APPLICATION		REVISIONS			
NEXT ASSY	USED ON	REV	DESCRIPTION	DATE	APPROVED
		A	PRODUCTION RELEASE/SEE E.O. 33431	12-16-97	L.D.HATCH
		B	SEE E.O. 34667	9-13-99	L.D.HATCH
		C	SEE E.O. 35345	9-20-01	

MANUAL

REV STATUS OF SHEETS																			
REV	C	C	B	B	B	B	B	B	B	C									
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 .XX± .XXX± ANGLES ±
DO NOT SCALE DRAWING

TREATMENT

FINISH

CONTRACT NO.

APPROVALS		DATE
DRAWN	ISIS WOLFE	12-12-97
CHECKED	D.SUMMERS	12-16-97
ISSUED	L.D.HATCH	12-16-97

INDUSTRIAL ELECTRONIC ENGINEERS, INC.
VAN NUYS, CALIFORNIA

TITLE MANUAL,
PDK-0003-XXXXXX
INSTALLATION & OPERATING INSTRUCTIONS

SIZE	CAGE CODE	DWG NO.	REV
A	05464	PDK-0003-INOPML	C

SCALE – | PROJ NO. 468 | SHEET 0 OF 9

IEE FILE: ASIZE1.DWG

DISPLAYS
KEYBOARDS
INTEGRATED PANELS

INDUSTRIAL ELECTRONIC ENGINEERS, INC. 7740 Lemona Ave., Van Nuys, CA 91409-9234, U.S.A. • Tel 818-787-0311

PDK-0003-XXXXXX* 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, EIA-232 interface, detachable DB-9F host interface/power supply cable and 24Vdc wall mount power supply.**
- **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, TUV 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-0003-INOPML
September 17, 2001

GENERAL SPECIFICATIONS

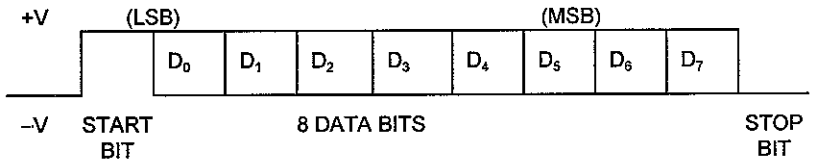
Interface:

• **Power:**	Supply voltage	11-29 Vdc
	Supply current @24 Vdc	213 ma (max)
	Supply risetime	100 milliseconds (max)
• **Caution:**	Supply sequencing	Rapid ON/OFF sequencing is not recommended.
	Start cycle	The display is not ready to accept data until 1.2 seconds after application of power
• **Signal:**	Serial EIA-232	9600 baud - 8 bits - no parity
	Serial input levels	+3V to +15V (space/logic 0) -3V to -15V (mark/ logic 1)

• **Pin Assignments:**

(Host)		DB-9F
COM	1	COM
RXD	2	TXD
TXD	3	RXD
DTR	4	DSR
SIG GND	5	SIG GND
DSR	6	DTR
N.A	7	N. C.
CTS	8	DTR
N.A.	9	N. C.

Data Format



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 cable break a few inches from the pod. The DIN8M on the module pigtail cable connects to the DIN8F on the Host/Power cable assembly after it has been installed and routed through the pole. This allows easy connect and disconnect of the display module.

The DIN8F should be routed through any holes, slots, etc. in the installation and mounting hardscape (organizers, hardware, mounting surfaces, mounting bases or kits) between the Host DB9 and Power Supply connections before it is routed through the pole, from the bottom (threaded end). The independent power supply cable provides additional flexibility in locating the wall mount power supply

