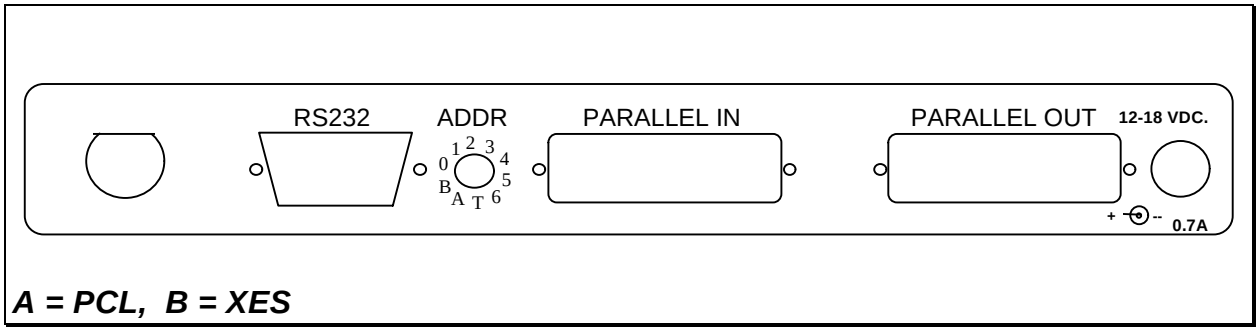
- Temperature range from 10° - 40°
- Humidity between 8-80 %, non-condensing
- Power consumption: 120 and 220 Volt version - max. 21.5 VA

6. Connections and Installation of the Xerox FS 5250

This chapter starts with an overview of the functionality of the rear panel. Then follows a description of how you connect the Xerox FS 5250 box **to a printer** and finally how to connect it **to a System**

NOTE:
Before you start the installation, make sure that you set the address switch *and* the desired emulation. See the description in the section "Emulation".

6.1. The Rear Panel



Xerox FS 5250 Rear Panel

PARALLEL OUT
The parallel output port can be connected to the parallel/Centronics in put port on the target printer (parallel out cable is supplied with the kit).

PARALLEL IN
The parallel input port can be connected to the parallel/Centronics out put on a PC or similar source which enables it to share the printer with the host. For this connection you need a cable ending in a 25-pole D-Sub connector (order no. 999022 030).

SERIAL IN/OUT
The serial port can be configured either as input or as output. Default configuration is *input*.

The serial input port is connected to the serial output on a PC or similar source able to share the printer with the host.

For this connection you need a cable ending in a 25-pole RS connector (order no. 999010 030).

To use the serial input, Function 24, " *Data Input/Output Port Select* " must be set to zero (Centronics out, which is factory default).

Y24 *= 0 is also used for Centronics output.*

You must also make the following settings on your PC to match the default settings on the box:

Function Y15: Baud rate, set to 5 = 9600
Function Y16: Number of data bits, set to 8 = 8 bits
Function Y17: Parity, set to 1 = No Parity
Function Y18: Number of Stop Bits, set to 1 = 1 Stop Bit

If this is not possible, you must change the functions 15, 16, 17 and 18 on the box to match the PC's values.

NOTE:
Programming of functions 15, 16, 17, 18 and 24 is not possible via the serial port. These functions have to be programmed either via the twinax or via the parallel input port.

TWINAX CONNECTOR

Before the twinax cable is connected, be sure to turn the box power OFF.

When power is turned off, plug the automatically terminating twinax **T-cable** (twin BNC cable) into the socket on the rear panel and turn the connector ring clockwise to lock.

ADDRESS SWITCH: EMULATION & PRINTER DRIVER SELECT

You use the address switch for:

- selecting/changing emulation, setting the address and for the generating of test printouts. Tests can also be made via the line. See the section TEST function for details. For details on emulation see the section "Emulation".

- selecting/changing of printer driver. You have the option of selecting between XES and PCL.

If you wish to operate in default **PCL** mode, the box is ready to operate when delivered. It is important that *you do not change the position* of the address switch. Note that operation mode is *outside* of the B, A & T positions.

If you wish to select **XES**, you must follow the instructions in the below section "Changing the Driver".

Changing the Driver:

To change from PCL to XES driver, the rotary switch *has* to be in position T *at power on*. Current printer driver is indicated on printout. Now turn the rotary switch to position B (XES). New position is then indicated as "alternate printer driver" (XES) on second printout. When correct position is obtained, turn rotary switch *away* from B, A or T positions (any other position will do). Power the converter OFF and ON again. The new driver is now active. (If you wish to reinstall the PCL driver later on, repeat the above, setting the switch into the A (PCL) position instead of the B (XES) position).

6.2. Emulation

If you wish to see the current emulation, you can generate a test print out by turning the address switch to the T-position.

In Xerox FS 5250 you can select emulation in two ways. Either via the address switch (see below) or you can do it via the line by activating FSL function Y37 (only in PCL mode).

The following emulations are supported by the Xerox FS 5250:

IBM 3812 / 5219 / 3816
IBM 5224
IBM 5225
IBM 5256
IBM 4234
IBM 4245/6262

As default the Xerox FS 5250 will emulate **IBM 3812/5219/3816.**

As default the Xerox FS 5250 IPC will emulate **IPDS**

6.2.1 Via the Line

☞ **Selecting emulation via the line can be done in PCL only!**

You can set the desired emulation in FSL function Y37.
Note that if you select emulation via function 37, you must physically ***write*** the emulation. See the chart in the following for details.

E.g. **%Y37,5224%**
will select emulation 5224

An option for *dual printer emulation* is also available for the Xerox FS 5250 when equipped with an IPDS upgrade module. See below for a description of dual printer emulation.

This chart provides information on the emulations which can be selected in the n1 parameter of function Y37.
In the column **"Write"** is stated what you *physically* have to write in this parameter.

Non-IPDS

Y37,n1	
Write	**Emulation**
3812	*3812/5219/ 3816
5224	5224❄
5225	5225❄
5256	5256❄
4234	4234❄
4245	4245/6262

IPDS

Y37,n1	
Write	**Emulation**
3812	*3812/5219/ 3816
5224	5224❄
5225	5225❄
5256	5256❄
4234	4234❄
*IPDS	*IPDS
4245	4245/6262

* *default value*
❄ SCS printers

6.2.2 Via the Address Switch

Emulation selected on the **address switch** is described in the following.

The T-cable must be disconnected at the converter before changing emulation.

Select emulation on the address switch as follows:

1. Switch off the box
2. Turn the address switch to the **"T"** position.
3. Switch on power to the box.

4. When the Xerox FS 5250 is ready, it will eject a page with the follo wing message:

"Current emulation is xxxx"

5. Set the desired emulation by turning the address switch to the position defined in the chart in the following:

Non-IPDS	
Selection	**Emulation**
*0	3812/5219/3816
1	5224❄
2	5225❄
3	5256❄
4	4234❄
5	3812/5219/3816
6	4245/6262

IPDS	
Selection	**Emulation**
0	3812/5219/3816
1	5224❄
2	5225❄
3	5256❄
4	4234❄
*5	IPDS
6	4245/6262

* *default value*

❄ SCS printers

6. A new message stating the current emulation will be printed after a few seconds. Then power off the Xerox FS 5250.

7. Power on the Xerox FS 5250.

8. Turn to the "T" position again and check that the emulation has been changed. (See the settings printout). See TEST Function.

9. Turn the switch back to the correct device address (consult your system administrator if necessary).

10. Connect the twinax cable and power on the Xerox FS 5250 or follow the procedure for setting the address via the switch. See the following section.

Check whether the configuration complies with the requirements of your installation and print jobs.

NOTE: Make sure that you have set the address switch before you switch power on.

6.2.3 Address Setting

via the address switch

To select the desired address using the rotary address switch follow these steps. The steps 1 through 4 are mandatory, whereas the steps 4 through 6 are optional.

1. Power off the Xerox FS 5250.

2. Disconnect the T-cable

3. Set the address switch to the desired address. The options are 0-6.

4. Power on the Xerox FS 5250. The desired address will be set at this point of time.

5. To verify the address turn the switch to the "T" position to print the current settings printout.

6. Turn the switch back to the desired address number.

The default configuration of the Xerox FS 5250 can be used for most application programs and uses. You should only change the address and the emulation if necessary. Change only the rest of the settings i you have special requirements.

6.2.4 Dual Printer Emulation

☞ PCL only

With **IPDS** support in the Xerox FS 5250, you have the option of configuring a second emulation on a different address.

You select a second emulation via the line in function Y37 and **both** parameters (n1 and n2) in Y37 must be specified.
The parameter n1 sets the printer emulation. Note that you will have to physically ***write*** the IBM printer number of the desired emulation. For IPDS, you must write: *IPDS. Parameter n2 specifies the device address.

NOTE:
The device address (n2) must be different from the address switch setting or this command will only modify the primary printer emulation without creating a secondary.

One non-IPDS and one IPDS emulation can be defined.

The secondary printer device will be deleted if you attempt to configure two similar devices (e.g. two non-IPDS devices) or if Y37 is used without specifying n2.

For this change to become effective, you must turn power to the converter off for approx. 10 seconds and then back on.

Non-IPDS as primary emulation
If the primary printer emulation (set via the address switch) is set to **non-IPDS**, you can set the second emulation via the twinax port activating Y37.

E.g.
Primary emulation: **non-IPDS (set via address switch)**
Second emulation: **%Y37,*IPDS,6%%X1**

You have now a non-IPDS primary emulation, and a second IPDS emulation answering on device address 6.

As an alternative setup, you can also use the Centronics port activating function Y249, Enter Engineering Mode.

E.g.:
Primary emulation: **non-IPDS (set via address switch)**
Second emulation: **%Y249, password%[2]**
%Y37,*IPDS,5%%X1

IPDS as primary emulation
If the primary emulation is set to **IPDS** (set via the address switch) the only way to set a second emulation is through the Centronics port enabling function Y249, Enter Engineering Mode. You must still set function Y37 to the desired emulation.

E.g.
Primary emulation: **IPDS (set via address switch)**
Second emulation: **%Y249,password%**
%Y37,3812,1%%X1

[2] As the password is sensitive information, please contact point of purchase for details

With IPDS as primary emulation, you have now selected 3812 as second emulation to answer on address 1.

NOTE:
If you wish to define 2 emulations, you are recommended to set the primary emulation to non-IPDS.

6.3. Upgrading to IPDS

If you need to upgrade your Xerox FS 5250 with the IPC module, please follow these instruction before proceeding with the installation.

1. Unscrew the 4 screws from the bottom of the converter.

2. Place you hands on each side of the box, bottom facing down and the rear panel facing you. Carefully press open the top cover of the converter.

3. Place the IPC module (main component side facing up) on the PCB of the box. *Note that the connector has to be placed on top of the PCB's connector (to the right on the PCB).*

4. Make sure the plastic supports fit in the holes of the IPC module.

5. Press the module gently into position and, while still facing the rear panel, place the top cover precisely above the bottom cover so that all edges are aligned. Press the top cover gently into a locked position.

6. Re-insert the screws and fasten.

7. Now proceed to the actual installation of the converter to the printer and the system.

6.4. Connecting the Xerox FS 5250 to the Printer

CAUTION:
All connections to the Xerox FS 5250 protocol converter should be made while the power is switched OFF to both the printer and converter.

6.4.1 Connecting via Centronics output

Connecting the Xerox FS 5250 to the printer is done by following these steps:

1. Check that the printer's parallel input port is available on printer.

2. Connect the cable supplied with the Xerox FS 5250 between the printer's parallel input port and the protocol converter's PARALLEL OUT port.

3. Power on the printer and the Xerox FS 5250.

4. Turn the address switch (on the rear panel) to the "T" position . A settings printout is generated and the **CU** indicator starts flashing.

   The interface can be set up in many ways. Upon delivery the interface is set up to cover most needs and uses. Appendix B "Test Printout" is a sample printout of settings and is but one way of setting up your interface.

   Keep the settings printout you make together with this manual for future reference.

   If the printout format does not match the test printout in Appendix B "Test Printout", or if nothing was printed, this means that the printer setup does not match the protocol converter setup. Contact your systems support personnel or your point of purchase for assistance.

5. When the printout is in order, you proceed to the following section "Connecting the Xerox FS 5250 to the System".

6.5. Connecting the Xerox FS 5250 to the System

After a successful test printout has been generated to establish that the connection between the Xerox FS 5250 converter and the printer is working correctly (see previous sections), you are now ready to connect the Xerox FS 5250 to the system.

WARNING:

All connections to the Xerox FS 5250 protocol converter should be made while the power is switched OFF.

1. Turn off the power and connect the Xerox FS 5250 to your host system using the twinax cable, **and** the auto-terminating T-cable.

2. When the connection has been made, turn power **ON** and check that the **CU** and **READY** indicators turn **ON**. When they do, you have completed the installation procedure and are ready to operate the protocol converter as described below.

What if the CU Indicator fails to turn on?

If the **CU** indicator does not turn **ON**, this means that there is no communication with the control unit. You should check the following:

a. The twinax cable connection from the control unit to the Xerox FS 5250.

b. The control unit (is it powered up etc.)

c. Is the control unit supported by the Xerox FS 5250 ?
(See the section "Supported Control Units" for a list of supported control units).

If all three (a. b. and c.) are in order, contact your systems support personnel or your point of purchase.

6.5.1 TEST Function

The test printout pages can be generated in two ways - via the address switch or via the line by activating the T function . For details on the T function, please see the section "Quick Reference Guide of the Supported FSL Functions".

