APPLICATION		REVISIONS				
NEXT ASSY	USED ON	REV	DESCRIPTION		DATE	APPROVED
		A	PRODUCTION RELEASE/SEE E.O. 38802		2-24-05	Bffo

MANUAL

SHEET 0 — THIS SHEET
SHEET 1 — FEATURES
SHEET 2 — GENERAL SPECIFICATIONS & ASSEMBLY AND INSTALLATION
SHEET 3 — EXPLODED ASSY VIEW & PARTS REFERENCE
SHEET 4 — ASSY INSTRUCTIONS
SHEET 5 — CASH DRAWER MOUNTING CONFIGURATIONS
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SHEET 8 — CHARACTER FONTS
SHEET 9 — KIT NUMBERING SCHEME

REV STATUS OF SHEETS	REV	A	A	A	A	A	A	A	A	A	A								
	SHEET	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCE ARE : FRACTIONS DECIMALS ANGLES ± .XX± ± .XXX± DO NOT SCALE DRAWING	CONTRACT NO.		**IEE** INDUSTRIAL ELECTRONIC ENGINEERS, INC. VAN NUYS, CALIFORNIA		
	APPROVALS	DATE	TITLE	MANUAL, PDK—UP05—0XX0XX INSTALLATION & OPERATING INSTRUCTIONS	
TREATMENT	DRAWN D. MCCOY	02—10—05			
FINISH	CHECKED O'Estrela	2-23-05	SIZE A	CAGE CODE 05464	DWG NO. PDK—UP05—INOPML	REV A
	ISSUED Bffo	2-24-05			
			SCALE —	PROJ NO. 468	SHEET 0 OF 9

IEE FILE: ASIZE1.DWG

PDK-UP05-0XX0XX* VF POS Pole Display Kit
INSTALLATION and OPERATING INSTRUCTIONS

Key Features:

- **Vacuum Fluorescent (VF) display - 2 line x 20 character 9mm 5x7 dot matrix - with contrast enhancing filter, USB 1.1 interface, plugs in direct to USB port through IEE cable 90068-60.**
- **IEE's extensive command and control set.**
- **Eight selectable character fonts, block cursor, dimming control and selective blinking.**
- **Display module housed in a compact, impact resistant enclosure with four-position tilt-recline and 330° swivel adjustment. Pole and mounting base kit are included.**
- **Display certified to the requirements of UL, CE, and FCC Part 15, Class A.**

(* Refer to Page 9 for exact configuration of your kit).

Table of Contents:

PRODUCT SUPPORT

For information not found in these Instructions, please contact IEE's Sales Application Engineering Department:

Industrial Electronic Engineers, Inc.
7740 Lemona Avenue
Van Nuys, California 91409-9234 USA

Phone:	**(800) 422-0867 or (818) 787-0311**
Fax:	**(818) 901-9046**
E-mail:	**mail@ieeinc.com**

PDK-UP05-INOPML
February 10, 2005

GENERAL SPECIFICATIONS

Interface:

• **Power:**	Supply voltage	5 0 Vdc ±5% from USB Port	• **Pin Assignments:**		
	Supply current @5 Vdc	420 ma (max)	**(Host)**		**USB**
• **Caution:**	Start cycle	The display is not ready to accept data until 1.2 seconds after application of power.	USB +5V USB- USB+ GND	1 2 3 4	USB +5V USB- USB+ GND
• **Signal:**	USB 1.0 or 1 1 Input Levels	12 Mb Max 0 to +5V			

Environmental:

- **Operating Temperature:**   0 to +70 °C (+32 to +158 °F)

- **Storage Temperature:**   -20 to +70 °C (-4 to +158 °F)

- **Relative Humidity:**   0 to 95% (non-condensing)

