APPLIC	ATION		REVISIONS		
NEXT ASSY	USED ON	REV	DESCRIPTION	DATE	APPROVED
		Α	PRODUCTION RELEASE/SEE E.O. 33431	12-16-97	L.D.HATCH
		В	SEE E.O. 34672	9-30-99	L.D.HATCH
		С	SEE E.O. 35345		

MANUAL

SHEET 0 - THIS SHEET SHEET 1 - FEATURES

SHEET 2 - GENERAL SPECIFICATIONS

SHEET 3 - EXPLODED ASSY VIEW & PARTS REFERENCE

SHEET 4 - ASSY INSTRUCTIONS

SHEET 5 - CASH DRAWER MOUNTING CONFIGURATIONS

SHEET 6 - OPERATION

SHEET 7 - CHARACTER FONTS SHEET 8 - CHARACTER FONTS SHEET 9 - KIT NUMBERING SCHEME

REV STATUS	REV		С	С	В	В	В	В	В	В	В	С								
OF SHEETS	SHEE	Τ (0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
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XXX± DO NOT SCALE DRAWING APPROVALS				DATE TITLE MANUAL,																
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INDUSTRIAL ELECTRONIC ENGINEERS, INC. 7740 Lemona Ave., Van Nuys, CA 91409-9234, U.S.A. • Tel 818-787-0311

PDK-004A-0XXXXX* VF POS Pole Display Kit

INSTALLATION and OPERATING INSTRUCTIONS

Key Features:

- Vacuum Fluorescent (VF) display 4 line x 20 character 5mm 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 fourposition 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:

Page 2 provides General Specifications and an introduction to the Assembly and Installation of the pole display.

Page 3 provides an exploded view of your pole display assembly with part numbers, so you can identify and verify that you have all the parts ordered.

Pages 4 and 5 provide instructions for assembling the display and attaching it using one of many mounting configurations.

Pages 6, 7 and 8 provide information on how to operate the display including provisions for self-test, software commands, character fonts and User Defined Character (UDC) loading.

Page 9 provides the kit numbering scheme that defines the exact contents as referenced by the number on the lid of the shipping box. PDK-004A-0XX defines the characteristics of the display head (i.e. display type, software functionality, pole position, housing color and filter color) and cannot be revised

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-004A-INOPML September 17, 2001

GENERAL SPECIFICATIONS

Interface:							
• Power:	Supply voltage	11-29 Vdc		Pin Assignments:			
	Supply current @24 Vdc	230 ma (max)		(Host)		DB-9F	
	Supply risetime	100 milliseconds (m	ax)				
Caution:	Supply sequencing	Rapid ON/OFF sequ	uencing	COM	1	COM	
		is not recommende	d.	RXD	2	TXD	
	Start cycle	The display is not re	ady to accept	TXD	3	RXD	
		data until 1.2 second	ds after	DTR	4	DSR	
		application of powe	r.	SIG GND	5	SIG GND	
				DSR	6	DTR	
• Signal:	Serial EIA-232	9600 baud - 8 bits	 no parity 	N.A.	7	N. C	
_	Serial input levels	+3V to +15V (space	/logic 0)	CTS	8	DTR	
	•	-3V to -15V (mark/	logic 1)	NA	9	N. C.	
	Data Format						
	+V (LSB)	(N	ISB)				
	D ₀ D ₁	D ₂ D ₃ D ₄ D ₅	D_6 D_7				
	–V START 8	B DATA BITS		STOP			
	BIT			BIT			