Test via the address switch

1. Turn the address switch to the **"T" position** A settings printout will be generated (*test 4*).

2. Turn the switch away from the T- position.

3. When the CU indicator flashes, turn the switch back to the T-position.

4. The printer will now enter Online HEX Dump mode and print all data received in on-line HEX dump format (*test 1*).

5. Hex dump mode is terminated by turning the address switch away from the T-position and then back again.

Keep the settings printout together with this manual for future reference.

Finally, a settings printout can also be generated at **power on** by activating function Y120. See the section "Quick Reference Guide of the Supported FSL Functions" for details.

NOTE:
You are recommended when installing for the first time to carry out Test 4, Settings Printout, to check whether the printer is set to the correct language. if the language is incorrect, contact your systems support or your point of purchase.

6.5.2 Timeout

The Xerox FS 5250 enables printer sharing between the system and a PC. For this purpose it is possible to specify a timeout period.

If the printer is receiving input on the parallel port, for example, and there is a break in the transmission of data, the other input ports will not be polled for the period specified.

The factory default timeout is 20 seconds. The timeout may be changed to suit your requirements. This is done by sending a new setup to the Xerox FS 5250 input port where you want it to take effect.

When specifying the timeout it is also possible to specify a user string. A user string may be used for changing from one symbol set (e.g. Roman 8) to another (e.g. IBM-PC8), for example.

NOTE:
Settings on the twinax input port are automatically re-established after another input port has been using the printer.

On the parallel and RS input port, you have to program the required setup yourself.

For more detailed information on the commands required, see the section "Port Share Option".

7. Operation of the Xerox FS 5250

The Xerox FS 5250 top panel has been designed to register the operation of the box via the four following indicator LEDs :

- CU (contact to control unit)
- PAR (parallel input)
- SER (serial input)
- READY (printer)

7.1. Top Panel of the Xerox FS 5250

7.1.1 CU

The CU indicator has 3 states which signal the following:

State	***Indication***
ON	Contact with the control unit.
OFF	No contact of the control unit, or the contact has been broken for more than 1 minute

7.1.2 PAR (Parallel input)

The indicator LED has 2 states:

State	***Indication***
ON	Indicates that the box is processing data from the Centronics parallel port
OFF	Indicates that the box is idle or processing data from the twinax/RS232 inputs

7.1.3 SER (Serial input/output)

The indicator LED has 3 states

State	***Indication***
ON	Indicates that the box is processing data from the RS-232 Serial input
BLINKING	Indicates that the box has defined the RS-232 as output for the box.
OFF	Indicates that the box is idle or is processing data from the twinax/Centronics inputs.

7.1.4 READY (Printer Ready)

The indicator LED has 2 states:

State	***Indication***
ON	Indicates that the connected printer is ready; i.e. that printer's "Select" condition is active and the "PE" signal is inactive. If the connected printer is an RS 232 printer, the ready validation is done by the "DTR" signal.
BLINKING	The printer is not ready and print may be pending in the buffer.
OFF	Indicates that the connected printer is **not** ready for data input.

8. Function Selection via the Line

NOTE:
This section is a brief description of how to set up the interface from the line using FSL Functions.

The guidelines in this section are very basic and limit themselves to what you need to know. For further details on the supported FSL functions, you are referred to the Programmers Guide, doc. no. D62081. The Programmer's Guide will contain a complete list of the supported functions with description, notes and examples.

FSL functions are special commands in the data stream which set up the Xerox FS 5250 and consequently the printer to function in a specific way.

Some FSL Functions differ according to whether you are in PCL or in XES mode.

Appendix A of this manual contains a **Quick Reference Guide** to the FSL functions. This list only comprises the syntax and parameters of the supported FSL functions. The reference guide will contain remarks on deviations as to XES or PCL

8.1. Syntax of an FSL Function

The special sequence that the interface will interpret as an FSL Function is shown below:

%Y<function number>,<parameters>%

where **%** is the defined escape character. See the description below on the Escape Character.

8.2. The Escape Character

The Xerox FS 5250 is managed by special es cape sequences sent to the printer via the line. Escape se quences are com mand sequences preceded by a defined escape character. When an escape character appears in the data stream, the printer will inter pret the char acters following as a command string and not as characters to be printed.

When you have defined an escape character, you can:

* Configure the interface according to your needs.

* Send all XES/ PCL commands in HEX code (00 to FF) to the interface

* Download settings to the Xerox FS 5250

* Send commands to the Xerox FS 5250
  (save the temporary memory area in the permanent memory area, etc.)

When a character has been defined as an escape character, you will not be able to use it as a normal character and print it. However, you do not need to have an escape character defined perma nently. When it has served its purpose, it can be re moved.

The escape character described in this manual is different from the printer escape character and the IBM escape character and cannot be used for sending native printer commands, UDKs or system commands.

This chapter explains how to configure and manage the Xerox FS 5250 by the use of Escape Sequences. It also ex plains how to save the interface settings.

NOTE:
The factory defaults of the printer will normally suffice for most uses, and in most cases your software will control the facilities described below. This means that you will be able to connect the printer to your host system and start printing without changing the printer settings.

The settings should only be changed, if your software or hardware have special requirements.

8.3. Defining a Temporary Escape Character

No escape character is defined when you receive the printer. If you wish to change the settings of the printer from the host system, you will have to define the escape character. See below how to define "%" as the tem porary escape character.

NOTE:
The characters "," ";" and ":" must never be used as escape characters, as they are used as separators in escape sequences and will be ignored by the printer.
The same applies to 0-9, A-F, a-f and K,S,T,X,Y,Z, simple quote ('), & and ?. These must not be used.

CAUTION!

Avoid using your national characters as ESC characters.

The following EBCDIC HEX codes have been defined as national language characters and must not be used as ESC characters

4A 4C 4F 5A 5B 5F 6A 79 7B 7C 7F A1 C0 D0 E0

```
&&??%
```

Defining a temporary escape character.

The five characters shown should be sent to the printer from the host system. The escape character is **not** defined perma nently. When the converter is turned off, it will be lost. See "Defining a Permanent Escape Character" for infor mation on the definition of a permanent escape character.

8.4. Removing Temporary Escape Character

If you wish to remove the temporary escape character so that it may be used as a printable character , you can define it as a blank as shown below.

```
&&??<blank>
```

Removing the temporary escape character.

8.5. Defining a Permanent Escape Character

The paragraph "Defining a Temporary Escape Char acter", only described the saving of the escape character in the temporary memory .

If you wish to define and save a permanent escape character in the printer, you will have to use Function 48, Select Perma nent Escape Character, and immediately save the settings in the permanent memory . See the description of Y48 in either XES or PCL.

NOTE:
If the character used in Function 48, Select Permanent Escape Character, is different from the one specified as temporary escape character, the latest specified character will take precedence immediately.

An example of the commands defining the permanent escape charac ter is shown below.

PCL	XES
&&??%	&&??%
%Y48,08%	%Y48,4C%
>X1	>X1

Syntaxes of the command strings defining the permanent escape character to be 08 (the character ">") instead of the temporary escape character "%".

8.6. Removing Permanent Escape Character

If you wish to remove the permanent escape character , you will have to follow the proce dure below:

1. Set Function 48, Select Permanent Escape Character, to "00" (No escape character).

2. Define a new temporary escape character as described in "Defining a Temporary Escape Character".

3. Save the settings using the command "<ESC> X1".

Examples of these commands are shown below.

>Y48,00>

&&??%

%X1

Syntax of the command strings to remove the permanent escape character (">"). "%" is defined as temporary escape character.

8.7. Commands for Storing and Restoring Settings

The commands listed below permit you to read and save the settings in the NVRAM area. You may also read the factory defaults.

Please observe that when one of the commands below are used, the temporary escape character, if any, will be removed.

Command	Description	Example
%X1	This command is needed to save settings in the interface memory. Without the %X1, change of settings will be lost at power off.	You send the command as follows: **&&??% %X1**
%X3	Read and activate factory default settings. Use this command if you have changed many settings and wish to start all over again.	You send the command as follows: **&&??% %X3**
%X4	Read and activate the permanent settings. Use this command if you have changed a couple of settings temporarily for a specific purpose. When you have used the temporary settings, you can erase them again by sending the X4 command. You will then be back in the settings programmed into the interface.	You send the command as follows: **&&??% %X4**

8.8. Pass-Through Mode

Pass-through transparency mode is implemented to offer an extended support for applications that require greater flexibility than offered by the double escape transparency mode .

☞ **PCL only**

Pass-through mode can be defined in 2 ways:

1. pass-through mode where 1 byte of hex data is sent to the printer **(e.g. %1B)**
2. pass-through mode where more bytes of hex data is sent to the printer **(e.g. %%1B%)**

8.8.1 Pass-through mode - XES

1. Syntax of pass-through of 1 byte of hex data to the printer:
   <ESC>hex pair

   E.g. %1B

2. Pass-through of more bytes of hex data to the printer can be done in 2 ways.
   Either way, you must follow these rules:

   Hexadecimal data must either in hex pairs (00-FF).

   Spaces, commas and IBM control codes are ignored when in hex transparent mode. Commas and spaces can be used to make the hexadecimal data more readable.

- Pass-through of more bytes of hex data by using the escape character:
  <ESC><ESC>hex data<ESC>

- Pass-through of more bytes of hex data by using the lead-in/lead-out strings:
  The lead-in/lead-out strings have to be defined in function Y48:
  <ESC>Y48,<n1>[;<n2>;<n3>]<ESC>

  where:
  n1 is the defined escape c haracter
  n2 is the lead-in (start) hex transparent string
  n3 is the lead-out (stop) hex transparent string

  An example of a supported syntax :
  %%Hex data%%

  The difference between the syntax and the normal syntax is that this sequence in the example above both starts and ends with **two** escape characters. Any combination of up to five characters can be used for both lead-in and lead-out strings.

  To make the Xerox FS 5250 support this syntax use the following setup:
  &&??##Y48,00;'%%';'%%'#

NOTE:
When this pass-through option (with the lead-in/lead-out sequences) is used, it should be noted that apostrophe notation cannot apply. Only EBCDIC characters 0-9, A-F, a-f and spaces are accepted after a lead-in sequence. Control codes are suppressed. Other characters will terminate pass-through mode.

3. Filtered pass-through
   To enter filter mode in XES, a lead-in and a lead-out string defined in function Y48 must be used:

   Filter mode:
   <start string>**-**<stop string>

   This setting makes any text and IBM commands other than hex transparent data to be suppressed.

   Normal mode
   <start string>**+**<stop string>

   This settings enables normal handling of text and IBM commands outside hex transparent data.

For details refer to the programmers guide, doc. D62081.

8.9. Transparency Mode Limitations

☞ **XES**

The supported FSL functions of Xerox FS 5250 are accepted in all modes, but they have limited influence on the formatting in the various modes (Y70 and Y36).

For details on the FSL functions' influence on the formatting, you are referred to the Programmer's Guide, doc. no. D62081.

9. idaSetup - IPDS Programming

NOTE:
This chapter only applies to the converter when mounted with an IPC module.

idaSetup is a program developed with the purpose of setting up the wide range of IPC protocol converters via a PC share port or from a host.

For details on how to configure the IPDS parameters for the *Xerox FS 5250 IPC* using the program idaSetup, see the separate documentation f this, "IPDS, Programmer's Guide", doc. no. D60253. The manual is available as an electronic document.

10. Programming the Xerox FS 5250 - Non-IPDS

The Xerox FS 5250 works using a large number of internal Setup Functions (FSL Functions)[3].

FSL setup functions can be sent either from your IBM system or from a PC.

When the protocol converter has been installed and connected to a printer, you may have to consider the use of these setup options.

The factory default setup will meet the demands of most host systems and users, and special programming is therefore normally not required.

If, however, special circumstances require you to make changes to the programming of the box, appendix A: "Quick Reference Guide of the Supported FSL Functions" lists all the functions supported in XES and PCL mode. This list only describes the functions by their syntax and parameters, though. In the Programmer's Guide, doc. no. D62081, you will find an extensive description of the FSL Functions with notes, comments and examples.

3. FSL = Function Selection via the Line

11. Selected FSL Functions

In this chapter, only the most basic functions are described, such as paper size, paper tray and font selection.

Appendix A: Quick Reference Guide to the FSL functions lists all the supported FSL functions with syntax and parameter

For detailed information on the entire range of the supported FSL functions with the Xerox FS 5250, you are referred to the Programmer's Guide, doc. no. D62081.

11.1. Paper Size

Function Y12: Paper Size

NOTE:
In XES, function Y62 must be programmed for this function to become effective.

Almost any printer will provide you with the facility of selecting various paper sizes, but there are different ways of changing paper size in the printer. In some cases you can use the application software to change it, you can send printer commands directly to the printer, or you can send commands to the interface from the system. This chapter only describes the procedure for changing paper through the interface.

11.1.1 Trays

If your printer has several paper trays with different paper sizes, remember to select the corresponding paper tray, when you change the paper size.

If your printer only has one paper tray with one paper size, you can perhaps buy additional paper trays for other paper sizes and change trays manually.

11.1.2 Changing paper size

You can change paper size by sending commands to the interface from the system.

The FSL function is primarily designed to inform the interface about the installed paper sizes during installation.