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

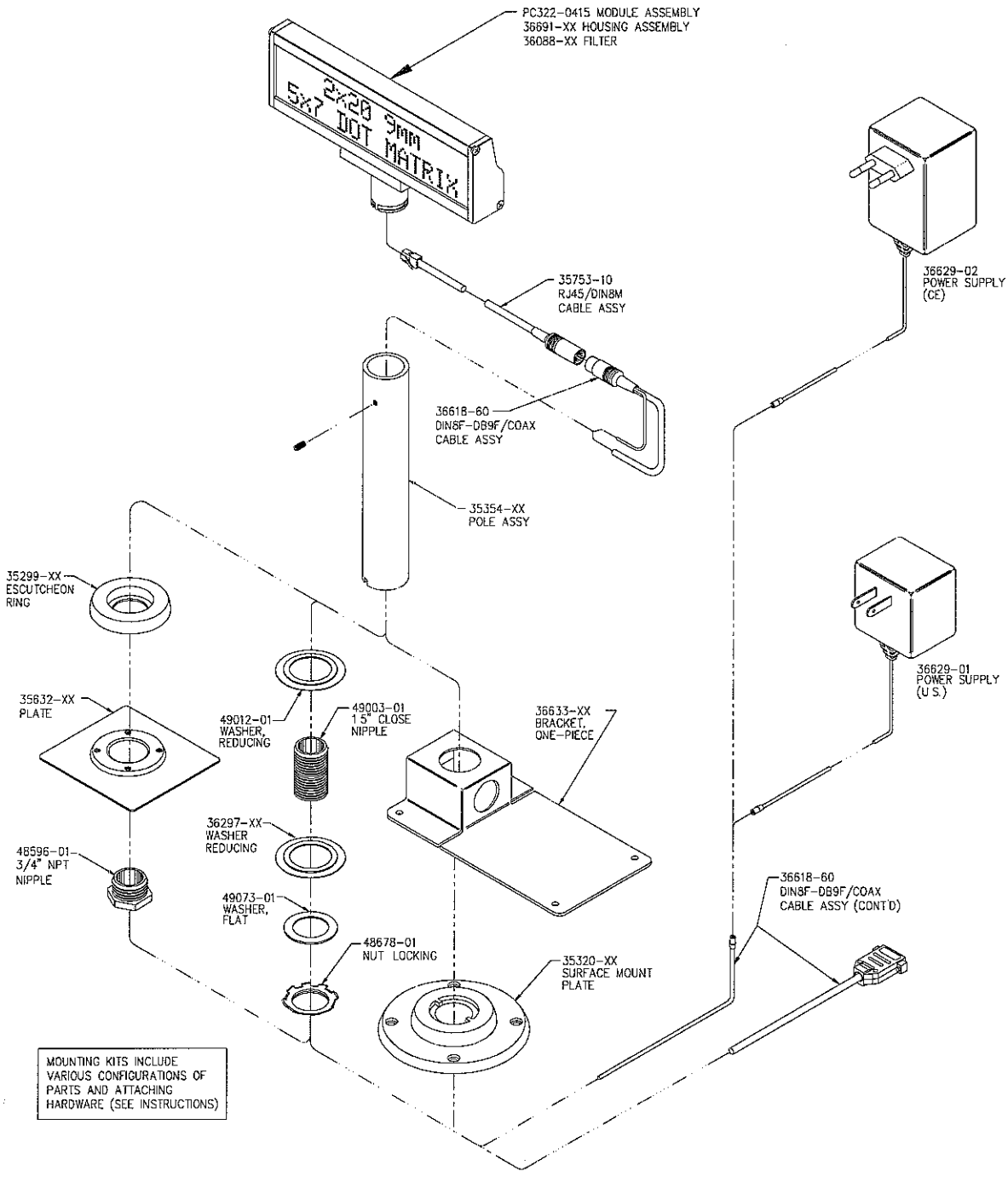
Installation Instructions:

Perform these electrical installation steps after, or as a part of the attachment instructions appropriate for the specific mechanical installation:

1. Connect the DB-9 (female) to the appropriate port on the host system
2. Plug the wall mount power supply into an appropriate AC outlet
3. 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-0003-XXXXXX
POS POLE DISPLAY DISTRIBUTOR KIT
TYPE 3C POD RS232 INTERFACE