ASSEMBLY and INSTALLATION

Overview

To achieve the greatest mounting and cabling flexibility available in a POS pole display system, This kit provides a USB cable with Type-A and Type-B connectors. Type-B is secured by using the tie in the display module Type-A is routed through the pole from the bottom to the Host USB Port. This allows easy connect and disconnect of the display module.
Pages 3, 4 and 5 provide information on the assembly and installation/attachment of the pole display. Details are provided for attaching the pole to a variety of bases, kits, surfaces and organizers.
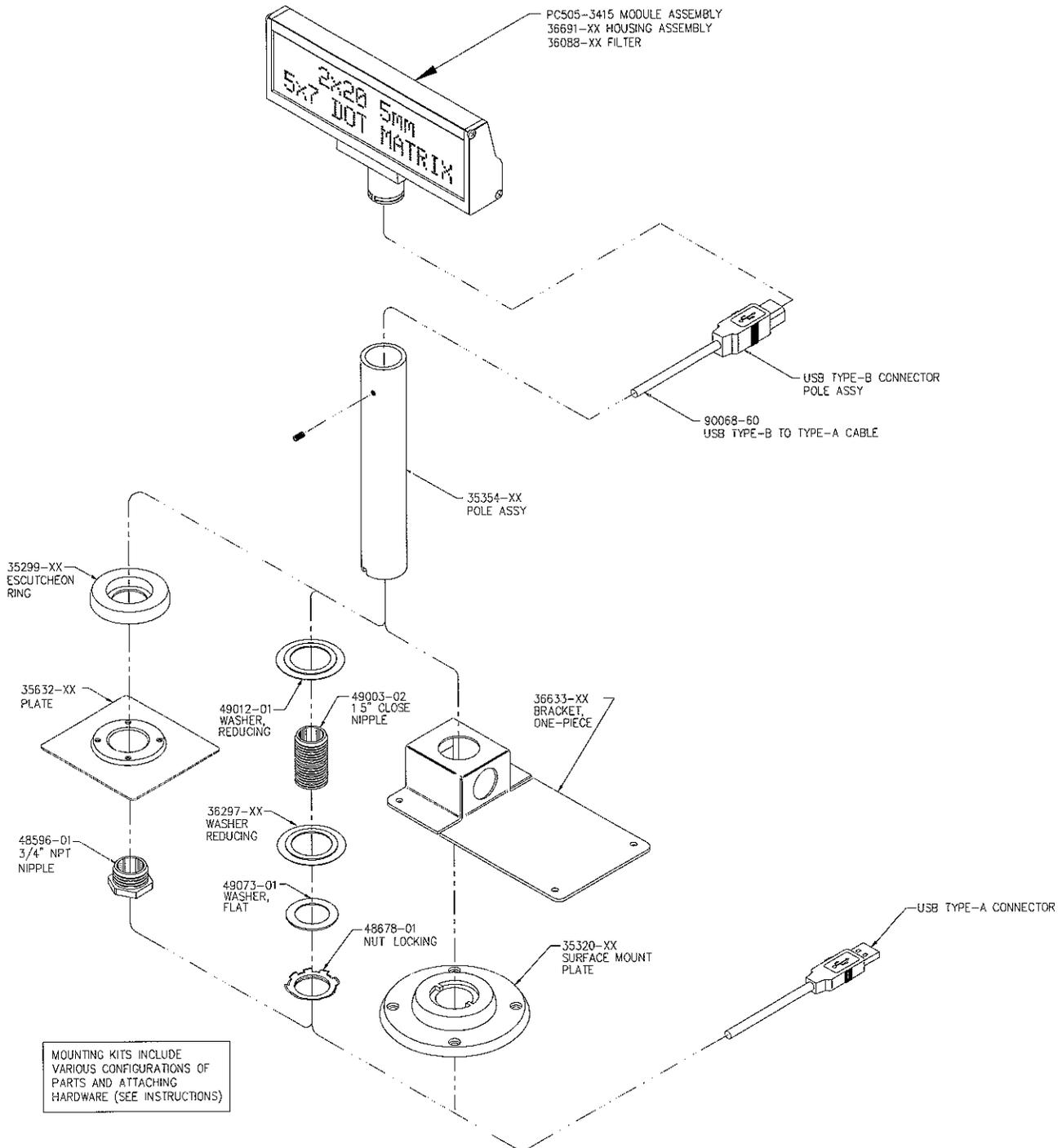
Installation Instructions:

Perform these electrical installation steps after, or as a part of, the attachment instructions appropriate for the specific mechanical installation
1. With system power on, connect the USB Type-A connector to the appropriate port on the host system.
2. Your Windows program will detect new hardware and search for a driver.
3. Insert the supplied diskette into your machine and click the "Have Disk" button. (or you can download the drivers from the IEE website)
4 After the driver loads, a blinking cursor should appear in the left-most position on the top line The POS display is now ready for operation using the commands and codes provided on pages 6, 7 and 8