The paper size command has two parameters[4]. The first parameter (n1) establishes the paper size to be used, the second (n2) tells the interface in which tray the paper type is. If you use the n2 option together with an n1 option, you can connect one paper size to a specific paper tray. You send the command as follows:

&&??% %Y12,<n1>[,n2]% &&??<space>

The command &&??% selects the character "%" as the escape character . The escape character is a signal to the interface that the data stream following is a command stream. The last command in the above line (&&?? <space>) erases the temporary escape character again.

The %Y12 command tells the printer which paper size to use. You have the following options for the n1 parameter:

Value	Paper Size	XES	PCL
1	A4	x	x
2	Legal	x	x
3	Letter	x	x
4	Executive	x	x
5	Letter (Monarch)	x	x
6	Business	x	x
7	International DL	x	x
8	International C5	x	x
10	A3	x	x
11	US Ledger	x	x
99	Use system SPPS or SHF/SVS values		x

You do not have to enter an n2 value. If you do **not** do so, the n1 value will be used for all trays. If you wish the n1 value only to be used for a specific tray, you must enter one of the following values:

Value	Paper Tray
1	Tractor
2	Tray 1
3	Tray 2
4	Manual Feed
5	Envelope Feed
6	Tray 3
7	Tray 4

[4] The parts of the command that contains a specific instruction to the interface is a parameter. The command 3 = Letter size paper is a parameter.

11.1.3 Saving the command

When you have tied a paper size to a specific tray, you can tell the interface to remember these commands. In this way you only need to change paper tray in the future. This will automatically mean a change of paper size. You do this by adding the %X1 to the command illustrated above:

NOTE:
This command also erases the escape character.

11.1.4 Changing paper size example

&&??% %Y12,3,3% %Y12,1,2% %X1

This will link letter-size paper to the tray 2 (Y12,3,3) and A4 paper to tray 1 (Y12,1,2). The settings will be saved permanently, and the escape character will be erased (X1).

11.1.5 Other commands

Other commands that can be used in connection with the paper size command, are:

Y5, Number of Lines per Page
Y10, Page Format
Y11, Paper Tray Selection
Y96, Font Change
Y98, Automatic Page Orientation

11.2. Paper Trays

Function 11: Paper Path

NOTE:
In XES, function Y62 must be programmed for this function to become effective.

This chapter describes how you select paper trays on your printer. This facility has many different uses.

If your printer has more than one paper tray, you can store different sizes and types of paper in different trays. This could be company paper in one tray, blank paper in another, and coloured paper in yet another tray.

11.2.1 Basic printer set-up

The set-up of the printer front panel will not matter in this connection. The commands sent to the interface will overwrite front panel settings.

NOTE:
XES only. **This applies only when function Y36 is set to 0.**

11.2.2 Changing paper trays

The tray command only has one parameter. If 3812/5219 emulation is used then paper tray can be selected with system commands.
Using FSL commands, you send a tray selection command as follows:

&&??% %Y11,<n1>%

The command &&??% selects the character "%" as the escape character. The escape character is a signal to the interface that the data stream following is a command stream.

Saving the command

When you have changed the paper tray, you can tell the interface to remember the correct settings. You do this by adding the %X1 command to the command illustrated above.

Example:
&&??% %Y11,3% %X1

This will make the printer use the tray 2 (Y11,3), save the settings permanently, and erase the escape character (X1).

NOTE:
This command also erases the escape character.

11.2.3 Other commands

Other commands that can be used in connection with paper tray selection, are:

Y10, Page Format
Y12, Paper Size
Y89, Margin Compensation
Y98, Automatic Page Orientation

11.3. Page Format

Function Y10: Page Format

Many types of printing from IBM software have been made for specific paper sizes that are larger or wider than A4 paper or letter-size paper. Other types of software expect a specific printer to be able to scale printing in order to fit the installed pa per. This will give you problems, when you use other printers as system printers. To overcome this problem, you can select different page formats coded into the interface via function Y10. When you do so, the interface will scale the printing to fit the paper size you use.

Syntax of the command: **%Y10,<n1>[,n2]%**

11.3.1 Formats

You can select between the following formats:

Value (n1)	Format	Characteristics
0	Portrait	No scaling
1	Landscape	No scaling
2	Computer Output Reduction (COR)	Scaled vertically to 70% as on IBM 3812
82	COR, regardless of PPM Print Quality	Scaled vertically to 70% as on IBM 3812

Note: The option 2, COR, is printed in Landscape orientation with reduced vertical and horizontal spacing. Vertical spacing is 70 % of normal, thus reducing as follows:

10 pitch fonts will be converted to 13 pitch
12 pitch fonts will be converted to 15 pitch
15 pitch fonts will be converted to 20 pitch
17 pitch fonts will be converted to 27 pitch

11.3.2 Changing Page Format

The page format command has two parameters. You send the command as follows:

&&??% %Y10,<n1>[,n2]% &&??<space>

The command &&??% selects the character "%" as the escape character. The escape character is a signal to the interface that the data stream following is a command stream. The n1 is described at the previous page. The last command in the above line (&&?? <space>) erases the escape character again.

You do not have to enter an n2 value. If no parameter is entered for n2, the n1 value will be used for all trays. If you wish the n1 value to be used for a specific tray only, you must enter one of the following values:

Value (n2)	Tray
1	Tractor
2	Tray 1
3	Tray 2
4	Manual feed
5	Envelope feed
6	Tray 3
7	Tray 4

Saving the command

When you have changed the paper tray, you can tell the interface to remember the command. You do this by adding the %X1 to the command illustrated above.

NOTE:
This command also erases the escape character.

11.3.3 Changing page format example

&&??% %Y10,2,3% %X1

This will set the default value for page format to COR for tray 2 (Y10,2,3), will save the settings permanently and erase the escape character (X1).

11.3.4 Other commands

Other commands that can be used in connection with page format selection, are:

Y11, Select paper tray
Y88, Physical Margins
Y98, Automatic Page Orientation

11.4. Automatic Page Orientation

Function Y98: Automatic Page Orientation

Selecting this function will activate and deactivate the automatic page orientation for the trays.

Automatic Page Orientation (i.e. APO) works in connection with FSL Y98. The factory default value is Y98,1 (i.e. APO = disabled). When APO is disabled, page orientation is controlled by the values in FSL Y10.

Y98 Syntax

%Y98,<n1>[n2]%

where:

n1 = 0:	Enable APO
n1 = 1:	Disable APO
n2 = 1:	Tractor
n2 = 2:	Tray 1
n2 = 3:	Tray 2
n2 = 4:	Manual feeder
n2 = 5:	Envelope feeder
n2 = 6:	Tray 3
n2 = 7:	Optional feeder

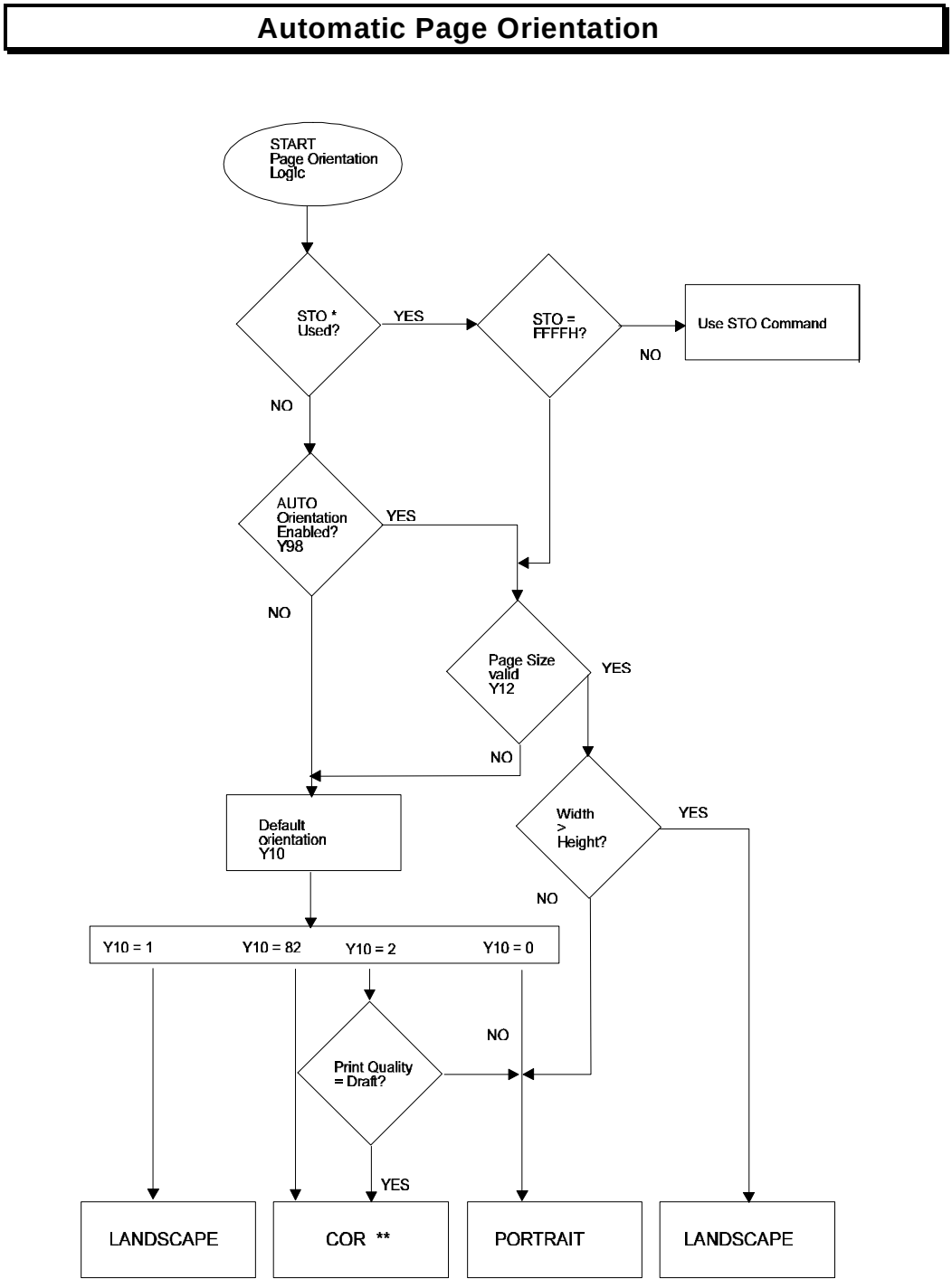
Factory default for n2 is all trays.

Example:

%Y98, 0,3%
will activate Automatic Page Orientation for tray 2.

11.4.1 Automatic Page Orientation Chart

Below follows a navigation chart for automatic page orientation. The section following will describe how automatic page orientation operates.



* The IBM Command "Set Text Orientation"

** Computer Output Reduction

Explanation to the chart on Automatic Page Orientation

Initially, the system will make a request as to the determination of the page orientation. Indicated in the chart as "STO Used?"

The system has 4 different orientation options:

- Portrait
- Landscape
- Computer Output Reduction (COR)
- Device dependent (i.e. the Xerox FS 5250)

If the system has set page orientation to "Device Dependent", the Xerox FS 5250 will determine the page orientation. In the chart indicated as "STO=FFFFh?" set to YES.

NOTE:
If the system commands specifies a specific orientation, it will override the command sequences of the Xerox FS 5250. In the chart indicted as "USE STO COMMAND".

Y98 Enabled (*factory default*)
When the Xerox FS 5250 determines the orientation and function Y98 is enabled, the logical page size is compared to the physical page as defined in Y12, value n3. In the chart indicated as "Page Size valid?".

If the logical page fits within the frame of the physical page as defined in Y12,3 (and with Y98 enabled), the page orientation is determined by the relation between the height and the width of the logical page.

If the logical page does not fit within the frame of the physical page, the page orientation will be set to default value as specified in function 10. See the chart.

The orientation may be in landscape, portrait or in COR. If you select COR and the system's print quality is not set to draft, then printing will be made in portrait.

If there is no STO command, no valid page size specified for Function Y98: Automatic Page Orientation, and the selected tray is set to COR, portrait orientation can be selected by setting the following parameters:

System /38 CL: PRTQLTY (*STD) or (*NLQ)
PAGRITT

System /36 OCL: TEXT -YES
ROTATE-0

Y98 Disabled
If function Y98 is disabled or if the logical page is wider and longer than the physical page (i.e. page not valid), then function Y10 will determine the page orientation. The interface will then use the default orientation as specified in Y10. The orientation may be in landscape, portrait or in COR. If you select COR and the system's print quality is not set to draft, then printing will be made in portrait.

11.5. Fonts

This section will provide the user with details on font selection and definition in PCL and XES mode.

11.5.1 Selecting Fonts ☞ PCL

NOTE:
The procedures in this chapter can only be used, if you have selected the PCL option on the interface.

The Xerox FS 5250 emulates the IBM 5219 or 3812 printers. The fonts of these printers are different from the fonts [5] of a Xerox printer. You can install more fonts either as soft fonts or as font cassettes in the printer.

Many software programs will provide you with the facility of changing fonts. But if your software does not have this facility, you can still change fonts in a document by sending FSL commands to the interface.

What to consider

When you send a font change command to the interface, you must remember the following:

[5] See the basic printer manuals for an explanation of fonts.

1. The system and system software will not know that you have changed font. This means that data will be transmitted to the printer as before the font change. This will give you format and position problems.

Changing font

The font change command has one parameter, the GFID value . You can change the contents of this value, if you wish to use a font that is not in the list. See the paragraph below on how to define a font. You send the font change command as follows:

&&??% %Y96,<n1>% &&??<space>

NOTE: This function cannot be saved in the permanent memory.