ASSEMBLY INSTRUCTIONS

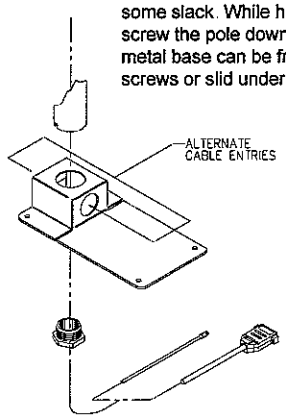
Mounting kits:

- **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) 49003-01 CLOSE NIPPLE
  - (1) 49012-01 WASHER, REDUCING
  - (1) 48678-01 LOCKNUT
- **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
- **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-XX WASHER, REDUCING
  - (1) 49073-01 WASHER, FLAT
  - (1) 48596-01 CONDUIT NIPPLE

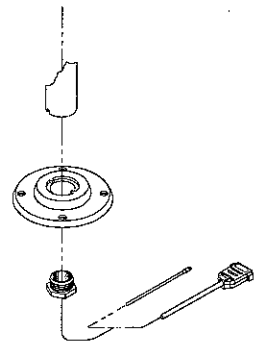
Surface Mount and Freestanding Configurations:

Mounting Kit, Sheet Metal

Thread the DIN8F 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. While 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



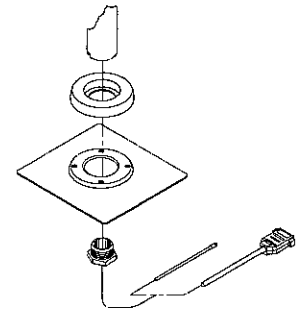
Surface Mount Plate



Thread the DIN8F 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

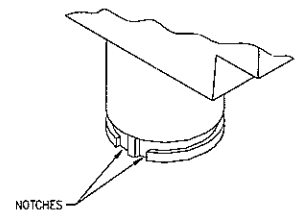
Thread the DIN8F connector through a hole in the mounting surface and conduit nipple or just through the conduit nipple. Thread the cable through the base, escutcheon ring and pole. Pull some cable slack through, push the nipple into the recess in the base. put the pole in place in the escutcheon ring and tighten it onto the nipple threads until snug



Display Module and Pole Assembly:

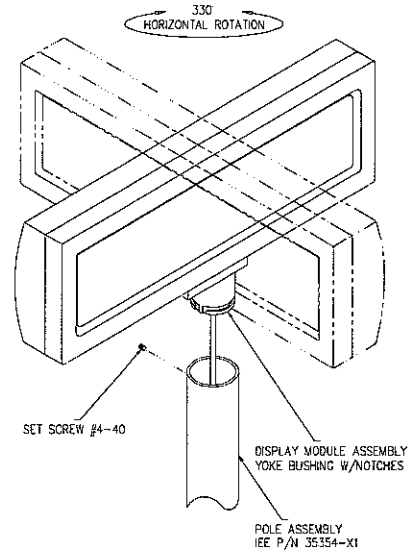
The display module is attached to the pole assembly by mating the DIN8 connectors, inserting the display yoke into the pole at the end closest to the set screw, and then rotating the display.

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:

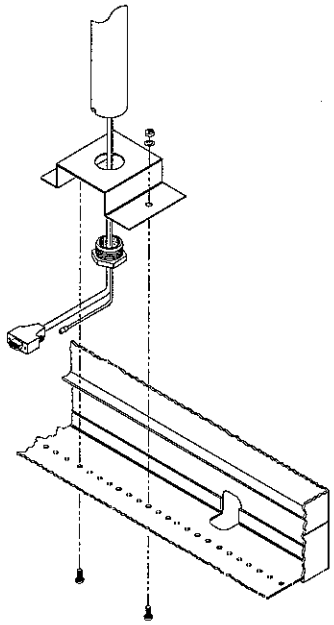
Rotate the module in either direction until the set screw touches the stop on the yoke, then pull the module straight out from the pole until the DIN8 connectors are exposed and the module can be disconnected.