EXPLODED ASSEMBLY VIEW and PARTS REFERENCE

PDK-UP05-0XX0XX
POS POLE DISPLAY DISTRIBUTOR KIT
TYPE 3C POD USBA INTERFACE

PC505-3415 MODULE ASSEMBLY
36691-XX HOUSING ASSEMBLY
36088-XX FILTER

2x20
5x7 DOT MATRIX 5mm

USB TYPE-B CONNECTOR
POLE ASSY

90068-60
USB TYPE-B TO TYPE-A CABLE

35354-XX
POLE ASSY

35299-XX
ESCUTCHEON
RING

35632-XX
PLATE

49012-01
WASHER,
REDUCING

49003-02
1.5" CLOSE
NIPPLE

36633-XX
BRACKET,
ONE-PIECE

36297-XX
WASHER
REDUCING

48596-01
3/4" NPT
NIPPLE

49073-01
WASHER,
FLAT

48678-01
NUT LOCKING

35320-XX
SURFACE MOUNT
PLATE

USB TYPE-A CONNECTOR

MOUNTING KITS INCLUDE
VARIOUS CONFIGURATIONS OF
PARTS AND ATTACHING
HARDWARE (SEE INSTRUCTIONS)

3
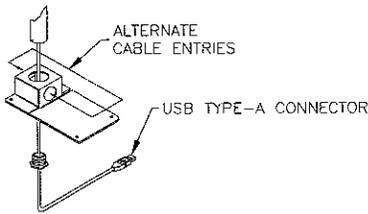
ASSEMBLY INSTRUCTIONS

Mounting Kits:

- **35360-0X SURFACE MOUNTING KIT (standard)**
  - (1) 35320-XX SURFACE MOUNT PLATE
  - (1) 48596-01 CONDUIT NIPPLE
- **35697-0X BASE KIT, HEAVY METAL**
  - (1) 35632-XX PLATE, MULTI-PURPOSE
  - (1) 35299-XX ESCUTCHEON RING
  - (1) 48596-01 CONDUIT NIPPLE
- **36231-0X ICD POLE KIT**
  - (1) 36297-XX WASHER, REDUCING
  - (1) 49003-02 CLOSE NIPPLE
  - (1) 49012-01 WASHER, REDUCING
  - (1) 48678-01 LOCKNUT

- **36631-99 APG BRACKET KIT**
  - (1) 36630-99 BRACKET, POLE
  - (1) 48596-01 CONDUIT NIPPLE
  - (2) 48989-02 #8-32 PAN HD. SCREW LOCKWASHER
  - (2) 43311-04 #8-32 NUT HEX
- **36632-0X MS CASH KIT**
  - (1) 36297-0X WASHER, REDUCING
  - (1) 49073-01 WASHER, FLAT
  - (1) 48596-01 CONDUIT NIPPLE
- **36634-0X MOUNTING KIT, SHEET METAL BASE**
  - (1) 36633-XX BASE, SHEET METAL
  - (1) 48596-01 CONDUIT NIPPLE
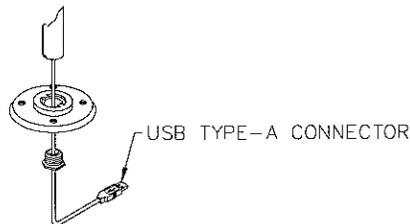 - (4) 48765-10 #8-18 PAN HEAD SCREW , THD. FORMING

Surface Mount and Freestanding Configurations:

Mounting Kit, Sheet Metal

Thread the TYPE-A connector through a hole in the mounting surface or one of the two side openings in the bracket and then through the conduit nipple. Thread the connector through the bracket top hole and into the threaded end of the pole, continue to feed the cables in until the connector emerges from the pole, and pull out some slack Holding the conduit nipple in place screw the pole down snugly onto the bracket. The sheet metal base can be freestanding, mounted with 48765-10 screws or slid under the cash register etc
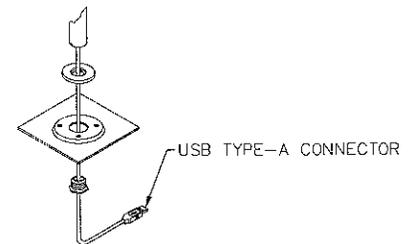