The command &&??% selects the character "%" as the escape character. The escape character is a signal to the interface that the data stream following is a command stream. The last command in the above line (&&?? <space>) erases the escape character again.

As mentioned above, the n1 value is the IBM value Global Font ID (GFID). These values have been coded into the interface. When you enter a GFID value, you automatically activate a font with a number of characteristics. See the table below for the GFID values you can use and their characteristics.

11.5.2 Default GFID Table

The factory default GFID Table below lists all the predefined fonts which are supplied with the interface GFIDs (GFIDs 1 - 399) [6].

Fonts with GFIDs above 400 (i.e. scaleable fonts) are described in the section "Scaleable Fonts" below.

For further details on defining fonts, please see the chapter "FSL Quick Reference Guide, the functions Y91 and Y96.

If more details on these FSL functions are required, you are referred to the Programmer's Guide (D62081).

In the following Default GFID Table, the Attribute, Symbol Set and Translate Table figures will refer to the following:

ATTRIBUTE

0 = No attributes
1 = Bold
2 = Italic
3 = Bold and italic
4 = Proportional
5 = Proportional bold
6 = Proportional italic
7 = Proportional bold and italic

SYMBOL SET and TRANSLATE TABLE

1 = Roman 8
2 = IBM PC-8
3 = ECMA Latin 1
4 = Roman 8
5 = US ASCII
6 = OCR A
7 = OCR B
8 = PC 850

6 If, for reasons of backward compatibility, you wish to reestablish the fonts > 400 in the default GFID table, please contact you i-data supplier.

In the table below, an asterisk (*) after the GFID number denotes a simulated IBM GFID.

GFID	Font	Type-face	Attri-bute	Symbol Set	Point Size	Translate Table
3*	OCR B	0	0	7	12	7
11*	Courier	3	0	1	12	0
12*	Prestige	8	0	1	10	1
18*	Courier	3	2	1	12	1
19*	OCR A	0	0	6	12	6
38*	Presentation	11	1	5	14	5
39*	Letter Gothic	6	1	1	14	1
40*	Letter Gothic	6	0	1	14	1
46*	Courier	3	1	1	12	1
51	Courier	3	0	5	12	5
52	Courier	3	1	5	12	5
53	Courier	3	2	5	12	5
60	Letter Gothic	6	0	5	14	5
66*	Letter Gothic	6	0	1	12	1
68*	Letter Gothic	6	2	1	12	1
69*	Letter Gothic	6	1	1	12	1
80	Prestige	8	0	1	10	0
85	Courier	3	0	1	12	1
86*	Prestige	8	0	1	10	1
87*	Letter Gothic	6	0	1	12	1
91*	Letter Gothic Italic	6	2	1	12	1
95*	Courier Italic	3	2	1	10	1
109*	Letter Gothic Italic	6	2	1	12	1
110*	Letter Gothic	6	1	1	12	1
111*	Prestige	8	1	1	10	1
112*	Prestige	8	2	1	10	1
115	Courier	3	1	1	10	1
116	Courier	3	2	1	10	1
117	Prestige	8	0	5	10	5
118	Prestige	8	0	5	10	5
119	Prestige	8	2	5	10	5
204*	Letter Gothic	6	0	5	12	5
221*	Prestige	8	0	1	7	1
223*	Courier	3	0	1	8	1
230*	Letter Gothic	6	0	1	9	1
252*	Line Printer	0	0	1	8.5	1
253	Line Printer	0	0	1	8.5	0
255	Letter Gothic	6	0	1	9.5	1
256	Prestige	8	0	5	7	5

Default GFID Table for GFIDs 1 - 399

11.5.3 Scaleable Fonts

NOTE:
***Only* applies to printers running PCL Level 5**

The Xerox FS 5250 allows GFID access to all the scaleable fonts found in the printer. These GFIDs are in the range 400 - 65535.

Typeface, typeface attributes and point size have been linked together using the system described below.

GFID Number = XXXYY

where XXX = point size

YY = typeface + attribute

Possible *typeface* values are:

Typeface ID	*PCL No.*	*Name of Typeface*
0	5	Times Roman
4	4116	Coronet
10	4	Helvetica / Swiss
14	36	Helvetica Compressed
20	23	Century Schoolbook
24	4297	Mangold
30	17	Humanist / CG Optima
34	4168	Antique Olive
40	31	ICT Avantgarde
44	4197	Garamond Antique
50	16901	Times New
54	16602	Arial
60	52	Univers

Possible *attribute* values are:

Style	***Strokeweight***
0	Medium upright
1	Bold upright
2	Medium italic
3	Bold italic

%Y96,4815%

This is 48 point, Helvetica Compressed, bold upright

%Y96,1301%

This is 13 point, Times Roman, bold upright

Font examples

Other relationships between IBM GFID and printer typefaces/fonts can be programmed using Function 91 or 97 (See Programmer's Guide for more details on Function 97). GFIDs may be selected with the normal procedure or using Function 96.

11.5.4 Defining Fonts ☞ PCL

NOTE:
The procedures in this chapter can only be used, if you have selected the PCL option on the interface (see the chapter on Installation).

The font definition command has 6 parameters. You can find a description of the contents of the 6 parameters below. The last parameter (translate table) is optional, and you do not need to enter it.

All printers have a number of internal fonts . The more sophisticated the printer is, the more fonts it has. But in addition to these, you can acquire more fonts either as soft fonts that you download to the printer, or as font cassettes or font cards that you push into a slot on the pr inter. Not all existing fonts are in the GFID list in the previous chapter. But you can define a GFID number for them on your own. In this chapter you will find an explanation of how to do this.

The parameters of the font definition command are as follows:

n1	is the GFID number
n2	is the typeface
n3	is the attribute
n4	is the symbol set
n5	is the point size
n6	is the translate table (optional)

What you need to know

When you define the GFID for a font, you will need the following information before you start:

- **GFID number**
- **symbol set**
- **attributes**
- **point size**
- **translate table**
- **typeface**

Which GFID number will you use?

You can either use one of the existing numbers covering a font that resembles the font you wish to define, or you can use a number that has not been used yet.

The symbol set of the font

You can select between the following symbol sets :

Value	Symbol set
1	Roman 8
2	IBM PC-8
3	ECMA 94
5	US ASCII
6	OCR A
7	OCR B
8	PC 850

The attributes of the font

You can select between the following attributes (the examples are all 12 point fonts):

Value	Attribute	Example
0	No attribute	`This is Courier, fixed spacing, no attribute`
1	Bold	**`This is Courier, fixed spacing, bold`**
2	Italic	*`This is Courier, fixed spacing, italic`*
3	Bold and italic	***`This is Courier, fixed spacing,bold, italic`***
4	Proportional spacing	This is Helvetica, proportional spacing
5	Proportional spacing, bold	**This is Helvetica, proportional spacing, bold**
6	Proportional spacing, italic	*This is Helvetica, proportional spacing, italic*
7	Proportional spacing, bold and italic	***This is Helvetica, proportional spacing, bold, italic***

The point size of the font

You can here state the size of the font (s). The interface cannot calculate point size with decimals. This means that when you enter a value with decimals, the interface will round off the decimals, e.g. 7.4 will become 7.

Which translate table will you use?

You can select the following translate table s:

Value	Translate table
0	All resident
1	Roman 8
2	IBM PC-8
3	ECMA 94
5	US ASCII
6	OCR A
7	OCR B
8	PC 850

NOTE:
The symbol set and the translate table should be set to the same value, e.g. both to 3 ECMA 94. If you select value 3 as symbol set and 1 as translate table, you will probably have problems with several characters.

The typeface of the font

Value	Typeface
0	Line Printer
1	Pica
2	Elite
3	Courier
4	Helvetica
5	Times Roman
6	Letter Gothic
7	Script
8	Prestige
9	Caslon
10	Orator
11	Presentations
12	Helv Condensed
13	Serifa
14	Futura
15	Palatino
16	ITC Souvenir
17	Optima
18	ITC Garamond
19	Cooper Black
20	Ribbon (Coronet)
21	Broadway
22	Bauer Bodoni Black Cond.
23	Century Schoolbook
24	University Roman
25	Helv Outline
26	Futura Condensed
27	ITC Korinna
28	Naskh (generic Arabic)
29	Cloister Black
30	ITC Galliard
31	ITC Avant Garde Gothic
32	Brush
33	Blippo
34	Hobo
35	Windsor

Value	Typeface
36	Helv Compressed
37	Helv Extra Comp.
38	Peignot
39	Baskerville
40	ITC Garamond Cond.
41	Trade Gothic
42	Goudy Old Style
43	ITC Zapf Chancery
44	Clarendon
45	ITC Zapf Dingbat
46	Cooper
47	ITC Bookman
48	Stick
49	HP-GL Drafting
50	HP-GL Spline
51	Gill Sans
52	Univers
53	Bodoni
54	Rockwell
55	Melior
56	ITC Tiffany
57	ITC Clearface
58	Amelia
59	Park Avenue
60	Handel Gothic
61	Dom Casual
62	ITC Benguiat
63	ITC Cheltenham
64	Century Expanded
65	Franklin Gothic
66	Franklin Gothic Expressed
67	Franklin Gothic Ext. Cond.
68	Plantin
69	Trump Mediaeval
70	Futura Black

Font definition example

&&??% %Y91,521,6,5,1,18,1% %X1

This will define GFID 512 as a Helvetica, proportional bold, Roman 8 symbol set, point size 18, and translate table 1 (Roman 8). It will then save settings permanently and erase the escape character (X1).

Other commands

Other commands that can be used in connection with font definition, are:

Y3, CPI
Y92, Font Point
Y93, Font Attribute
Y94, Font Typeface
Y96, Font Change
Y97, User Defined GFID/Font Selection

11.5.5 Selecting Fonts ☞ XES

NOTE:
The procedures in this chapter can only be used, if you have selected the XES option on the interface (see the chapter on installation requirements).

You can have many laser printers connect to the Xerox FS 5250, have a large number of internal fonts [7] and install more fonts either as soft fonts or as font cassettes. This chapter describes how you can use these fonts.

Many software programs will provide you with the facility of changing fonts. But if your software does not have this facility, you can still change fonts in a document by sending commands to the interface.

What to consider

When you send a font change command to the interface, you must remember the following:

1. The system and system software will not know that you have changed font. This means that data will be transmitted to the printer as before the font change. This may give you format problems.

[7] See the basic printer manuals for an explanation of fonts.

2. If you only send a font change without also changing Lines Per Inch and/or Characters Per Inch, you could have format problems.

Changing font

The font change command has one parameter, the GFID value . You can change the contents of this parameter, if you wish to use a font that is not in the list. See the next chapter on how to define a font. You send the font change command as follows:

&&??% %Y96,<n1>% &&??<space>

The command &&??% selects the character "%" as the escape character. The escape character is a signal to the interface that the data stream following is a command stream. The last command in the above line (&&?? <space>) erases the temporary escape character again.

NOTE:
This function cannot be saved in the permanent memory.

Changing font example

&&??% %Y96,41% &&??

This will select the font defined as number GFID 41. It will also erase the escape character.

Other commands

The other command that can be used in connection with font selection, is:

FSL Y97, Font Definition (User-defined)

11.5.6 Defining Fonts ☞ XES

NOTE:
The procedures in this chapter can only be used, if you have selected the XES option on the interface (see the chapter on Installation).

All printers have a number of internal fonts . The more sophisticated the printer is, the more fonts it has. But in addition to these you can acquire more fonts either as soft fonts (software fonts) that you download to the printer, or as font cassettes or font cards that you push into a slot on the printer.

What you need to know

Before you start, you must find the following information:

1. the complete name of the **portrait** font
2. the complete name of the **landscape** font

Font definition

Unless you only print in portrait orientation, you must define both a portrait **and** a landscape font. When you define the font, you will need to enter the complete names of the fonts with an escape character and an "end" command.

NOTE:
When you define the fonts, you must be very careful to enter all the parts of the command.

&&??% %Y97,n1,1B,'+1<portrait font>',0D,0A,1B'1':1B'+1<landscape font>',0D,0A,1B,'1'% &&??<space>

The command &&??% selects the character "%" as the escape character. The escape character is a signal to the interface that the data stream following is a command stream. The last command in the above line (&&??<space>) erases the escape character again.

The n1 value is the number of the font that you can activate in FSL Y96.