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

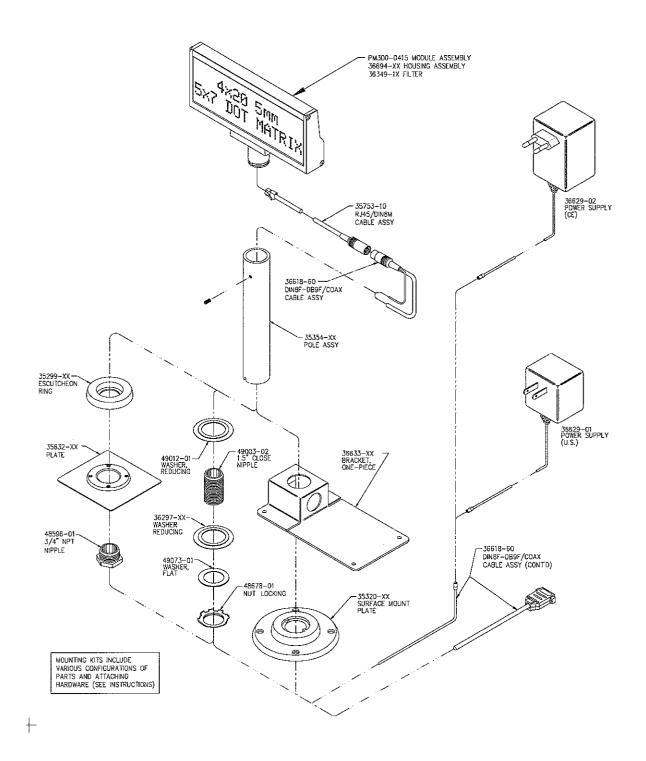
Installation Instructions:

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-004A-0XXXXX POS POLE DISPLAY DISTRIBUTOR KIT TYPE 3M POD RS232 INTERFACE



ASSEMBLY INSTRUCTIONS

Mounting Kits:

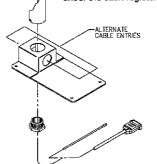
- 35360-0X SURFACE MOUNTING KIT (standard)
 - (1) 35320-XX SURFACE MOUNT PLATE
 - (1) 48596-01 CONDUIT NIPPLE
- 35697-0X BASE KIT, HEAVY METAL
 - (1) 35632-XX PLATE, MULTI-PURPOSE
 - (1) 35299-XX ESCUTCHEON RING
 - (1) 48596-01 CONDUIT NIPPLE
- 36231-0X ICD POLE KIT
 - (1) 36297-XX WASHER, REDUCING
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

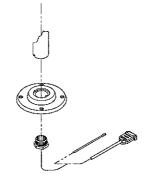
Surface Mount and Freestanding Configurations:

Mounting Kit, Sheet Metal

Thread the 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. 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.



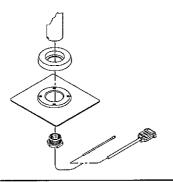
Surface Mount Plate



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

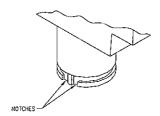
Thread the DIN8F connector through a hole in the mounting surface and conduit nipple or just through the conduit nipple. Thread the cable through the base, escutcheon ring and pole. Pull some cable slack through, push the nipple into the recess in the base, put the pole in place in the escutcheon ring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



Display Module and Pole Assembly:

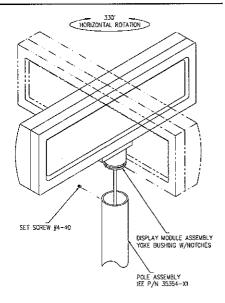
The display module is attached to the pole assembly by mating the DIN8 connectors, inserting the display yoke into the pole at the end closest to the set screw, and then rotating the display.

- 1. Push the cable slack back into the pole.
- Insert the display module partially into the pole and align the set screw with one of the two notches on the yoke bushing
- Push the yoke bushing completely into the pole, then rotate the module on the pole as desired.



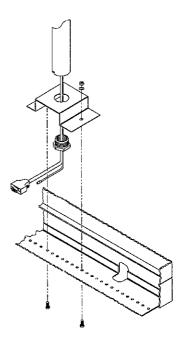
TO REMOVE THE MODULE:

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.



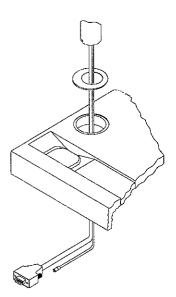
• APG CASH DRAWER

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.



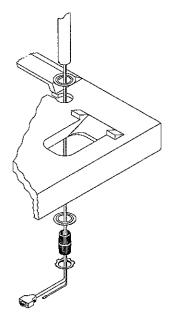
MMF CASH DRAWER

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.



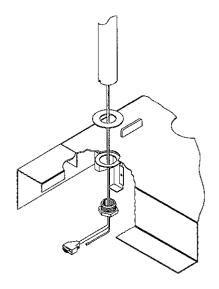
INDIANA CASH DRAWER

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.

