

NAME

GSI300 – GSI300 (DTC300 or DASI300) hard-copy terminals

DESCRIPTION

The GSI300 is a useful general-purpose terminal, often used in document production, although it is being supplanted by the newer DASI450 (DIABLO 1620 or XEROX 1700). The advantages of this terminal include its wide variety of features, availability of many type fonts, high print quality, and ease of changing the print element and ribbon.

The terminal can produce output at 10 or 12 characters to the inch horizontally, allowing total line widths of 132 and 158 characters, respectively. Vertical spacing can be set to 6 or 8 lines per inch. Both of these settings are under the exclusive control of the PITCH switch (see below). Using *plot mode*, the print mechanism may be spaced in horizontal increments of 1/60 inch, and vertical increments of 1/48 inch. Combined with forward and reverse motions, *plot mode* can be used to produce subscripts, superscripts, reverse line motion, Greek letters, and graphs. Output filters may be necessary for these functions: see *gsi(I)* and *graph(I)*. To use the plot mode, the PLOT switch must be ON (see below); once that switch is on, plot mode is entered or left by control sequences that can be generated dynamically, from the terminal or remotely (see COMMON PROBLEMS below).

COMMANDS TO ISSUE AFTER LOGIN**tabs; stty nl0 cr2**

This makes sure that tab stops are set. It also sets terminal delays appropriate for most output, especially that containing many contiguous blank lines. At this setting, it takes about 49 seconds per page of C program, and 84 seconds per page of *nroff(I)* output (UNIX manual page). Some types of output may not print properly at this setting. Usable settings and their approximate relative time ratios are as follows:

| | |
|---------|------|
| nl0 cr2 | 1.00 |
| nl0 cr1 | 1.03 |
| nl0 cr3 | 1.08 |
| nl2 cr2 | 1.10 |
| nl2 cr3 | 1.17 |

For output with many blank lines, the **cr2** and **cr3** settings seem to work best; **nl2 cr3** is the safest choice for printing many consecutive lines of blankless text.

NORMAL SWITCH SETTINGS

Switches are inside the terminal cover, just above the keyboard. From left to right, they should be set as follows:

PARITY – EVEN

CODE – ASCII (if switch can be moved; it is a dummy on many terminals)

PLOT – ON (if present: some older terminals don't have one)

DUPLEX – FULL (if acoustic coupler is used, it should also be set to FULL)

BAUD – 300 (i.e., 30 characters per second)

PITCH – 10 (or 12: see below)

AUTO L.F. – OFF

At the lower left side of the keyboard, the LINE half of the LINE/LOCAL switch must be lit.

The PITCH switch controls both vertical and horizontal spacing in a coupled fashion. In 10-pitch mode, output is printed 10 characters/inch horizontally, 6 lines/inch vertically, so that a character is 6 plot increments wide, and 8 (vertical) plot increments high. This mode permits about 65 characters per line, 66 lines/page on normal 8 1/2" by 11" paper. This output size is compatible with many other terminals, and is expected as a default by many UNIX commands, such as *nroff(I)* and *pr(I)*. For normal output, the following are appropriate:

nroff -h -T300 file... or nroff -h files... | gsi

In 12-pitch mode, output is printed 12 characters/inch, 8 lines/inch, so that a character is 5 increments wide and only 6 high. This mode allows about 80 characters/line, 88 lines/page on the same size paper. Text printed 8 lines/inch appears almost unreadable, but this mode is a useful paper-saver for dumping files for reference. For example, use:

pr -l88 file...

to produce condensed listings.

The 12-pitch, 6 lines/inch combination is considered by many to be the most attractive output format. It is obtained by setting the PITCH switch to 12, the PLOT switch ON, and using:

nroff -h -T300-12 file... or nroff -h file... | gsi +12

SPECIAL CHARACTERS AND STATES

The interrupt signal can be generated by hitting either the DEL or BREAK key; the latter is usually more convenient, being independent of the SHIFT key. At any point in time, a terminal is either in *plot mode* or *character mode*, and the interpretation of some characters differs according to mode. If the PLOT switch is ON, the BEL character (octal 006, CONTROL "g" on terminal) changes the mode to *character mode*, and the ACK character (octal 007, CONTROL "f" on terminal) changes the mode from the current mode to the other one. If the PLOT switch is OFF, the terminal is always in *character mode*. In *plot mode*, it is possible to space a single increment in each direction. Useful motion characters include the following:

SP (space, octal 040) – 1/60" right

BS (backspace, octal 010) – 1/60" left

LF (line feed, octal 012) – 1/48" forward

VT (reverse line feed for this terminal, octal 013) – 1/48" backwards

COMMON PROBLEMS

OUTPUT GENERATED IN ONE POSITION, OVERPRINTING – you may accidentally have gotten into **plot mode**. Hold CONTROL down while hitting "g", producing a BEL character to leave that mode.

GARBAGE OUTPUT, WITH WILD SKIPPING – a GSI may go berserk when faced with many very long lines, long sequences of non-blank, non-identical characters requiring extreme print wheel motion, or heavy amounts of tabbing. The GSI's microprocessor exceeds its 128-character buffer and becomes very confused. Remove some tab characters, use the *gsi* command's delay option, or increase terminal delays via *stty*.

PRINT HEAD ZOOMS TO RIGHT SIDE OF CARRIAGE – tab stops are not set. Set them with the *tabs* command.

POOR REGISTRATION AFTER REVERSE PLATEN MOTION – this is most likely to occur when using a forms tractor to perform reverse line feeds or half-line motions. Some (but not all) forms tractors have just enough slack in their mechanism that it is difficult to return exactly to the position you want. For best appearance of such text, or of Greek letters, take the forms tractor off, and use the friction feed instead. This

problem is very dependent on the individual terminal.

NO LINE FEED OCCURS WHEN RETURN HIT; NO SYSTEM RESPONSE TO RETURN – you are in a mode where there is no conversion of RETURN to CR-LF echoed to your terminal. There are two situations. First, either the terminal or coupler switch may be set to HALF-DUPLEX, and you may have asked to suppress echoing because you were getting double characters. Change the switches to FULL-DUPLEX, and issue a **stty echo** command. The second case is that a **stty nl** command has been done, or some equivalent action, such as using LINE FEED rather than RETURN during your login sequence. Issue the command **stty -nl**, but terminate it with a LINE FEED, not a RETURN. This will restore the terminal to the normal state, allowing convenient use of RETURN again.

FAULT LIGHT ON, OTHER PECULIAR BEHAVIOR – push the RESET button found under the right side of the cover. This resets the microprocessor, gets out of plot mode, clears all tabs, and returns the carriage. Then issue *tabs* command to reset the tabs.

IDIOSYNCRASIES

A GSI can perform a high-speed skip when it receives a series of LF characters without other characters intermixed. Unfortunately, a newline is normally a CR-LF pair, and the terminal does not know that it is at the left margin, so that it does sequences of these pairs about 3 times slower than it needs to. As a result, the only way to assure high-speed skipping is to write code to convert a sequence of newlines into a single CR, followed by a sequence of LF's. PWB/UNIX does this under *stty* modes **nl0 cr2** and **nl0 cr3**.

SEE ALSO

gsi(I), graph(I), stty(I), tabs(I), terminals(VII)