XES

GFID	Font (strings sent)	Orientation
3	1B,'+1OCRB10-P',0D,0A,1B,'1'	portrait
3	1B,'+1OCRB10-L',0D,0A,1B,'1'	landscape
5	1B,'+1Spokesman10-P',0D,0A,1B,'1'	portrait
5	1B,'+1Spokesman10-L',0D,0A,1B,'1'	landscape
11	1B,'+1Titan10iso-P',0D,0A,1B,'1'	portrait
11	1B,'+1Titan10iso-L',0D,0A,1B,'1'	landscape
12	1B,'+1Prestige10X1-P',0D,0A,1B,'1'	portrait
12	1B,'+1Prestige10X1-L',0D,0A,1B,'1'	landscape
13	1B,'+1OCRA10-P',0D,0A,1B,'1'	portrait
13	1B,'+1OCRA10-L',0D,0A,1B,'1'	landscape
18	1B,'+1Titan10Iiso-P',0D,0A,1B,'1'	portrait
18	1B,'+1Titan10Iiso-L',0D,0A,1B,'1'	landscape
19	1B,'+1Titan10-P',0D,0A,1B,'1'	portrait
19	1B,'+1Titan10-L',0D,0A,1B,'1'	landscape
38	1B,'+1Orator10BX1-P',0D,0A,1B,'1'	portrait
38	1B,'+1Orator10BX1-L',0D,0A,1B,'1'	landscape
39	1B,'+1GothicText10BX1-P',0D,0A,1B,'1'	portrait
39	1B,'+1GothicText10BX1-L',0D,0A,1B,'1'	landscape
40	1B,'+1GothicText10X1-P',0D,0A,1B,'1'	portrait
40	1B,'+1GothicText10X1-L',0D,0A,1B,'1'	landscape
41	1B,'+1Titan10Biso-P',0D,0A,1B,'1'	portrait
41	1B,'+1Titan10Biso-L',0D,0A,1B,'1'	landscape
42	1B,'+1SerifText10X1-P',0D,0A,1B,'1'	portrait
42	1B,'+1SerifText10X1-L',0D,0A,1B,'1'	landscape
43	1B,'+1SerifText101X1-P',0D,0A,1B,'1'	portrait
43	1B,'+1SerifText101X1-L',0D,0A,1B,'1'	landscape
44	1B,'+1KatakanaGotich10X1-P',0D,0A,1B,'1'	portrait
44	1B,'+1KatakanaGotich10X1-L',0D,0A,1B,'1'	landscape
46	1B,'+1Courier10BX1-P',0D,0A,1B,'1'	portrait
46	1B,'+1Courier10BX1-L',0D,0A,1B,'1'	landscape
50	1B,'+1Vintage10iso-P',0D,0A,1B,'1'	portrait
50	1B,'+1Vintage10iso-L',0D,0A,1B,'1'	landscape
51	1B,'+1Vintage10Biso-P',0D,0A,1B,'1'	portrait
51	1B,'+1Vintage10Biso-L',0D,0A,1B,'1'	landscape
60	1B,'+1Prestige10BX1-P',0D,0A,1B,'1'	portrait
60	1B,'+1Prestige10BX1-L',0D,0A,1B,'1'	landscape
66	1B,'+1GothicText12X1-P',0D,0A,1B,'1'	portrait
66	1B,'+1GothicText12X1-L',0D,0A,1B,'1'	landscape
68	1B,'+1GothicText121X1-P',0D,0A,1B,'1'	portrait
68	1B,'+1GothicText121X1-L',0D,0A,1B,'1'	landscape
69	1B,'+1GothicText12BX1-P',0D,0A,1B,'1'	portrait
69	1B,'+1GothicText12BX1-L',0D,0A,1B,'1'	landscape

GFID	Font (strings sent)	Orientation
70	1B,'+1SerifText12X1-P',0D,0A,1B,'1'	portrait
70	1B,'+1SerifText12X1-L',0D,0A,1B,'1'	landscape
71	1B,'+1SerifText121X1-P',0D,0A,1B,'1'	portrait
71	1B,'+1SerifText121X1-L',0D,0A,1B,'1'	landscape
72	1B,'+1SerifText12BX1-P',0D,0A,1B,'1'	portrait
72	1B,'+1SerifText12BX1-L',0D,0A,1B,'1'	landscape
84	1B,'+1Script12X1-P',0D,0A,1B,'1'	portrait
84	1B,'+1Script12X1-L',0D,0A,1B,'1'	landscape
85	1B,'+1Titan12iso-P',0D,0A,1B,'1'	portrait
85	1B,'+1Titan12iso-L',0D,0A,1B,'1'	landscape
86	1B,'+1Elite12iso-P,0D,0A,1B,'1'	portrait
86	1B,'+1Elite12iso-L,0D,0A,1B,'1'	landscape
87	1B,'+1LetterGothic12iso-P'0D,0A,1B,'1'	portrait
87	1B,'+1LetterGothic12iso-L'0D,0A,1B,'1'	landscape
92	1B,'+1Titan12Iiso-P'0D,0A,1B,'1'	portrait
92	1B,'+1Titan12Iiso-L'0D,0A,1B,'1'	landscape
108	1B,'+1Courier12BX1-P'0D,0A,1B,'1'	portrait
108	1B,'+1Courier12BX1-L'0D,0A,1B,'1'	landscape
110	1B,'+1LetterGothic12Biso-P',0D,0A,1B,'	portrait
110	1B,'+1LetterGothic12Biso-L',0D,0A,1B,"	landscape
111	1B,'+1Elite12Biso-P',0D,0A,1B,'1'	portrait
111	1B,'+1Elite12Biso-L',0D,0A,1B,'1'	landscape
112	1B,'+1Prestige121X1-P',0D,0A,1B,'1'	portrait
112	1B,'+1Prestige121X1-L',0D,0A,1B,'1'	landscape
120	1B,'+1Vintage12iso-P',0D,0A,1B,'1'	portrait
120	1B,'+1Vintage12iso-L',0D,0A,1B,'1'	landscape
121	1B,'+1Vintage12Biso-P',0D,0A,1B,'1'	portrait
121	1B,'+1Vintage12Biso-L',0D,0A,1B,'1'	landscape
155	1B,'+1BoldfacePS1X1-P',0D,0A,1B,'1'	portrait
155	1B,'+1BoldfacePS1X1-L',0D,0A,1B,'1'	landscape
159	1B,'+1BoldfacePSX1-P',0D,0A,1B,'1'	portrait
159	1B,'+1BoldfacePSX1-L',0D,0A,1B,'1'	landscape
160	1B,'+1EssayPSX1-P',0D,0A,1B,'1'	portrait
160	1B,'+1EssayPSX1-L',0D,0A,1B,'1'	landscape
162	1B,'+1EssayPS1X1-P',0D,0A,1B,'1'	portrait
162	1B,'+1EssayPS1X1-L',0D,0A,1B,'1'	landscape
163	1B,'+1EssayPSBX1-P',0D,0A,1B,'1'	portrait
163	1B,'+1EssayPSBX1-L',0D,0A,1B,'1'	landscape
173	1B,'+1EssayPSLX1-P',0D,0A,1B,'1'	portrait
173	1B,'+1EssayPSLX1-L',0D,0A,1B,'1'	landscape
175	1B,'+1DocumentPSX1-P',0D,0A,1B,'1'	portrait
175	1B,'+1DocumentPSX1-L',0D,0A,1B,'1'	landscape

GFID	Font (strings sent)	Orientation
204	1B,'+1GothicText13X1-P',0D,0A,1B,'1'	portrait
204	1B,'+1GothicText13X1-L',0D,0A,1B,'1'	landscape
221	1B,'+1LetterGothic15iso-P',0D,0A,1B,'1'	portrait
221	1B,'+1LetterGothic15iso-L',0D,0A,1B,'1'	landscape
223	1B,'+1Titan15iso-P',0D,0A,1B,'1'	portrait
223	1B,'+1Titan15iso-L',0D,0A,1B,'1'	landscape
229	1B,'+1SerifText15X1-P',0D,0A,1B,'1'	portrait
229	1B,'+1SerifText15X1-L',0D,0A,1B,'1'	landscape
230	1B,'+1LetterGothic15iso-P',0D,0A,1B,'1'	portrait
230	1B,'+1LetterGothic15iso-L',0D,0A,1B,'1'	landscape
244	1B,'+1Courier5X1-P',0D,0A,1B,'1'	portrait
244	1B,'+1Courier5X1-L',0D,0A,1B,'1'	landscape
245	1B,'+1Courier5BX1-P',0D,0A,1B,'1'	portrait
245	1B,'+1Courier5BX1-L',0D,0A,1B,'1'	landscape
252	1B,'+1Courier17X1-P',0D,0A,1B,'1'	portrait
252	1B,'+1Courier17X1-L',0D,0A,1B,'1'	landscape
253	1B,'+1Courier17BX1-P',0D,0A,1B,'1'	portrait
253	1B,'+1Courier17BX1-L',0D,0A,1B,'1'	landscape
254	1B,'+1CourierSS17X1-P',0D,0A,1B,'1'	portrait
254	1B,'+1CourierSS17X1-L',0D,0A,1B,'1'	landscape
281	1B,'+1GothicText20X1-P',0D,0A,1B,'1'	portrait
281	1B,'+1GothicText20X1-L',0D,0A,1B,'1'	landscape
290	1B,'+1GothicText27X1-P',0D,0A,1B,'1'	portrait
290	1B,'+1GothicText27X1-L',0D,0A,1B,'1'	landscape
751	1B,'+1TimesNewRoman8X1-P',0D,0A,1B,'1'	portrait
751	1B,'+1TimesNewRoman8X1-L',0D,0A,1B,'1'	landscape
1051	1B,'+1TimesNewRoman10X1-P',0D,0A,1B,'1'	portrait
1051	1B,'+1TimesNewRoman10X1-L',0D,0A,1B,'1'	landscape
1053	1B,'+1TimesNewRoman10BX1-P',0D,0A,1B,'1'	portrait
1053	1B,'+1TimesNewRoman10BX1-L',0D,0A,1B,'1'	landscape
1056	1B,'+1TimesNewRoman101X1-P',0D,0A,1B,'1'	portrait
1056	1B,'+1TimesNewRoman101X1-L',0D,0A,1B,'1'	landscape
1351	1B,'+1TimesNewRoman12X1-P',0D,0A,1B,'1'	portrait
1351	1B,'+1TimesNewRoman12X1-L',0D,0A,1B,'1'	landscape
1653	1B,'+1TimesNewRoman16BX1-P',0D,0A,1B,'1'	portrait
1653	1B,'+1TimesNewRoman16BX1-L',0D,0A,1B,'1'	landscape
2103	1B,'+1TimesNewRoman24BX1-P',0D,0A,1B,'1'	portrait
2103	1B,'+1TimesNewRoman24BX1-L',0D,0A,1B,'1'	landscape
4555	1B,'+1TimesNewRoman10B1X1-P',0D,0A,1B,'1'	portrait
4555	1B,'+1TimesNewRoman10B1X1-L',0D,0A,1B,'1'	landscape

CPI / GFID Relation

CPI	GFID	GFID Range
5	245	240 - 249
10	11	1 - 65
12	85	66 - 153
15	223	211 - 239
17.1	254	250 - 259
PS	158	154 - 200

COR CPI / GFID Relation

CPI	COR CPI	GFID Range
10	13.3	201 - 210
12	15	211 - 239
15	20	280 - 284

☞ **XES only:**

11.6. Optional Scaling

Printing fonts in a CPI not matching the logical CPI related to the GFID in question can be done via an *optional scaling factor* in function Y97.

The scaling factor has influence on the horizontal text positioning and thereby influence on e.g. positioning and length of underlines, sub- and superscript text.

The scaling option is obtained by adding semicolon and the fraction x/y after the font string definition in Y97. the "x" and "y" represent numbers from 1-255.

The syntax of Y97 is as follows:
%Y97,n1,n2[;x,y][;n3[;x,y]]%

where:
"%" is the defined escape character
"n1" is the GFID number to be assigned
"n2"is the string for 0 degrees rotated font
"n3" is the string for 90 degrees rotated font
"x,y" are the scaling fractions

Example 1
Using a 12 CPI font for GFID 11 (logical 10 CPI):
%Y97, 11,1B,'+1Titan12iso-P',0D,0A,1B,'1';16,15%

For details on "Optional Scaling", refer to the Programmer's Guide, D62081.

Font definition example

&&??% %Y97,1,1B,'+1Titan10Biso-P',0D,0A,1B'1:'+1Titan10Biso-L',0D,0A,1B,'1'%
%X1

This will define Titan10Biso as the portrait and landscape font for GFID value 1 in FSL Y96. The command string will save the font and erase the escape character (X1).

Other commands

The other command that can be used in connection with font definition is:

FSL Y96, Font Selection

11.7. Duplex Printing

Function Y19: Duplex Printing

NOTE:
In XES, function Y62 must be programmed for this function to become effective.

Duplex printing means that the printer can print on both sides of a piece of paper.

NOTE:
You can only use this facility, if you have a duplex printer. If you are not sure about this, look in the manuals for your printer.

11.7.1 System or interface?

There are different ways to go about selecting duplex printing, so you should check whether you can select and deselect duplex printing in the software you use on the system**.**

If this is possible, you should use the software option instead of the description below. If you cannot select duplex printing on the system, you can use the duplex function of the interface.

11.7.2 What to consider

If you share a printer with other users, you must always remember to reset the interface to non-duplex at the end of the document. If not, other users' documents will also be printed in duplex.

If the document you have printed has an uneven number of pages, the last page will pend in the system printer buffer. If you wish to make sure that all pages have been printed, you can set the duplex function to non-duplex printing (setting 0) as described below:

You can reset the interface by sending the following commands:

&&??% %X4 &&?? (will reset the interface to power up defaults)
(Use if power up default is non- duplex)

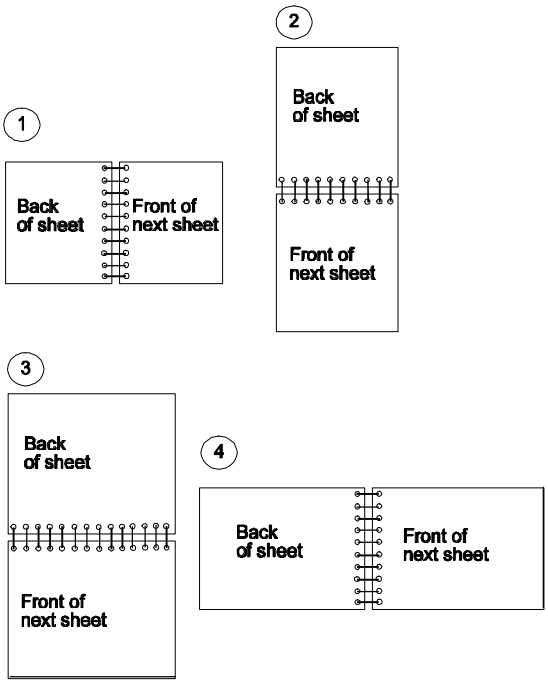
or

&&??% %Y19,0% &&?? (will reset the interface to non-duplex printing)

11.7.3 Binding option

Before you select duplex printing, you must consider how you wish to bind the printed copies. The binding of the copies means in which side you want the paper to e.g. be punched or glued. You can select binding on either the long or the short edge of the paper.

