

PM8151 DIGITAL PLOTTER

9499 430 09011

830630

1. PROGRAMMING

FUNCTION	ISO 7-BIT CODE	DESCRIPTION
PEN COMMANDS:		
PEN UP	H	Lifts pen, if down.
PEN DOWN	I	Lowers pen at current position
SELECT PEN	F[1 ... 8]	Returns pen in use and selects one of 8 pens.
DEPOSIT PEN	F \emptyset	Returns pen in use to its allotted depot.
VECTOR COMMANDS:		
RECEIVE COORDINATES	/	Instructs plotter to store numeric values as coordinates (abs. or relative) for further treatment. Syntax [X]/Y or X/[Y] alternatively.
MOVE ABSOLUTE	[H] K	Pen is directed to chosen point at maximum speed.
MOVE RELATIVE	[H] J	Pen is directed to a point chosen relative to current position at maximum speed.
PLOT ABSOLUTE	[I] K	Pen plots line to a point with absolute coordinates as defined by last REC. COORDINATES instruction.



PHILIPS

FUNCTION	ISO 7-BIT CODE	DESCRIPTION
PLOT RELATIVE	[I] J	Line plotted from current position (X_C , Y_C) to final position (X_f , Y_f) determined by the last REC. COORDINATES (X, Y), where $X_f = Y_C + X$ and $Y_f = Y_C + Y$.
DEFINE LINE TYPE	L[n [I]]	Selects line type and shape, l = length (any valid no. to 255) n = 0 solid line n = 1 dotted line n = 2 dashed line n = 3 dashed-dashed line n = 4 dashed-dotted line
CHARACTER COMMANDS:		
DEFINE SIZE DIRECTION	Z [h [d [w]]]	Selects character height, direction and width incl. spacing.
DEFINE CHARACTER SLANT	% [n]	Slants char. at 75° for n = 1 Normal 90° plotting for n = 0
DEFINE CHARACTER SET	# [n]	Selects character set: n = 0 standard ASCII n = 1 German n = 2 Spanish n = 3 Swedish, Finnish n = 4 Danish, Norwegian
CHARACTER PLOT ENABLE	B	Initiates character plotting Treats all character after B as data.
NEXT LINE	<u>LF</u>	Moves pen to the left margin (current position before B) and one line down.
HORIZONTALLY TABULATE	<u>HT</u> n	Character plotting starts on receipt of byte after the command string, n characters from left margin of text. (n can be either + or -).
VERTICALLY TABULATE	<u>VT</u> n	Character plotting starts on receipt of byte after this instruction, n lines from the upper margin, (n can be either - (tab. up) or + (tab. down)).
CHARACTER PLOT DISABLE	<u>CR</u>	Terminates character plotting. Following characters treated as instructions.

FUNCTION	ISO 7-BIT CODE	DESCRIPTION
PLOT POINT MARK	M [n]	Draws one of five special graphic characters with current pen position as centre. n = 0 \square n = 1 \triangle programmable for n = 2 \times height, width, n = 3 + angle and slant. n = 4 Y
CIRCLE AND AXES COMMANDS:		
PLOT ARCS	[I] O r [a [b]]	For drawing arcs starting at current pen position. R = radius a = starting angle b = final angle
PLOT CIRCLES	[I] O r	For drawing circles of radius r starting at current pen position.
X-AXIS	X[[d[t ₁ [t ₂]]]]	Lowers pen and draws X axis where: l = length, d = dist, between ticks t ₁ = length of 1st. tick t ₂ = length of 2nd. tick
Y-AXIS	Y[[d[t ₁ [t ₂]]]]	Lowers pen and draws Y axis
WINDOW COMMANDS:		
DEFINE WINDOW	W	Sets graphic limits for window plotting: X _{min} , X _{max} , Y _{min} , Y _{max} . All coordinates outside these limits treated as offscale data.
VERIFY WINDOW	V	Plots frame as defined by graphic limits (see DEFINE WINDOW) ending in PEN UP status at previous point.
OFFSET	N [xy]	Shifts plotter coordinates by the amount given by parameter X and Y.
INCREMENT COMMAND:		
INCREMENT ENABLE	D	Initiates incremental mode, small sizes (Group 1).
	T	Initiates incremental mode, large sizes (Group 2). (byte string must be closed by <u>CR</u>)
DIGITIZE COMMANDS:		
DIGITIZE INTERACTIVELY	?	For point digitizing with user interaction.
DIGITIZE IMMEDIATELY	!	For point digitizing without user interaction.