CASH DRAWER MOUNTING CONFIGURATIONS

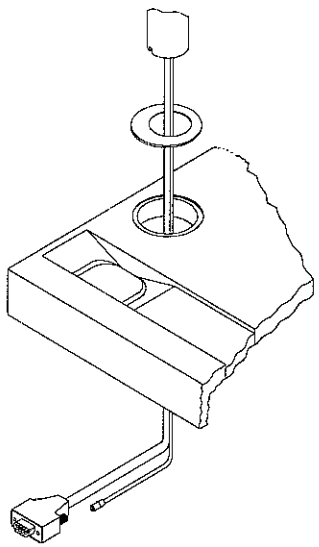
- **APG CASH DRAWER**

Thread the DIN8F 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.



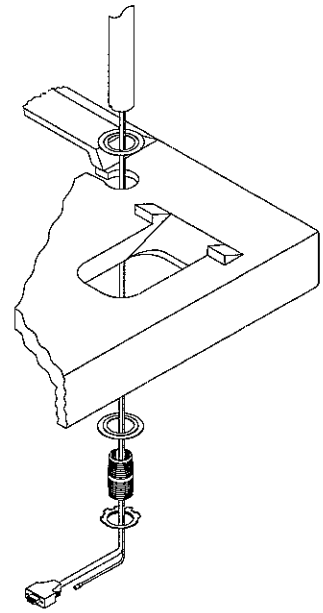
- **MMF CASH DRAWER**

Loosen the U-clamp nuts on the pole mounting bracket in the POS platform system. Thread the DIN8F 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



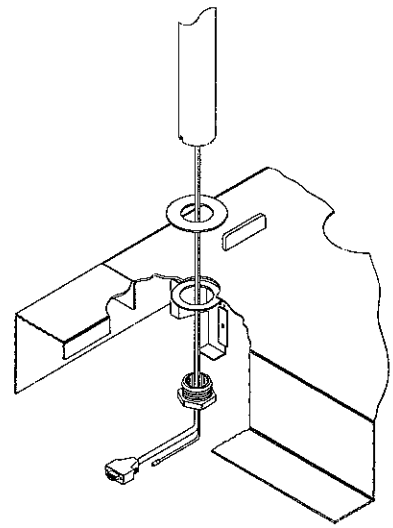
- **INDIANA CASH DRAWER**

Remove the mounting bracket on the underside of the shoe. Tighten the close nipple into the pole. Thread the DIN8F 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 DIN8F 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.



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 SOFIWARE 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 LOCAIION
06h BEGIN BLINK FIEID 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 LOCAIION 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) INVISIBIE (cursor location counter continues to function)
0Fh + MAKE CURSOR INDICATOR (FLASHING BLOCK) VISIBLE
<10h> BOTTOM LINE DATA ENIRY 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 ENIRY WITH AUTOMAIIC CARRIAGE REIURN AND IINE 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> OVERWRIIE OF RIGHT-MOST CHARACIER ON THE CURRENI IINE (automatic Carriage Return is set to OFF)
<13h> HORIZONIAI SCROLL MODE (characters move from right to left on bottom line only, after line has been filled)
14h RESET (sets display to DEFAUIT configurations and clears User Defined Character locations)
15h + DISPLAY CLEAR (moves cursor to left-most position on bottom 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 NEXI BYIE 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 INIIIAIES FOILOWING SEQUENCES:
1B-05-49 IEE SPECIFIC RESPONSE CODE (the following message is sent to the host without regard for flow control):
D,2,IEE,36378-01(CR) (18 BYIES)
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 LOCAIION N
N=F8-FF
1B-40 TERMINATE SEIF TEST (sets display to DEFAULI configurations and clears all USER DEFINED CHARACTER locations)
1B-74-N SEIECI CHARACTER SET
\+ N=01, ASCII and General European
N=02 ASCII and Katakana
N=03, ASCII and Cyrillic
N=04, ASCII and Hebraw
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 INIIIAIES FOILOWING SEQUENCES:
1F-24-C-I. MOVE CURSOR TO C, Column 01-14(h)
L, Line 01,02(h)
1F-40 EXECUTE SEIF TEST (use 1B-40 to terminate self test)
1F-45-T SET AII DISPIAY BIINK FIEIDS TO AN INTERVAL=
T X 50msec, range of T=00h(OFF)-3Fh, duty cycle=50%
1F-58-N SET BRIGHTNESS IEVEI, N=% of max brightness:
\+ N=04(100%), N=03(60%), N=02(40%), N=01(20%)
1F-72-N SEIECI NORMAL/REVERSE DISPIAY 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
1-3	Start load 1B-26-01 (HEX)
4 (HEX)	Location to begin download F8-FF
5 (01-08)	Number of characters to download
6-10	*Character dot data