By combining the duplex function with the function that selects portrait/landscape printing, you can decide that the text is to be printed across the long (landscape printing) or the short (portrait printing) length of the paper with the two binding options as illustrated in the following.



Types of binding in different orientation.
1. Portrait, long-edge *2. Portrait, short-edge*
3. Landscape, long-edge *4. Landscape, short-edge*

11.7.4 Selecting duplex printing

The duplex command (Y19) has one parameter with three different settings:

Setting	Description
0	No duplex printing
1	Duplex, long-edge binding
2	Duplex, short-edge binding

See the paragraph below on how to select duplex printing. You send the command as follows:

&&??% %Y19,<n1>% &&??<space>

The command &&??% selects the character "%" as the escape character. The escape character is a signal to the interface that the data stream following is a command stream. The last command in the above line (&&?? <space>) erases the escape character again.

NOTE:
You cannot save the duplex command in the permanent memory.

11.7.5 Orientation

As mentioned above, you can combine the duplex function with the orientation (or paper format) function Y10 and select various binding options. The orientation command has two parameters where you only need to use the first. The first parameter has several different settings:

Setting	Description
0	Portrait
1	Landscape
2	Computer Output Reduction (COR)
82	COR regardless of PPM print quality

NOTE:
You should not select different settings for the front and the back of a sheet of paper.

For a more detailed description of the settings, you are referred to the chapter on selecting paper formats.

The second parameter has 6 settings:

Setting	Description
1	Tractor
2	Tray 1
3	Tray 2
4	Manual feed
5	Envelope feed
6	Tray 3

Duplex selection example, PCL

&&??% %Y19,2% %Y10,1,3% &&??

This will select duplex printing, short-edge binding (Y19,2) and landscape orientation for tray 2 (Y10,1,3). The command &&?? will erase the escape character.

Duplex selection example, XES

&&??% %Y19,2% %Y96,nn% &&??

This will select duplex printing (Y19,2) with a font defined as number nn (Y96,nn). It will erase the escape character.

11.8. Output Data

The Xerox FS 5250 supports the following printer languages:

PCL (see the section: "Printer Driver Selection" for details)
XES
- *XDPM ISO*
- *XDPM EBCDIC*
- *XPPM EBCDIC*
- *XPPM ASCII*

XDPM (Xerox Distributed Print Mode) is based on the data stream for Xerox 2700 and is supported by most decentralised Xerox printers.

XPPM (Xerox Production Mode) is the data stream for the Xerox 9700 printer range. Xerox 4235 and some versions of the Xerox 3700 printer support the XPPM data stream.

XDPM ISO
This is the default output in XES mode. The output can be further modified using function 36. See table A. The output is selected by setting function 70 to 1.

XDPM EBCDIC
This mode provides compatibility with the Xerox 275 converter and is selected by setting function 70 to 0.

XPPM EBCDIC
This mode supports XPPM EBCDIC applications with DJDE controls and Metacodes.
Note that the Metacodes have to be transferred using IBM Transparent (TRN) commands. This output is selected by setting function 70 to 2.

XPPM ASCII
This mode supports XPPM ASCII applications with DJDE controls. The output is selected by setting function 70 to 1 and function 36 to 3.
Note that the translation of the "$" character must be changed from ISO to ASCII using function 75 (%Y75,5B,00,Z4%)

The chart below shows the relation between data streams, translation and function settings:

DATA STREAM	TRANSLATION MODE	FUNCTION SETTINGS		
OUTPUT		Y70	Y36	Y2
XDPM XES ISO	Normal	1	0	3|4|6|8
	Vertical Formatting by Printer	1	0	0
	Suppress IBM Controls	1	1	
	Suppress IBM Multibyte Controls	1	3	
	Suppress IBM Multibyte Controls and Form Feed	1	4	
XDPM XES EBCDIC	Xerox 275 Compatible	0	0	
XPPM ASCII[8]	DJDE Support	1	3	
XPPM EBCDIC	DJDE Support	0	0	
XPPM EBCDIC	DJDE & Metacode Support	2		

Table A: Data streams, translation and function settings

Most of the internal setup functions (FSL functions) will have no effect in XPPM mode. Only function Y70 and the X function will have effect. However, function 70 interrelate with function 36: "Suppress IBM Control Codes" and function 2: "Lines Per Inch".

Below the chart will show the functions controlled by the Xerox FS 5250:

Y70	1	1	1	1	1	1	2	*0*
Y36	0	0	2	3	4	1		*0*
Y2	3|4|6|8	0						
Character Conversion	+	+	+	+	+	+		+*1)*
Language Conversion	+	+	+	+	+	+		
Line End Control	+	+	+	+	+			+
Page End Control	+	+	+	+				+
Horizontal Position	+	+	+	+	+			+
Auto Line/Page Break	+	+						+
Line Spacing	+							
Font Selection	+	+		+	+			
Input Tray	+	+						
Output Tray Offset	+	+						
Paper Size	+	+						
Page Orientation	+	+						
Margins	+	+						
Duplex	+	+						
Bold	+	+						
Underline	+	+						
Overstrike	+	+						
Sub/SuperScript	+	+						
Text Justification	+	+						

Table B: Functions Controlled by Xerox FS 5250

1) Default: EBCDIC to EBCDIC Translation

8 The translation of "$" must be changed from ISO to ASCII.

For details on Operating Modes (i.e. function 70 and function 36), DJI and Metacode Handling, you are referred to the Programmer's Guide, doc. no. D62081

11.9. Port Share Option

This section will describe share timeout and how to specify the timeout string via function Y100.

Function 100: Port Share Option

If you do not use your laser printer full time, you can share it with others. This is often relevant in office environments where you use different printers for different print jobs . You can also use this facility for your own use, if you print from both midrange and PC systems.

The interface has been designed with both a twinax port for the connection to the twinax system and a parallel port to which you can connect a PC, etc. If you use both ports on the interface, you will be able to set a *timer* to control how long the interface will wait for data from one port before accepting data from another port. You will also be able to code a string that can be used to e.g. reset the printer or select a new font. The timer and string to be sent when the port takes over will work on the port it was sent to. If you code the string, it will be sent automati cally when you change from one port to the other.

In order to specify the *timeout* for a specific input port, an FSL (*F*unction *S*election via the *L*ine) sequence must be sent to the port in question. To do this a temporary Escape (ESC) Character must be defined first. This is done in the following way:

&&??<character>

The sequence "&&??%" will define " %" as the ESC Character.

Timeout is specified in FSL Function 100 . This function has the following syntax (where "%" is the escape character):

%Y100,<timeout>[,user string]%

Timeout:	0 to 255 indicating number of seconds Factory default = **20** seconds
User string:	*Optional* - string in HEX to be sent to the printer before transmission of data, when the printer is selected by the share unit.

NOTE:
The Timeout string must be a *one line command sequence* (see example overleaf).

When function Y100 has been defined for the twinax port, the following will happen:

When the twinax port takes over the printer after another port has been used, the defined string will be sent to the printer and the FSL and host settings will be re-established.

Y100 = 0
If the FSL Y100 timeout string is set to zero, the user string and settings will be sent the next time the input is active after a time lapse of 20 seconds, even if no other input has been active.

Y100 > 0
If the FSL Y100 timeout string is set to a value higher than zero, the user string and settings will only be sent if a share condition has occurred.

The new setup must be saved in the NVRAM[9] with the following command (where "%" is the escape character):

```
%X1
```

NOTE: %X1% will delete the temporary escape character.

The FSL string above was split up into several lines for reasons of clarification to simplify the explanation of the different functions. The timeout string must though be a one line command sequence. Below is an example where the FSL string is typed in one line.

Example:

```
&&??%%Y100,20,1B,45%%X1
```

The FSL string above has the following effect:

- Defines % as ESC character
- Sets timeout to 20 seconds
- Send 1B 45 HEX before the next data transmission.
- Saves setup in the NVRAM and deletes "%" as escape character

NOTE:
FSL 100 works on the port it is sent to. If it is sent to the parallel or serial input port, the string containing the Function 100 programming will be printed when it is sent to the Xerox FS 5250.

11.9.1 Sending the commands from the system

The easiest way to send the string from the system is to create a new file, enter the commands, and send the file to the printer.

[9]NVRAM = Non-volatile RAM

11.9.2 Sending the commands from the PC

The easiest way to send the string from the PC to the Centronics or RS-232 port is to write the command string on a blank screen at the root, and then make a "print screen". If you have a PC edi tor program, you can of course also use that and send a file to the printer in your usual way (it must be a plain ASCII file with no formatting commands).

NOTE: The editor you use must have no printer driver and you must make sure that no print commands are sent.

Printer sharing example

Below you will find two examples; the first one is a PCL command, the second is an XES command.

PCL

&&??% %Y100,30,1B 45 1B 28 32 53% %X1

This string will set the timer to 30 seconds, reset the printer (1B 45), select Spanish symbol set (1B 28 32 53), store the command in the permanent memory, and erase the escape character (X1).

XES

&&??% %Y100,35,1B'zlH'%%X1

This string will set the timer to 35 seconds, select language option "Downloaded Table" (1BzlH), store the command in the permanent memory, and erase the escape character (X1).

In stead of writing **'**zlH**'** which is a command to the printer, the hex numbers could be used.

12. Programming via Shareport

In order to ease customisation of the Xerox FS 5250, FSL parame ters for twinax input can be programmed directly via the interface's Centronics or serial (RS-232) port using the Engineering Function Y249.

The Engineering Function enables the system to detect whether FSL sequences on shareport are intended for twinax FSL input or for shareport setup and will direct the sequences received to the twinax FSL interpreter.

The sequence works as a switch for FSL sequences. The defined Escape Character will also be translated and defined as Escape Character for the twinax FSL module. The ability to set up via the shareport is reset after timeout on the shareport and can not be saved in the NVRAM [10].

The setup sequence must only contain ASCII characters. Apostrophe notation can be used if characters are included in the US ASCII 7 bit character set, all other data must be in HEX notation.

All functions which are accessible from the twinax input can be used via Centronics/RS-232 setup.

12.1. Activating the Y249 Engineering Function

Before the Engineering Function can be activated, an Escape character must be defined:

&&??<character>

The sequence "&&??%" will define "%" as the ESC Character.

[10]NVRAM = Non-volatile RAM (permanent memory)

If you have defined % as Escape Character, you activate the engi neering function by typing:

%Y249,n%

n = password. As this is sensitive information, system operators can contact their point of purchase for password details.

12.2. Deactivating the Y249 Engineering Function

The function will be deactivated automatically after timeout on the share port (timeout is defined in Y100 Port Sharing Option). See also the chapter "Specifying Share Timeout and String".

12.3. Limitations when Y249 is active

Escape sequences must be in HEX

Unprintable characters (i.e. the escape character) must be defined in HEX notation if they are to be part of the setup print job. Only the FSL sequences are allowed.

12.4. Updating firmware

The Xerox FS 5250 firmware (complete firmware) may be updated either via the twinax line or via Centronics input port.

For further information please contact your point of purchase.

13. PC Support Virtual Printer

In addition to its normal use in connection with a midrange computer, the interface may also be used as an ordinary PC printer by a PC equipped with a 5250 communication card and software. This facility is called the IBM PC Support Virtual Printer .

Printer data streams from a PC will be printed as requested on the printer connected to the Xerox FS 5250.

All necessary conversions are performed by the IBM PC Support software and the Xerox FS 5250.

This provides easy access to resources available through the Xerox FS 5250 such as fonts and overlays. It also facilitates the use of the printer connected to the Xerox FS 5250 as a printer for desk top publishing etc.

Please refer to:

IBM PC Support User Guides and Technical Reference for further information.

IBM System/36 PC Support User's Guide, SC21-9088

IBM System/38 PC Support User's Guide, SC21-9089

IBM AS/400 PC Support User's Guide, SC21-8092

14. Error Messages

Errors fall into two categories: the operator-recoverable errors and the non-recoverable hardware errors.

The error messages listed below are all printed on paper when the error situation arises (provided the printer is on-line).

You correct the errors from the host system in accordance with the error messages given.

14.1. Recoverable Errors

The error messages are listed in alphabetical order below.