ALTERNATE CABLE ENTRIES

USB TYPE-A CONNECTOR

Surface Mount Plate

USB TYPE-A CONNECTOR

Thread the TYPE-A connector through a hole in the mounting surface and conduit nipple. or breakout one of the tabs in the surface mount plate (use wide, square jaw pliers) and route the cable through the conduit nipple. Thread the cable through the surface mount plate and pole Holding the pole in the plate, tighten the conduit nipple into the pole Attach the mounting plate to the surface, being careful to route the cables through the breakout tab if applicable

Base Kit, Heavy Metal

Thread the TYPE-A connector through a hole in the mounting surface and conduit nipple or just through the conduit nipple Thread the cable through the base, escutcheon ring and pole. Pull some cable slack through, push the nipple into the recess in the base, put the pole in place in the escutcheon ring and tighten it onto the nipple threads until snug
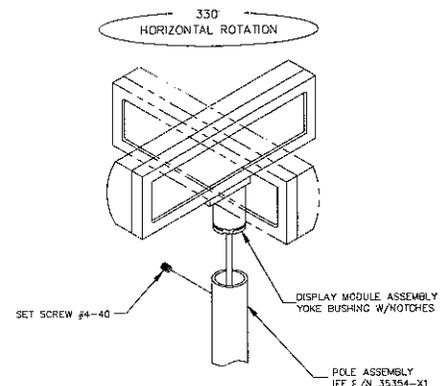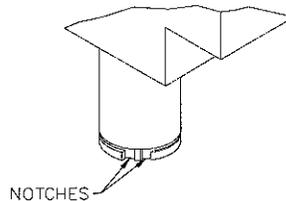

USB TYPE-A CONNECTOR

Display Module and Pole Assembly:

The display module is attached to the pole assembly by inserting the display yoke into the pole at the end closest to the set screw, and then rotating the display.

1. Push the cable slack back into the pole
2. Insert the display module partially into the pole and align the set screw with one of the two notches on the yoke bushing.
3. Push the yoke bushing completely into the pole, then rotate the module on the pole as desired.
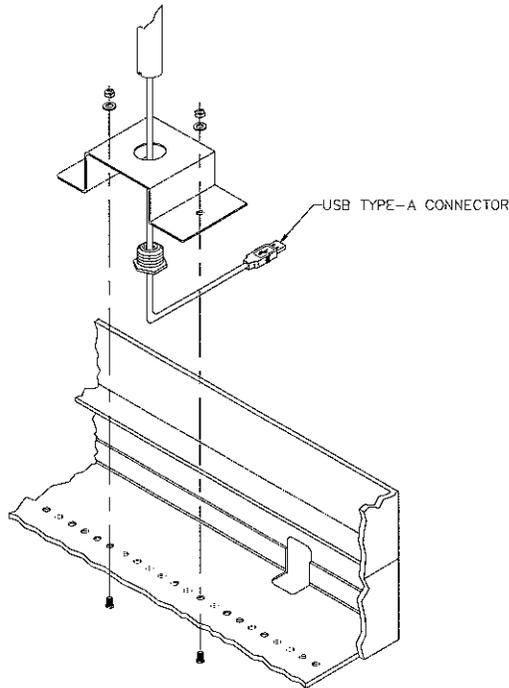
TO REMOVE THE MODULE:

Rotate the module in either direction until the set screw touches the stop on the yoke, then pull the module straight out from the pole and the module can be disconnected by unplugging the Type-A connectors from the Host USB port

NOTCHES

330° HORIZONTAL ROTATION

DISPLAY MODULE ASSEMBLY YOKE BUSHING W/NOTCHES
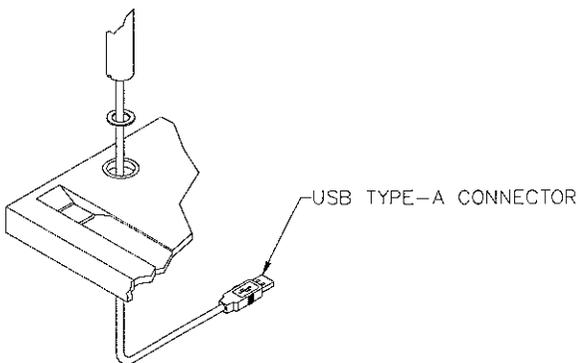
SET SCREW #4-40

POLE ASSEMBLY IEE P/N 35354-X1

• APG CASH DRAWER

Thread the Type-A connector through the conduit nipple, bracket and pole, pulling out some slack Hold the nipple in place and tighten the pole down onto the bracket. Mount the assembly (through the partner) in the selected position along the row of mounting holes at the rear of the drawer using the hardware as shown