CHARACTER DOT DAIA

	DATA BIT							
BYTE #	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

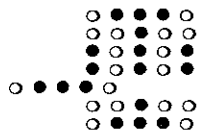
CHARACTER MAIRIX

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

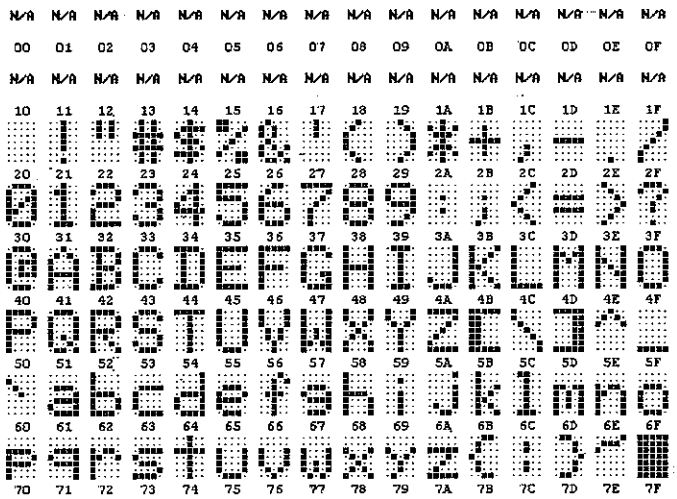


CHARACTER FONTS

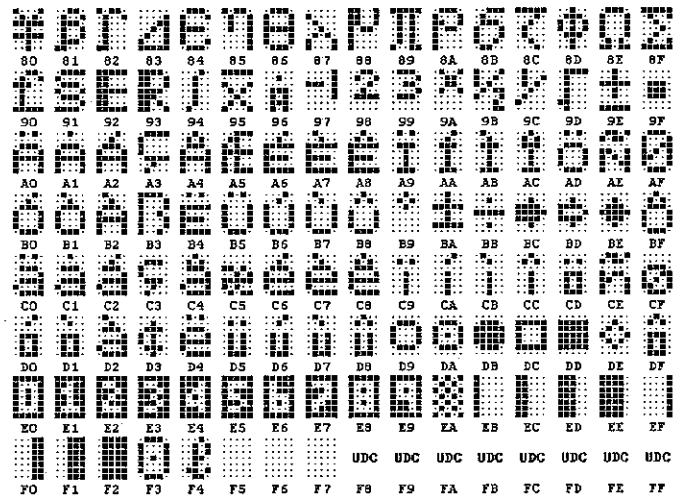
The **ASCII CHARACTER SET** is located in standard ASCII locations from 20 (HEX) to 7F (HEX).
The alternate character set is loaded into ASCII locations from 80 (HEX) to F7 (HEX).