BARCODE IS DISABLED
ESCAPE SEQUENCE ERROR
NOT NUMBER

ESC X IS WRONG

ESCAPE SEQUENCE ERROR

ESCAPE SEQUENCE ERROR
NUMERICAL OVERFLOW

ESCAPE SEQUENCE ERROR
CREATE TRANSLATE TABLE
OUT OF RANGE. MAX 8' 13

ESCAPE SEQUENCE ERROR
NO TRANSLATE TABLE
CREATED

ESCAPE SEQUENCE ERROR
NO TRANSLATE TABLE
APL
CREATED

ESCAPE SEQUENCE ERROR
TRANSLATE TABLE LOAD
CHARACTER IS OUT OF RANGE
VALIDATION VALUE IN NVRAM IS WRONG
VALUES ARE NOW OVERWRITTEN WITH FACTORY
DEFAULTS
ESCAPE SEQUENCE ERROR
ILLEGAL SEPARATOR

FUNCTION (NO) IS NOT SUPPORTED
ESCAPE SEQUENCE ERROR
ESC Y

Hardware error in NVRAM

MULTISTRIKE STRING IS TOO LONG

Not in engineering mode

NVRAM VERIFICATION ERROR IN CELL

PARAMETER IS OUT OF RANGE

PASSWORD IS NOT ACTIVE

SYNTAX ERROR IN CALL. FUNC = (NO)

THE CONTENTS OF NVRAM HAS BEEN DAMAGED
VALUES ARE NOW OVERWRITTEN WITH FACTORY
DEFAULTS

There is no password

THE NVRAM IS ALREADY LOCKED, PASSWORD IS IGNORED

THE PASSWORD TO OPEN NVRAM AREA IS WRONG

THE PASSWORD IS TOO LONG

THE SELECTED BARCODE IS NOT SUPPORTED

The NVRAM[11] is locked

The dynamic area is locked

The checksum in the NVRAM is wrong

11 NVRAM = Non-volatile RAM (permanent memory)

THERE IS NO SPACE LEFT
IN THE DYNAMIC AREA

THE USER ADDRESS STRING IS TOO LONG

TERMINATOR NOT ACCEPTED
ESC Z IS WRONG

Validation value in NVRAM is wrong

YOU CANNOT LOCK THE NVRAM
BEFORE YOU HAVE PROGRAMMED IT

14.2. Non-Recoverable Hardware Errors

The following recovery attempt can be made:

- Turn power **OFF** for 10 seconds and then **ON** again. If the problem persists, seek technical assistance.

CODE	ERROR TYPE	CODE DESCRIPTION
5002	HARDWARE ERROR	Hardware ERROR in NVRAM
5005	NVRAM ERROR	NVRAM verification ERROR in cell
6001	HARDWARE ERROR	check sum ERROR
7001	HARDWARE ERROR	Main processor RAM ERROR
8001	HARDWARE ERROR	Line interface RAM error
8002	HARDWARE ERROR	Wrong data in selftest
8003	HARDWARE ERROR	Wrong word in selftest
8004	HARDWARE ERROR	Response missing from TWINAX interface
8005	HARDWARE ERROR	Wrong interrupt from TWINAX interface
8006	HARDWARE ERROR	No test response from TWINAX interface
8007	HARDWARE ERROR	Invalid test response from TWINAX interface
8010	HARDWARE ERROR	Nothing received in self-test

Appendix A: Supported Setup Functions

XES Mode

No.	*Description*
Y2	LPI
Y3	CPI
Y8	LU1 Language
Y10	Page Format
Y11	Paper Path
Y12	Paper Size
Y15	Baud Rate for Serial Input
Y16	Number of Data Bits for Serial Input
Y17	Parity for Serial Input
Y18	Number of Stop Bits for Serial Input
Y19	Duplex Printing
Y24	Output Port Selection
Y36	Suppress IBM Control Codes
Y37	IBM Printer Emulation Select
Y48	Permanent Escape Character Selection
Y51	User Defined String(s) at Power Up
Y61	Setup for User Defined Strings
Y62	Setup for IBM Defined Strings
Y70	Select Data Output Character Set
Y73	Select Translate Table
Y74	Printer Symbol Set Definition Strings
Y75	Overwrite Translate Table
Y88	Physical Margin
Y89	Physical Margin Compensation
Y90	Define User Escape String
Y96	Font Change Simulation
Y97	GFID/Font Selection
Y98	Automatic Page Orientation
Y100	Printer Share String and Timer
Y120	Settings Printout at Power Up
Y249	Enter Engineering Mode
T	Initiate Test
	T1 On-line Hex Dump
	T3 ASCII Hex Dump
	T4 Settings Printout
	T5 Printout Translate Table
	T6 Cancel ASCII Hex Dump

No.	***Description***
X	Save/Overwrite Settings
	X1 Store Settings in Permanent Memory
	X3 Restore Factory Default Settings
	X4 Restore Settings from Permanent Memory
Z	Send User String
S	Send User String
P	Program Flash Prom

ESC Transparency Features:

ESC	Special transparent feature (single paired HEX transparent)
ESC ESC	Special transparent feature (multiple paired HEX transparent)
%%-%%	Pass-through mode (filter mode)
%%+%%	Normal mode (non-filter mode)

For details on the escape transparency features, you are referred to the description in the Programmer's Guide, doc. no. D62081.

PCL Mode

No.	*Description*
Y2	LPI
Y3	CPI
Y8	LU1 Language
Y10	Page Format
Y11	Paper Path
Y12	Paper Size
Y15	Baud Rate for Serial Input
Y16	Number of Data Bits for Serial Input
Y17	Parity for Serial Input
Y18	Number of Stop Bits for Serial Input
Y19	Duplex Printing
Y21	Horizontal Compression and Vertical Scaling
Y22	Printer Driver Selection
Y24	Output Port Selection
Y36	Suppress SCS Controls
Y37	IBM Printer Emulation Select
Y48	Permanent Escape Character Selection
Y51	User Defined String(s) at Power Up
Y59	Bar Code Type Definition
Y61	Setup for User Defined Strings
Y62	Setup for IBM Defined Strings
Y73	Select Translate Table
Y74	Printer Symbol Set Definition Strings
Y75	Overwrite Translate Table
Y88	Physical Margin
Y89	Physical Margin Compensation
Y90	Define User Escape String
Y91	Font Definition
Y92	Font Point Size Definition String
Y93	Font Attribute Definition String
Y94	Font Typeface Definition String
Y96	Font Change Simulation
Y97	GFID/Font Selection
Y98	Automatic Page Orientation
Y100	Printer Share String and Timer
Y119	Auto-Configuration Select
Y120	Settings Printout at Power Up
Y249	Enter Engineering Mode
T	Initiate Test
	T1 On-line Hex Dump
	T3 ASCII Hex Dump
	T4 Settings Printout

No.	***Description***
	T5 Printout Translate Table
	T6 Cancel ASCII Hex Dump
X	Save/Overwrite Settings
	X1 Store Settings in Permanent Memory
	X3 Restore Factory Default Settings
	X4 Restore Settings from Permanent Memory
Z	Send User String
S	Send User String
W	Send Bar Code (as defined in Y59)
P	Program Flash Prom

ESC Features:

ESC ESC	Special transparent feature (multiple paired HEX transparent)
ESC	Special transparent feature (single paired HEX transparent)

Quick Reference Guide to the Supported FSL Functions

In this section the supported FSL Functions in twinax will only be described with their syntax and parameters.

The notation below will apply to the following FSL Functions table:

%	is the defined escape character
*	factory default
< >	mandatory parameter which must be defined
[ ]	optional parameter which can be defined

For a detailed description of how to program the Xerox FS 5250, you are to consult the electronic Programmer's Guide:

Laser 5250, Programmer's Guide
Doc. no. D62081.

No.	Name	Syntax	Parameters	Deviations
2	LPI	%Y2,<n1>%	0 = No LPI sent to printer 3 = 3 LPI 4 = 4 LPI *6 = 6 LPI 8 = 8 LPI	PCL: N/S
3	CPI	%Y3,<n1>%	5 = 5 CPI *10 = 10 CPI 12 = 12 CPI 15 = 15 CPI 16 = 16.7 CPI	
8	Language	%Y8,<n1>% **NOTE:Factory default depends on your initial order.**	37 = Engl. US EBCDIC 256 = International 273 = Austrian/ German 274 = Belgian 275 = Brazilian 276 = Canadian French 277 = Danish/ Norwegian 278 = Finnish/ Swedish 280 = Italian 281 = Japanese (Latin) 282 = Portuguese 283 = Spanish 284 = Spanish Speaking 285 = English (UK) 297 = French 500 = Multinational 871 = Iceland	PCL N/S PCL: N/S
10	Page Format	%Y10,<n1>[,n2]%	**n1** 0 = Portrait 1 = Landscape *2 = COR 82 = COR regardless of Print Quality **n2** 1 = Tractor 2 = Tray 1 3 = Drawer 2 4 = Manual feeder 5 = Envelope feeder 6 = Tray 3 7 = Tray 4	
11	Paper Path	%Y11,<n1>%	1 = Tractor *2 = Tray 1 3 = Drawer 2 4 = Manual feeder 5 = Envelope feeder 6 = Tray 3 7 = Tray 4	

No.	Name	Syntax	Parameters	Deviations
12	Paper Size	%Y12, <n1>[,n2,n3]% **NOTE:Factory default depends on your initial order**	**n1 (Physical paper size)** 1 = A4 2 = Legal *3 = Letter 4 = Executive 5 = Letter (Monarch) 6 = Business 7 = International DL 8 = International C5 9= B5(182mmx257mm) 10 = A3 11 = Ledger 99 = Use system SPPS or SHF/SVS values **n2 (Tray)** 1 = Tractor 2 = Tray 1 3 = Tray 2 4 = Manual feeder 5 = Envelope feeder 6 = Tray 3 **n3 (Validation paper size)** 1 = A4 2 = Legal *3 = Letter 4 = Executive 5 = Letter(Monarch) 6 = Business 7 = Internat. 8 = Internat.C5 9 = B5 10 = A3 11 = Ledger 12 = A5 13 = B4 14 = Half Letter 15 = Comm 9 Envel. 16 = B5 Envelope 17 = Us Legal 13"	 XES:N/S XES:N/S XES: N/S XES: N/S XES: N/S PCL: N/S PCL: N/S PCL: N/S PCL: N/S XES: N/S XES: N/S PCL: N/S

No.	Name	Syntax	Parameters	
15	Baud Rate for RS232 interface	%Y15,<n1>%	**n1** 0 = 300 baud 1 = 600 baud 2 = 1200 baud 3 = 2400 baud 4 = 4800 baud *5 = 9600 baud 6 = 19200 baud	
16	Number of Data Bits	%Y16,<n1>%	**n1** 7 = 7 bits *8 = 8 bits	
17	Parity	%Y17,<n1>%	**n1** 0 = odd parity *1 = no parity 2 = even parity	
18	Number of Stop Bits	%Y18,<n1>%	**n1** *1 = 1 stop bit 2 = 2 stop bits	
19	Duplex Printing	%Y19,<n1>%	*0 = Simplex 1 = Long-edge duplex 2 = Short-edge duplex	
21	Horizon-tal Compres-sion & Vertical scaling	%Y21,<n1>[,n2,n3]%	**n1** 0 = Compression *1 = No compression **n2** 1 = Tractor - Tray 1 2 = Drawer 1 3 = Tray 2 4 = Manual feeder 5 = Envelope feeder 6 = Tray 3 7 = Tray 4 **n3** 1-255 = Vertical scaling in % *100	Y21: PCL only
22	Printer Driver Selection	%Y22,<n1>%	2 = HP PCL 4 *4 = HP PCL 5	Y22: PCL only
24	Port Direction	%Y24,<n1>%	*0 = Input 1 = Output	

No.	Name	Syntax	Parameters	
36	Ignore IBM Control Codes	%Y36, <n1>%	*0 = Honour IBM Control Codes 1 = Suppress IBM Control Codes 2 = Suppress IBM Multibyte Control Codes 3 = Suppress IBM Multibyte Control Codes 4 = Suppress IBM Multibyte Controls and FF 5 = Suppress IBM Multibyte with bold offset implemented 6 = XDPE Support	XES & PCL XES & PCL XES only XES only XES only XES only PCL only
37	IBM Printer Emulation Select	%Y37,n1,<n2>%	**n1** emulation *3812 5224 5225 5256 4234 4245 *IPDS **n2** secondary address 0-6 **NOTE**: See the section on "Emulation" for details.	Y37: PCL only **NOTE**: Unlike the other FSL functions you must physical-ly **write** the desired emulation

No.	Name	Syntax	Parameters	
48	Permanent Escape Character Selection	%Y48,'<n1>'% or: %Y48,<n1>% ---------- %Y48, <n1>[;n2;n3]%	'<n1>' = value can be entered by means of an apostrophe notation or: = HEX value of the character selected from the table ---------- **n1** permanent esc. char **n2** lead-in **n3** lead-out (n2 and n3 can have up to 5 char. each) For in-depth description of the lead-in/lead-out sequency, see the section "Pass-Through Mode".	**PCL** **XES** supports the lead-in/lead-out transpa-rency strings

No.	Name	Syntax	Parameters	
51	User-Defined String(s) at Power-Up	%Y51,<n1>%	0-7 = One or more strings stated in the form: (n1),(n2) ,....(nx) in ascending order The strings must be pre-defined in FSL 61	
59	Bar Code Type Defini-tion	%Y59,<n1>,<n2>, <n3>,<n4>[,n5]%	**n1** Numeric value from 1-8 specifying the bar code no. **n2** 22-39 = Bar code type **n3** Bar code height in inches with values from 1-255 **n4** Horizontal expansion with values from 1-16 **n5** Optional GFID number	Y59: PCL only
61	Setup for User Strings	%Y61,<n1>,<n2>%	**n1** 0-99 = User Strings supported **n2** 00-FF = Hexadecimal string data	
62	Setup for IBM defined strings	%Y62,n,<string>%	**n** string id number (0-255) **string** string contents in HEX and/or char. with apostrophe notation	For in-depth info on Y62 refer to Program-mer's Guide, D62081
70	Transla-tion Mode	%Y70,<n1>%	**n1** 0 = EBCDIX Pass through *1 = ISO 6937 (XDPM) 2 = XPPM See the section **"Output Data"** for details on Y70. In addition, refer to Programmer's Guide Doc. no. D62081	Y70: XES only