FUNCTION	ISO 7-BIT CODE	DESCRIPTION
OPTION COMMANDS:		
CHART ADVANCE	U n	For paper advance by multiples of 1 cm (n = 1 ... 64)
SPECIAL CHARACTER PLOT ENABLE	R	Plotting user specified characters.
SPECIAL COMMANDS FOR V24 INTERFACE:		
PLOTTER ON	<u>SOH</u> P	Turns plotter on logically to enable command string execution.
PLOTTER OFF	<u>ETX</u>	Turns plotter off logically.
REQUEST BUFFER STATUS	<u>DC1</u>	If no SET I/O PARAMETERS included in user program, gets plotter output on buffer filling state on request.
SET I/O PARAMETERS	&	ASCII characters for plotter input and output. Optional parameters in consecutive order: BUFR Request Buffer Status TRIG Output Trigger Character TURN Turn Around Delay OuTT2 2nd Output Terminator OuTT1 1st Output Terminator BS1E Buffer Empty Status Char. BS1F Buffer Full Status Char. BS2E Buffer Empty Status Char. BS2F Buffer Full Status Char.
SPECIAL COMMANDS FOR IEC-BUS INTERFACE:		
SERVICE REQUEST MASK	S [n]	Sets mask for Service Request. Each bit set to "1" enables the corresponding status register bit to generate the interface message SRQ. (n = 0 .. 63)
PARALLEL POLL MASK	P [n]	Sets mask for Parallel Poll Response. Each bit set to "1" enables the corresponding status register bit to generate the local message "ist". P without parameter resets mask to zero. (n = 0 ... 63)

2. SETTINGS

Settings V 24 (Rs232C) interface.

S1: OFF = Plotter acts as Terminal

TS = Plotter is switched in Timesharing configuration.

S2: Baudrate selection

S3:



V24
ODD
7 DAT
1 STO
PAR
—

V24
Odd parity
7 Data bits
1 Stopbit
Parity yes
—



Current loop
Even parity
8 Data bits
2 Stopbits
Parity no
—

S4:



OFF
—
ROA

KAUT
DADR

I/O parameters initialised in
MODEM conf.
CTS cont. "HIGH"
—

Aut. buffer message disabled
Continuously addressed



I/O parameters initialised in
TERMINAL conf.
CTS controlled by buffer contents
—

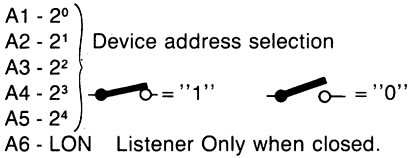
Enables output of data also when
logically switched off.
Aut buffer message enabled.
Not continuously addressed

P.C.B.

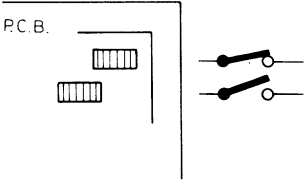
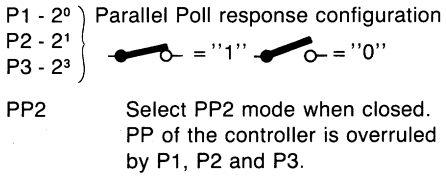


Settings IEC/IEEE interface

S1



S2



Initialised values I/O parameters V24 (RS232C) interface

CONFIGURATION

PARAMETER	MEANING	MODEM	TERMINAL
BUFR	Request Buffer Status Character	17DC1	NONE
TRIG	Output Trigger Character	NONE	NONE
TURN	Turn Around Delay	10	10
OUTT2	2nd Output Terminator	10LF	10LF
OUTT1	1st Output Terminator	13CR	13CR
BS1E	Automatic Buffer Status Character; Buffer empty	13CR	17DC1
BS1F	Automatic Buffer Status Character; Buffer full	26SUB	19DC3
BS2E	Buffer Status Character on request; Buffer empty	01SOH	01SOH <i>Note: BUFR = 0</i>
BS2F	Buffer Status Character on request; Buffer full	26SUB	26SUB

3. OUTPUT DATA

Output data V24 (RS232C) interface

COÖRDINATES AT DIGITISING

Char. no	1	2 3 4 5 6	7	8 9 10 11 12	13 14
Data	- SP	DIGITS	- SP	DIGITS	TERM.1 TERM.2

BUFFERSTATUS

Char. no	1	2	3
Data	Buffer Status	Term.1	Term.2

Note: Buffer status, Term.1 and Term 2 depends on I/O parameters.

Output data IEC/IEEE interface

COÖRDINATES AT DIGITISING

Char. no	1	2 3 4 5 6	7	8 9 10 11 12	13	14 and EOI
Data	- SP	DIGITS	- SP	DIGITS	<u>CR</u>	<u>LF</u> ^END

DEVICE STATUS DATA

bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
not used	RQS	FO	BE	BH	DA	BL	Ø

RQS = Request for service

FO = Format Overflow

BE = Buffer Empty

BH = Buffer High >600 bytes

DA = Data Available

BL = Buffer Low >100 bytes