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)

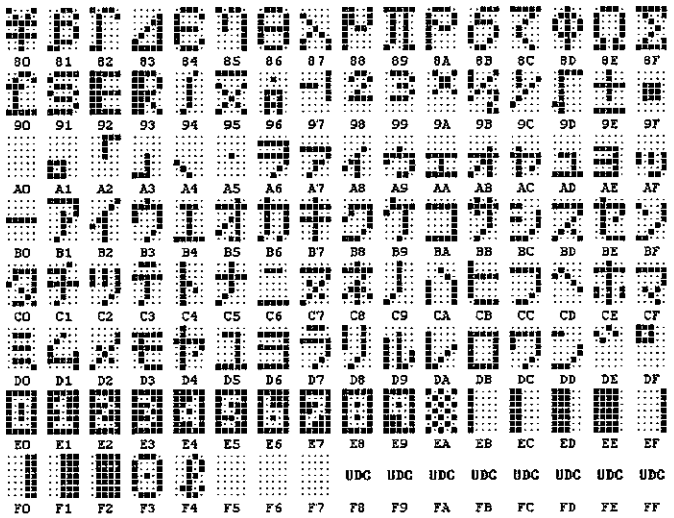
* Pre-designated alterable character set location.



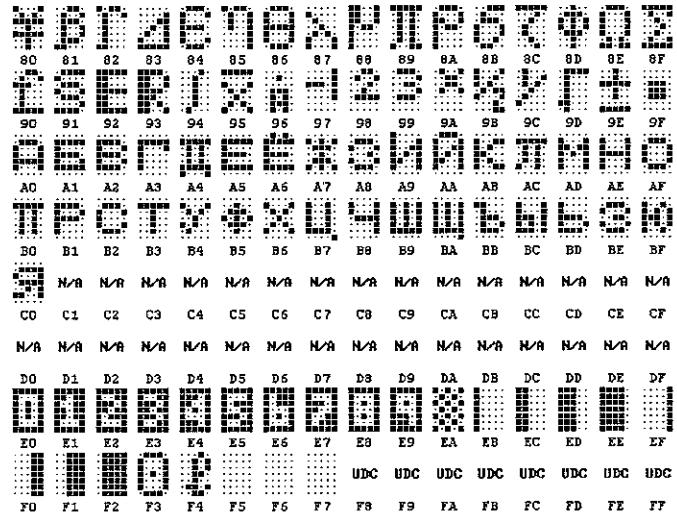
STANDARD ASCII CHARACTER SET



GENERAL EUROPEAN CHARACTER SET (Default Setting)