No.	Name	Syntax	Parameters	Deviations
73	Select Translate Table	%Y73,<n1>[,n2]% ---------- %Y73,<n1>%	**n1 (Translate Table)** *1 = Roman-8 2 = IBM PC-8 3 = ECMA Latin 1 5 = US ASCII 6 = OCR A 7 = OCR B 8 = PC 850 **n2 (Symbol Set)** *1 = Roman-8 2 = IBM PC-8 3 = ECMA Latin 1 5 = US ASCII 6 = OCR A 7 = OCR B 8 = PC 850 ---------- *1-9 = Number of the translate table to be selected	**PCL** **XES**
74	Printer Symbol Set Defini-tion Strings	%Y74,<n1>,<n2>%	**n1** 1-8 = Symbol set no. **n2** 00-FF = String contents in HEX apostrophe notation	

No.	Name	Syntax	Parameters	Deviations
75	User Defined Translate Table	%Y75, <n1>,<n2>,<n3>%	**n1 (EBCDIC)** 40-FF = corresponds to position in translate table **n2 (Symbol Set)** 00 = no change 01-08 = printer symbol set string no. as specified in Y74 **n3 (ISO - in HEX)** 00-FF = up to 16 bytes can be used	XES = ISO PCL = ASCII
88	Physical Margins	%Y88,<n1>,<n2> [,n3]%	**n1** 0 - +/-32000 = Horizontal margin compensation in 1/1440" **n2** 0 - +/-32000 = Vertical margin compensation in 1/1440" **n3** 0-2 = Orientation as defined in FSL 10	XES:*480 PCL:*-288 XES:*480 PCL:*-288
89	Physical Margin Compensa-tion	%Y89,<n1>[,n2]%	**n1** *0 = No compensation 1 = Compensation as defined in FSL 88 **n2** 1 = Tractor 2 = Tray 1 3 = Tray 2 4 = Manual feeder 5 = Envelope feeder 6 = Tray 3 7 = Tray 4	

No.	Name	Syntax	Parameters	
90	User Escape String Defini-tion	%Y90,<n1>,<n2>%	**n1** 0 = Erase strings 01-FF = Hexadecimal user Esc. string no. **n2** = String contents in apostrophe notation.	

No.	Name	Syntax	Parameters	Deviation
91	Font Definition	%Y90,<n1>,<n2>,<n3>,<n4>,<n5>[,n6]%	**n1 (IBM GFID)** 1-65535 = IBM GFID no. **n2 (Typeface)** 0-255 = Pre-programmed typeface value **n3 (Attribute)** 0 = Remove all current attributes 1 = Bold 2 = Italic 3 = Bold and Italic 4 = Proportional 5 = Prop. Bold 6 = Prop. Italic 7 = Prop. Bold and Italic **n4 (Symbol Set)** *1 = Roman-8 2 = IBM PC-8 3 = ECMA Latin 1 5 = US ASCII 6 = OCR A 7 = OCR B 8 = PC 850 **n5 (Point Size)** 1-255 = Point size **n6 (Translate Table)** *1 = Roman-8 2 = IBM PC-8 3 = ECMA Latin 1 5 = US ASCII 6 = OCR A 7 = OCR B 8 = PC 850	Y91:PCL only
92	Font Point Size Definition String	%Y92,<n1>,<n2>%	**n1** 10-255 = String no in decimal **n2** 00-FF = String contents in HEX	Y92: PCL only

No.	Name	Syntax	Parameters	
93	Font Attribute Defini-tion String	%Y93,<n1>,<n2>%	**n1** 10-255 = String no in decimal **n2** 00-FF = String contents in HEX	Y93: PCL only
94	Font Typeface Defini-tion String	%Y93,<n1>,<n2>%	**n1** 10-255 = String no in decimal **n2** 00-FF = String contents in HEX	Y94: PCL only
96	Font Change Simula-tion	%Y96,<n1>%	1-65535 = GFID no.	
97	GFID/Font Selection	%Y97, n1>,<n2>:<n3>%	**n1** 1-65535 = GFID No. **n2** <string> = String for 0° rotation **n3** <string> = String for 90° rotation	
98	Automatic Page Orienta-tion (APO)	%Y98,<n1>[,n2]%	**n1** *0 = Activate APO 1 = Deactivate APO **n2** 1 = Tractor 2 = Tray 1 3 = Tray 2 4 = Manual feeder 5 = Envelope feeder 6 = Tray 3	

No.	Name	Syntax	Parameters	Deviation
100	Port Sharing Option	%Y100,<n1>[,n2]%	**n1** 0-255 = Timeout in seconds *20 **n2** 00-FF = Optional string in HEX to be sent to printer before transmission of data when printer is selected by sharing unit	
119	Auto-configu-ration Select	%Y119,<n1>%	*0 = Disable auto-configuration 2 = Enable auto-configuration	Y119: PCL only
120	Settings printout at power up	%Y120,n1%	**n1** *0= disable settings printout at power up 1= enable settings printout at power up	
249	Enter Engineering Mode	%Y249,n1%	**n1** password (contact your point of purchase)	

No.	Name	Syntax	Parameters	Deviation
T	Initiate Tests	%T#	1= On-line hex dump 3= ASCII hex dump 4= settings printout 5= printout translate table 6= cancel ASCII hex dump	
X	Save/ Overwrite Settings	%X#	1= store RAM in NVRAM 3= factory default to RAM 4= restore settings to power up defaults	
S	Send User String	%Sn%	1-99 user strings may be sent	
Z	Send User String	%Zn	1-8 user strings can be sent	
W	Bar Code Printing	%W,<n1>,<n2>%	**n1** 1-8 Bar Code definition no. as defined in Y59 **n2** a-z,A-A,0-9 Numeric or alphanumeric data to be printed in bar code. Data must not exceed one line.	PCL only

Appendix B: Test Printout

XES

```
Xerox FS 5250 XES
Firmware version: 140.002  /00971002

Boot id: 80023102
Current escape code = 00 in hexadecimal as Character = ' '
Dipswitch:              National character set = Multinational
Switch:                 Device address = 00
Function  2:            Default LPI   6
Function  3:            Default CPI  10
Function  8:            Default Codepage Multinational
Function 10:            Default orientation = COR
Function 11:            Default paperpath Drawer 1
Function 12:            Papersize A4
Function 15:            Baudrate: 9600
Function 16:            Databits: 8
Function 17:            Parity: None
Function 18:            Stopbits: 1
Function 24:            Output Source: 0
Function 36:            Suppress SCS Controls: 0
Function 40:            AHPP method: 10
Function 48:            Permanent escape code: None
Function 51:            User strings at power on: None
Function 61:            Userstrings: None
Function 62:            Setup strings: None
Function 70:            Mode: 1
Function 73:            Translate table: 1
Function 74:            Symbol set def.: None
Function 88:            Physical margins: +0,-480 +0,-480 +0,.-480
Function 89:            Physical margin comp. = OFF
Function 90:            User Esc. strings: None
Function 97:            User GFID /font selection:
Function 98:            Orientation select = Automatic
Function 100:           IBM mode definition: Timeout 20 sec.
                        Centronic input definition: Timeout: 20 sec.
                        RS232 input definition: Timeout 20 sec
Function 120:           Settings printout at Power up = Off
Free bytes:             1892
Emulation of model 3812 model 1
Unprintable Character Option is Ignore
Substitute Character in hexadecimal = 60
Left margin in 1/1400"  = 0
Indent margin in 1/1400"= 0
Paper width in 1/1400"  = 19008
Paper depth in !/1400"  = 15840
Top margin in 1/1400"   = 240
Line distance in 1/1400"= 240
Maximum print line      = 66
```

PCL

```
Xerox FS 5250 PCL
Firmware version: S20 140.002  /00970002

Boot id: 80023102 HW id:
Current escape code = 00 in hexadecimal as Character = ' '
Dipswitch:              National character set = Multinational
Line Set Up :           Addr.  0    3812 model 1.
Function  2:            Default LPI   6
Function  3:            Default CPI  10
Function  8:            Default Codepage Multinational
Function 10:            Default orientation = COR
Function 11:            Default paperpath Drawer 1 destination 2
Function 12:            Papersize A4
Function 15:            Baudrate: 9600
Function 16:            Databits: 8
Function 17:            Parity: None
Function 18:            Stopbits: 1
Function 21:            Horizontal compression = off line spacing 100%
Function 22:            Print driver: PCL 5
Function 24:            Output Source = 0
Function 36:            Suppress SCS Controls: 0
Function 48:            Permanent escape code: None
Function 51:            User strings at power on: None
Function 59:            Barcode definitions: None
Function 61:            Userstrings: None
Function 62:            Setup strings: None
Function 73:            Translate table: 1 Roman 8
Function 74:            Symbol set def.: None
Function 88:            Physical margins: -288,-480 -288,-480 -288,-480
Function 89:            Physical margin comp. = OFF
Function 90:            User Esc. strings: None
Function 91:            User defined font translation table: None
Function 92:            Point size strings: None
Function 93:            Attribute strings: None
Function 94:            Typeface strings: None
Function 97:            User GFID /font selection:
Function 98:            Orientation select = Automatic
Function 100:           IBM mode definition: Timeout 20 sec.
                        Centronic input definition: Timeout: 20 sec.
                        RS232 input definition: Timeout 20 sec
Function 119:           Autoconfiguration = 0
Function 120:           Settings printout at Power up = Off
Free bytes:             1861
Substitute Character in hexadecimal = 60
Left margin in 1/1400"  = 0
Indent margin in 1/1400"= 0
Right margin in 1/1400" = 19008
Paper width in 1/1400"  = 19008
Paper depth in !/1400"  = 15840
Top margin in 1/1400"   = 174
Line distance in 1/1400"= 240
Maximum print line      = 66
```

Appendix C: Use of Xerox FS 5250 Serial Port (Out)

The following connections are available in the serial plug:

pin 1: N.C.
pin 2: RX data
pin 3: TX data
pin 4: DTR
pin 5: GND (signal)
pin 6: DSR (busy)
pin 7: RTS (always high)
pin 8: N.C.
pin 9: N.C.

Appendix D: Related Manuals

For details on how to program the Xerox FS 5250, kindly refer to this manual:

Laser 5250, Programmer's Guide
Document no. D62081

The Xerox FS 5250 supports IPDS module. For information on IPDS functionality, you are referred to:

IPDS, Programmer's Guide
Document no. D60253

As the Xerox FS 5250 emulates the IBM 3812 printer in IBM 5219 emulation, useful information may be obtained from:

IBM 5219 Printer, Models DO1/DO2, Programmer's Reference Guide
IBM Order no. GA 23-1025

Using the IBM Page printer 3812 with an IBM System /36 or System /38, refer to:
IBM Order no. S544-3343

AS/400 Device Configuration Guide, refer to:
IBM Order no. SC21-8106

Index

A
attributes, 55
C
control units, 10
COR, 42
D
Default GFID table, 50
duplex, 66
  binding option, 67
  landscape printing, 67
  portrait printing, 67
  selecting, 66
duplex printing, considerations, 66
E
emulation, 14
  via address switch, 16
error messages, 79
  non-recoverable hardware, 81
  recoverable, 79
ESC Character, defining, 72
escape character, 39; 41; 49
F
Firmware updating, 77
fonts
  change command, PCL, 48
  change command, XES, 58
  defining,PCL, 53
  defining,XES, 60
  definition, PCL, 53
  selecting , PCL, 48
  selecting,XES, 58
  size, PCL, 55
front panel, 25
FSL 100
  Defining Timeout, 73
FSL functions, 82; 84
G
GFID value, 49; 59
H
host system, 29
I
IBM PC Support Virtual Printer, 78
Indicator LEDs
  PAR, 25
  READY, 26
  SER, 26
  SYNC, 25
Installation
  pre-inst. requirements
    EU/US settings, 12
    national language, 11
  requirements, 8
internal fonts, 53; 58; 60
L
lead-in/lead-out sequences, 35
P
page format, 42
paper size
  changing, 38
  command, 39
  options, 39
PARALLEL IN, 13
PARALLEL OUT, 13
pass-through mode, 33
permanent escape character, 30
permanent memory, 30
pre-installation requirements, 11
print jobs, 72
printable character, 29
Printer sharing, 24; 72
  commands from PC, 75
  commands from system, 74
product features, 9
Q
Quick Reference Guide, 86
R
Rear Panel
  PARALLEL IN, 13
  PARALLEL OUT, 13
remove temporary escape char., 29
S
Scalable fonts, 52
select paper trays, 41
selecting duplex, PCL, 68
settings printout (sample), 101
shareport
  activating Y249, 76
  deactivating Y249, 77
  programming via, 76
Side Panel
  ADDRESS SWITCH, 14
  TWINAX CONNECTOR, 14
start string/stop string, 35
symbol sets, 54
T
temporary escape character, 30
temporary memory, 30
testing
  via address switch, 23
  via function T, 23
timeout, 24
Timeout, specifying 72
translate table, 55
transparency mode, 33
  limitations, 35
trays, 38
X
XDPM, 70
  XDPM EBCDIC, 70
  XDPM ISO, 70
XPPM, 70