• INDIANA CASH DRAWER

Remove the mounting bracket on the underside of the shoe Tighten the close nipple into the pole Thread the Type-A connector through the locknut, metal washer, shoe, painted washer and pole. Put the pole on the painted washer and tighten it in place with the locknut

• MS CASH DRAWER

Remove the clamp assembly from the mounting bracket on the underside of the POS deck Thread the Type-A connector through conduit nipple, small washer, POS deck, painted washer and pole, pulling out some slack Slide the small washer under the edges of the spotwelded bracket at the underside surface of the POS deck. Hold the nipple in place through the washer and tighten the pole onto the nipple, over the painted washer, to secure the pole in place.
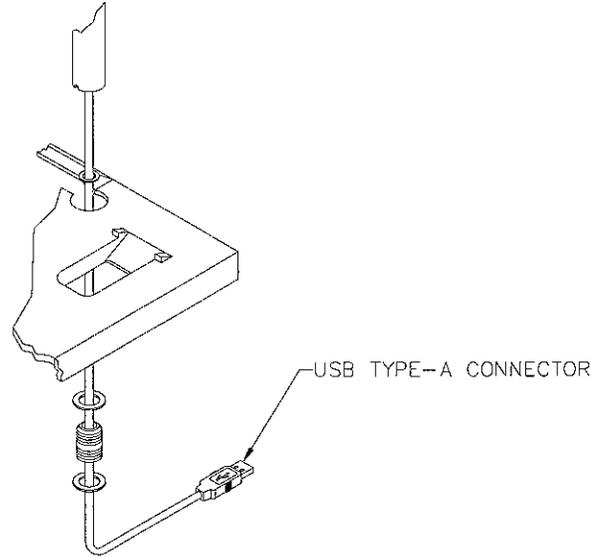
• MMF CASH DRAWER

Loosen the U-clamp nuts on the pole mounting bracket in the POS platform system. Thread the Type-A connector through the POS platform, eccentric washer and pole. Seat the pole in the bracket to full depth and tighten the U-clamp nuts to secure the assembly in place
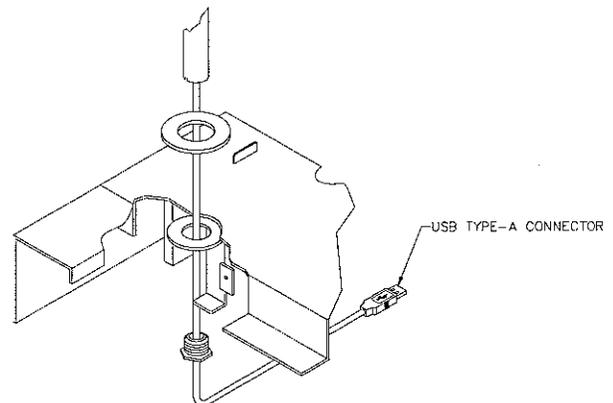
OPERATION

Numeric Order Control Codes:

NOTE: CARE SHOULD BE TAKEN NOT TO SEND UNDEFINED
CONTROL OR COMMAND CODES TO THE POS DISPLAY AS
THIS MAY CAUSE A MALFUNCTION OF THE MODULE.

01h   READ THE CHARACTER CAPACITY OF THE DISPLAY
(Display responds sending 28h)

02h   DISPLAY SOFTWARE CHECKSUM AND SOFTWARE NUMBER

03h   READ CURSOR LOCATION VALUE (display responds with one byte)
01-14(h) for line1, 21-34(h) for line2

04h   READ DATA AT CURRENT CURSOR LOCATION

06h   BEGIN BLINK FIELD AT CURRENT CURSOR LOCATION

07h   END BLINK FIELD AT CURRENT CURSOR LOCATION

08h   BACKSPACE CURSOR LOCATION ONE POSITION (except at HOME
position)