041-	READ THE CHARACTER CAPACITY OF THE DISPLAY
01h	
0.01	(Display responds sending 50h) DISPLAY SOFTWARE CHECKSUM AND SOFTWARE NUMBER
02h	
03h	READ CURSOR LOCATION VALUE (display responds with one byte)
	01-14(h) for line1, 21-34(h) for line2
	41-54(h) for line3, 61-74(h) for line4
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 í	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	
OFh +	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	
<12h>	OVERWRITE OF RIGHT-MOST CHARACTER ON THE CURRENT LINE
-1211	(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 bottom line in
Mode	10h, and HOME in Modes 11h, 12h, 13h and 1Ah)
16h + 19h	SET BIT SEVEN HIGH FOR NEXT BYTE ONLY
	WRAP AROUND DATA ENTRY (after the bottom right character is
<1Ah>	the cursor is moved to the HOME position)
entered	the cursor is moved to the nowe bosition)

1Bh	INITIATES FOLLO 1B-05-49	WING SEQUENCES: IEE SPECIFIC RESPONSE CODE (the following message is sent to the host without regard for flow control):
	1B-26-01-M-N	D.2,IEE,36365,-01(CR) (18 BYTES) DOWNLOAD USER DEFINED CHARACTERS M=Byte location to begin download (F8-FF) N=Number of characters to be downloaded
	1B-3D-N	Each character pattern is defined by 5 data bytes N=01 The display is not selected. All data from the is not processed in the display
host		N=02 The display is selected. All data from the host processed in the display
13	1B-3F-N	DELETE DOWNLOADED CHARACTER LOCATION N
	1B-40	TERMINATE SELF TEST (sets display to DEFAULT configurations and clears all USER
DEFINED	1	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
	EPSON SPECIFIC	RESPONSE CODE (display sends 05 to host) WING SEQUENCES:
1Fh	1F-24-C-L	MOVE CURSOR TO C, Column 01-14(h)
	1F-24-C-L	L, Line 01-04(h)
	1F-40	EXECUTE SELF TEST (use 1B-40 to terminate self
443	17-40	EXECUTE SELF TEST (day 10-40 to terriminate sem
test)	1F-45-T	SET ALL DISPLAY BLINK FIELDS TO AN
INTERVA		SET ALL DISPLAT BLINK FILLDS TO AIR
	· -	T X 50msec, range of T=00h(OFF)-3Fh, duty
cycle=50		
	1F-58-N	SET BRIGHTNESS LEVEL, N=% of max brightness:
	1F-72-N	+ N=04(100%), N=03(60%), N=02(40%), N=01(20%) 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 4 5	Start load 1B-26-01 (HEX) Location to begin download F8-FF (HEX) Number of characters to download (01-
08) 6-10	*Character dot data

	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

² 7 12 17 22 27 9 14 19 24 29 10 15 20 25 30 35 6 11 16 21 26 8 13 18 23 28

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

1Bh	BYTE 1, start load	0 • • • 0
26h	BYTE 2, start load	0000
01h	BYTE 3, start load	•0•0•
F8h	BYTE 4, location to begin download	●0●0●
01h	BYTE 5, download 1 character	0 • • • 0
78h	BYTE 6, dots 20, 11, 2, 28 ON	00000
71h	BYTE 7, dots 22, 13, 4, 3, ON	0 • • • 0
Ech	BYTE 8, dots 33, 24, 15, 32, 23 ON	
1Ab	BYTE 9, dots 8, 34, 16 ON	
02h	BYTE 10, dot 18 ON	

⁺ Display automatically defaults to these conditions after Power-up or RESET.

< > These instructions are mutually exclusive.

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

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).

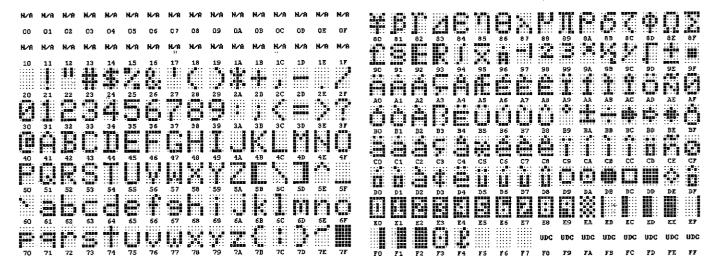
HEBREW CHARACTER SET - can be loaded into RAM* with command sequence 1B-74-04 (HEX).