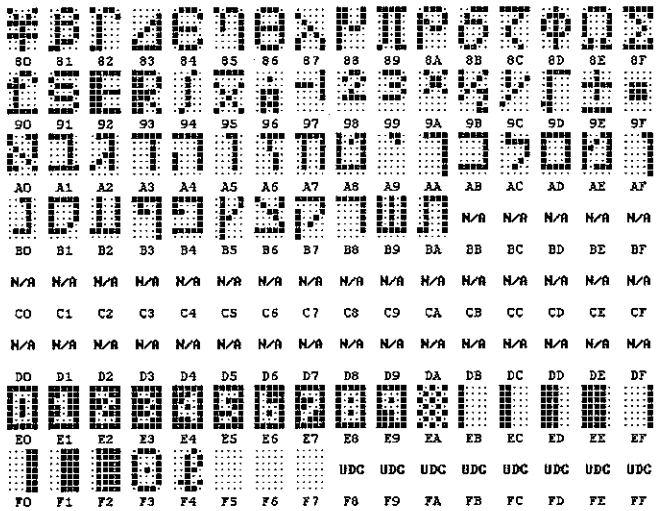


KATAKANA CHARACTER SET

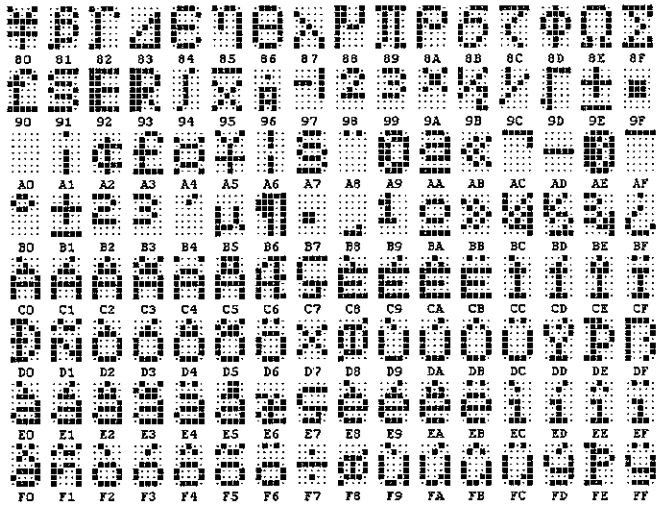


CYRILLIC CHARACTER SET

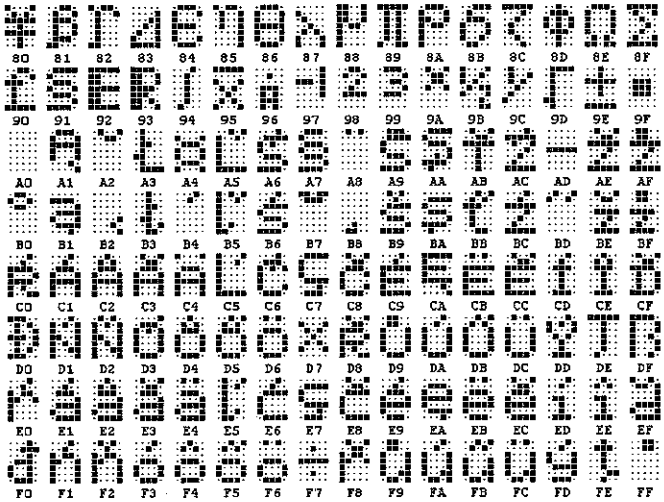
CHARACTER FONTS



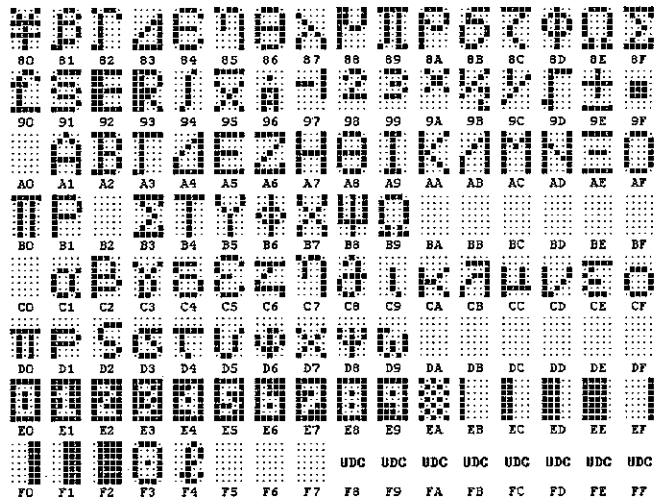
HEBREW CHARACTER SET



ISO 8859-1 CHARACTER SET



ISO 8859-2 CHARACTER SET



GREEK CHARACTER SET

KIT NUMBERING SCHEME

PDK-[0003]- X_1 X_2 X_3 X_4 X_5 X_6

POLE POSITION
- 0 = CENTER/NO OPTION
- C = CENTER
- L = LEFT SIDE
- R = RIGHT SIDE

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 CASH

POWER SUPPLY
- 0 = NOT SUPPLIED
- 1 = 115VAC-24VDC/US-COAX
- 2 = 230VAC-24VDC/CE-COAX

NOTE: THE SUB-SET **PDK -[0003] -$X_1X_2X_3$** DEFINES THE DISPLAY ASSEMBLY IN THIS PDK KIT.