09h   ADVANCE CURSOR LOCATION ONE POSITION (cursor wraps to HOME
from bottom right position)

0Ah   LINE FEED (vertical scroll from bottom line; cursor position does not
change)

0Ch   CLEAR THE DISPLAY (cursor does not move)

0Dh   CARRIAGE RETURN (returns cursor to left-most position on the same
line)

0Eh   MAKE CURSOR INDICATOR (FLASHING BLOCK) INVISIBLE (cursor
location counter continues to function)

0Fh + MAKE CURSOR INDICATOR (FLASHING BLOCK) VISIBLE

<10h>   BOTTOM LINE DATA ENTRY WITH AUTOMATIC CARRIAGE RETURN
AND LINE FEED (moves cursor to left-most position on bottom line,
when line is filled a vertical scroll occurs and the cursor is moved back
to the left-most position on the bottom line)

<11h> + NORMAL DATA ENTRY WITH AUTOMATIC CARRIAGE RETURN AND
LINE   FEED (data enters from current cursor position, when bottom line is
filled a vertical scroll occurs and the cursor is re-positioned to the left-
most position on the bottom line)

<12h>   OVERWRITE OF RIGHT-MOST CHARACTER ON THE CURRENT LINE
(automatic Carriage Return is set to OFF)

<13h>   HORIZONTAL SCROLL MODE (characters move from right to left on
bottom line only, after line has been filled)

14h   RESET (sets display to DEFAULT configurations and clears User
Defined Character locations)

15h + DISPLAY CLEAR (moves cursor to left-most position on botto m line in
Mode 10h, and HOME in Modes 11h, 12h, 13h and 1Ah)

16h + CURSOR HOME (returns cursor to upper left most position)

19h   SET BIT SEVEN HIGH FOR NEXT BYTE ONLY

<1Ah>   WRAP AROUND DATA ENTRY (after the bottom right character is
entered the cursor is moved to the HOME position)

+ Display automatically defaults to these conditions after Power-up or RESET.
< > These instructions are mutually exclusive

1Bh   INITIATES FOLLOWING SEQUENCES:

1B-05-49   IEE SPECIFIC RESPONSE CODE (the following
message is sent to the host without regard for flow
control): D,2,IEE,38470,-01(CR) (18 BYTES)

1B-26-01-M-N   DOWNLOAD USER DEFINED CHARACTERS
M=Byte location to begin download (F8-FF)
N=Number of characters to be downloaded
Each character pattern is defined by 5 data bytes

1B-3D-N   N=01 The display is not selected. All data from the
host is not processed in the display
+ N=02 The display is selected. All data from the host
is processed in the display

1B-3F-N   DELETE DOWNLOADED CHARACTER LOCATION N
N=F8-FF

1B-40   TERMINATE SELF TEST (sets display to DEFAULT
configurations and clears all USER DEFINED
CHARACTER locations)

1B-74-N   SELECT CHARACTER SET
+ N=01, ASCII and General European
N=02 ASCII and Katakana
N=03, ASCII and Cyrillic
N=04, ASCII and Hebrew
N=05, ASCII and ISO 8859-1
N=06, ASCII and ISO 8859-2
N=07, ASCII and Greek

1D-05(h)   EPSON SPECIFIC RESPONSE CODE (display sends
05 to host)

1Fh   INITIATES FOLLOWING SEQUENCES:

1F-24-C-L   MOVE CURSOR TO C, Column 01-14(h)L, Line
01,02(h)

1F-40   EXECUTE SELF TEST (use 1B-40 to terminate self
test)

1F-45-T   SET ALL DISPLAY BLINK FIELDS TO AN
INTERVAL=T X 50msec. range of T=00h(OFF)-3Fh
duty cycle=50%

1F-58-N   SET BRIGHTNESS LEVEL, N=% of max brightness:
+ N=04(100%), N=03(60%), N=02(40%), N=01(20%)

1F-72-N   SELECT NORMAL/REVERSE DISPLAY MODE
+ N=00 (Normal) N=01 (Reverse)

User Defined Character Loading:

A maximum of eight characters may be created temporarily (until power-off or reset) by a user-defined downloaded character pattern. To do so, enter the following sequence of commands and data:

BYTE	DESCRIPTION
	CHARACTER DOT DATA
	CHARACTER MATRIX
1-3	Start load 1B-26-01 (HEX)
4	Location to begin download F8-FF (HEX)
5	Number of characters to download (01-08)
6-10	*Character dot data

BYTE #	DATA BIT							
	7	6	5	4	3	2	1	0
6	29	20	11	2	28	19	10	1
7	31	22	13	4	30	21	12	3
8	33	24	15	6	32	23	14	5
9	35	26	17	8	34	25	16	7
10	0	0	0	0	0	27	18	9

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25
26	27	28	29	30
31	32	33	34	35

* Repeat bytes 6-10 for number of characters to be downloaded

Example: To download a Greek letter Psi into character location F8.