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).

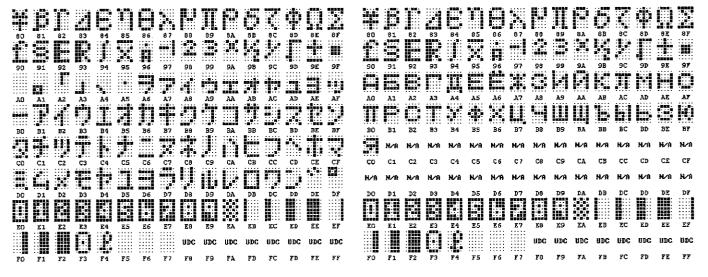
GREEK CHARACTER SET - can be loaded into RAM* with command sequence 1B-74-07 (HEX).

^{*} Pre-designated alterable character set location.



STANDARD ASCII CHARACTER SET

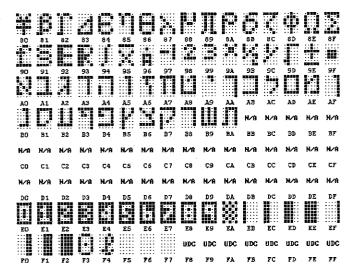
GENERAL EUROPEAN CHARACTER SET (Default Setting)



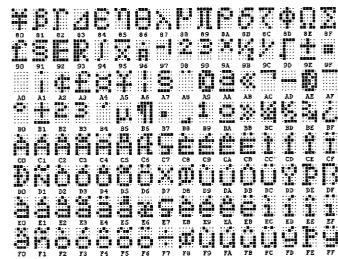
KATAKANA CHARACTER SET

CYRILLIC CHARACTER SET

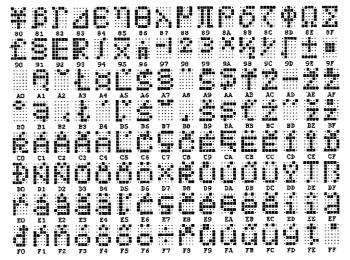
CHARACTER FONTS



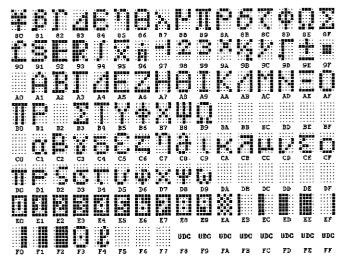
HEBREW CHARACTER SET



ISO 8859-1 CHARACTER SET

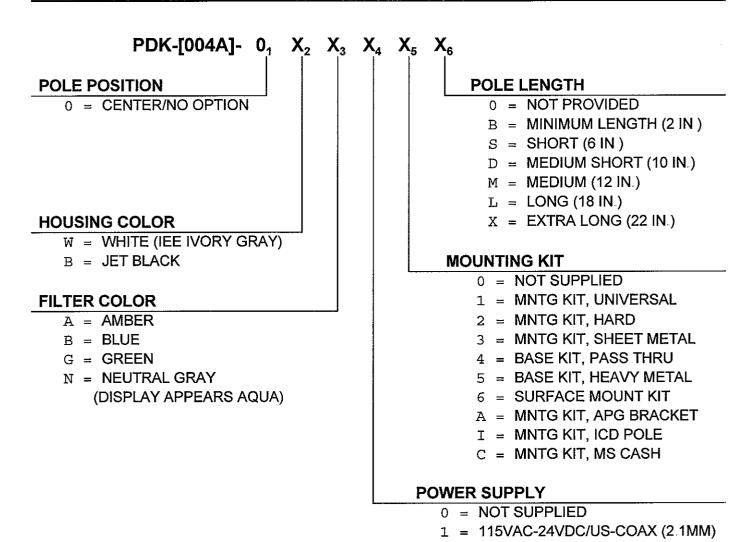


ISO 8859-2 CHARACTER SET



GREEK CHARACTER SET

KIT NUMBERING SCHEME



NOTE: THE SUB-SET PDK -[004A] -0,1X2X3 DEFINES THE DISPLAY ASSEMBLY IN THIS PDK KIT.

2 = 230VAC-24VDC/CE-COAX (2.1MM)