1Bh	BYTE 1, start load	○●●●○
26h	BYTE 2, start load	○○●○○
01h	BYTE 3 start load	●○●○●
F8h	BYTE 4, location to begin download	●○●○●
01h	BYTE 5, download 1 character	○●●●○
78h	BYTE 6, dots 20, 11 2 28 ON	○○●○○
71h	BYTE 7 dots 22 13 4, 3, ON	○●●●○
Ech	BYTE 8, dots 33, 24, 15, 32, 23 ON	
1Ah	BYTE 9, dots 8, 34, 16 ON	
02h	BYTE 10 dot 18 ON	

CHARACTER FONTS

The **ASCII CHARACTER SET** is located in standard ASCII locations from 20 (HEX) to 7F (HEX)
The alternate character set is loaded into ASCII locations from 80 (HEX) to F7 (HEX).

ASCII CHARACTER SET - always available from non-volatile memory
EUROPEAN CHARACTER SET (Default setting) - loaded into RAM* at Power-up or Reset, can be re-loaded with command sequence 1B-74-01 (HEX).
KATAKANA CHARACTER SET - can be loaded into RAM* with command sequence 1B-74-02 (HEX).
CYRILLIC CHARACTER SET - can be loaded into RAM* with command sequence 1B-74-03 (HEX).
HEBREW CHARACTER SET - can be loaded into RAM* with command sequence 1B-74-04 (HEX).
ISO 8859-1 CHARACTER SET - can be loaded into RAM* with command sequence 1B-74-05 (HEX)
ISO 8859-2 CHARACTER SET - can be loaded into RAM* with command sequence 1B-74-06 (HEX)
GREEK CHARACTER SET - can be loaded into RAM* with command sequence 1B-74-07 (HEX)

* Pre-designated alterable character set location

STANDARD ASCII CHARACTER SET

GENERAL EUROPEAN CHARACTER SET
(Default Setting)

KATAKANA CHARACTER SET

CYRILLIC CHARACTER SET

CHARACTER FONTS

HEBREW CHARACTER SET

ISO 8859-1 CHARACTER SET

ISO 8859-2 CHARACTER SET

GREEK CHARACTER SET

8

KIT NUMBERING SCHEME

$$PDK-[UP05]-\ 0_1\quad X_2\quad X_3\quad 0_4\quad X_5\quad X_6$$

POLE POSITION
0 = CENTER/NO OPTION

HOUSING COLOR
W = WHITE (IEE IVORY GRAY)
B = JET BLACK

FILTER COLOR
A = AMBER
B = BLUE
G = GREEN
N = NEUTRAL GRAY
(DISPLAY APPEARS AQUA)

POLE LENGTH
0 = NOT PROVIDED
B = MINIMUM LENGTH (2 IN.)
S = SHORT (6 IN.)
D = MEDIUM SHORT (10 IN.)
M = MEDIUM (12 IN.)
L = LONG (18 IN.)
X = EXTRA LONG (22 IN.)

MOUNTING KIT
0 = NOT SUPPLIED
1 = MNTG KIT, UNIVERSAL
2 = MNTG KIT, HARD
3 = MNTG KIT, SHEET METAL
4 = BASE KIT, PASS THRU
5 = BASE KIT, HEAVY METAL
6 = SURFACE MOUNT KIT
A = MNTG KIT, APG BRACKET
I = MNTG KIT, ICD POLE
C = MNTG KIT, MS POLE

POWER SUPPLY
0 = NOT SUPPLIED

NOTE: THE SUB-SET **PDK -[UP05] -$0_1 X_2 X_3$** DEFINES THE DISPLAY ASSEMBLY IN THIS PDK KIT