PRODUCT MANUAL

ELECTRONIC DISPLAYS INC.
135 S. CHURCH STREET
ADDISON, ILL. 60101
www.electronicdisplays.com

ED206/406 - 115 – 4D – N1 - KY

DESCRIPTION:

- 2.25 in. or 4.0 in. high, red 7 segment display; Programmable up/down-timer by a preset time.
- Serial interface (RS485) from EDI supplied Keypad.
- Easy to program protocol (See Appendix E).
- Power: 120VAC @ 60Hz.
- Battery Back-up to retain information.
- NEMA 1 rated enclosure w/ power supply.

OPERATION:

This display will count by a preset value at a preset time. (Example – count by 1 every second). Factory set to increment by 1 every second. It can also be programmed to count by any number at any time interval. See Appendix E for protocol information. The keypad also allows the user to run/hold the display, reset to 0 or preset to a number. This board is addressable with a two-digit address(01). Addressing is required to communicate with the displays. There are 3 inputs located inside the right side of the display for wiring contact closure switches. The user has the option of wiring switches to the inputs or using the serial controlled run/hold.

INPUT OPERATION:

- **IN1 – This is the Run / Hold input. Apply a momentarily short between Vext and IN1 to toggle the Run / Hold status.**
- **IN2 – This will reset the display to '0'**
- **IN3 – This input is the Up / Down select. Hard wired internally to for up-timing mode. If the jumper is removed, the display will operate in down-timing mode.**
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If there are any questions or comments regarding this order, please call our Toll-free number: 1 - 800 - 367 - 6056

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Unpacking Instructions:

A copy of these instructions is packed with each unit. Open carefully to avoid scratching the unit's paint and plastic lens or cutting the line cord.

Mechanical Mounting Instructions:

This unit is equipped with two rivnuts in the top of the unit for mechanical mounting purposes. The bolts that are screwed into these rivnuts are standard 5/16 by 1 ¼" bolts. To avoid damaging the rivnuts, do not tighten these bolts more than 10 ft/lbs.

Power Requirements:

This unit is equipped with a standard, eighteen-gauge, three-wire line cord that is designed to be plugged into a standard, 120 VAC, 60 Hertz, grounded outlet. The maximum current draw for this unit (at 120 VAC) is _1.0__ Amperes.

Signal Requirements:

If your unit has serial input (either RS-232, RS-422, RS-485, etc.), the standard communication format for this unit is 1200 bits per second (baud rate) with one start bit, eight data bits, no parity, and one stop bit per character. The expected sequence of characters is specified in a later section of this manual entitled 'Protocol'.

Product Components:

See appendix A.

Wiring Diagram:

See appendix B.

Label Definitions:

The following page shows some commonly used labels and their definitions. Not all of these labels will be found in your unit.

LABEL	DEFINITION
IN1, IN2, IN3, IN4	Optically coupled input, active high, requires 12 milli-amperes of current to activate.
RX+	Positive side of balanced data line for RS-422 or RS-485 serial input signals
RX-	Negative side of balanced data line for RS-422 or RS-485 serial input signals
AC	Typically 10 to 12 VAC from EDI supplied transformer

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Power-up Response:

Upon power up, the unit will show the last value displayed before shipping. A battery back-up circuit retains the pre-loaded information. Unit will power up incrementing once per second. See Appendix E for details on protocol.

Addressing:

1200; no parity; 8 data bits; 1 stop bit. Set to address 01.

Protocol:

See Appendix E

Keyboard Input:

APPENDIX E:

COMMON ASCII CHARACTERS:

All messages to these displays are made up of combinations of standard ASCII characters. The 16-key keypad supplied by Electronic Displays, Inc on the remote control panel generates one character per key.

ASCII CODE	KEYPAD LABEL	VALUE (decimal)	FUNCTION
STX	**A**	2	'Start of text', also known as a 'Control B', this character must be the first character of each message
ETX	**D**	3	'End of text', also known as a 'Control C'.
LF	**B**	10	'Line Feed', also known as a 'Control J', this character is used as the last character of some 'setup' messages.
CR	**C**	13	'Carriage Return', also known as a 'Control M' and as 'Enter', this character is also used as the last character of some 'setup' messages.
0 thru 9	**0** thru **9**	48 thru 57	These are the standard ASCII 'printable' decimal digit characters. They are used as both 'address' characters and 'data' characters.

Variable Rate Timer Display:

This display is capable of receiving three types of messages.

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1 - Preset Message:

The most common type of message is the preset message. This allows the user to start the display at some value other than zero. The display can also be preset to zero if the user desires (there is a control panel switch which will reset the display to zero). The protocol for a preset message is as follows:

<STX> <2-digit address> <1-digit to 16-digit preset value> <CR>

NOTE: While a leading zero is required in the address field, leading zeros are not required in the preset value field.

Example:

To set the display to '45' from a telnet or other terminal window, type the following sequence of keys:

<CONTROL B><01><45><ENTER>

KEYPAD EXAMPLES:

Example:

To set the display to '45' from an EDI supplied keypad, send the following sequence of keys.

<A 0 1 4 5 C>

2 - Time Interval Message:

The user has the ability to select how often the display increments from as fast as 100 times per second to as slow as once per 99 hours in increments. The protocol for a time interval message is as follows:

<STX> <2-digit address> <2-digit hours> <2-digit minutes> <2-digit seconds> <1-digit tenths of seconds> <1-digit hundredths of seconds> <ETX>

NOTE: The format for entering data is HH:MM:SS:TH

NOTE: While a leading zero is required in the address field, leading zeros are not required in the time increment value field.

Example:

To set the display to increment every 24 hours from a TELNET or other terminal window, type the following sequence of keys:

<CONTROL B><01><24000000><CONTROL C>

Example:

To set the display to increment every 5 minutes and 30 seconds from a TELNET or other terminal window, type the following sequence of keys:

<CONTROL B><01><00053000><CONTROL C>

KEYPAD EXAMPLES:

Example:

To set the display to increment every 24 hours an EDI supplied keypad, send the following sequence of keys.

<A 0 1 2 4 0 0 0 0 0 0 D>

Example:

To set the display to increment every 5 minutes and 30 seconds from an EDI supplied keypad, send the following sequence of keys.

<A 0 1 0 0 0 5 3 0 0 0 D>

3 - Size/Increment Message:

The program that controls this display is capable of driving a display that is from one digit to sixteen digits long. Before the display can operate properly, it must know how many digits are in the display. **This information was entered at the factory and is stored in non-volatile memory.**

The same message that specifies the length of the display also specifies how much to change the display by each time that the time interval expires (see '2 – Time Interval Message' on previous page). This increment value can be from one to as large a number as the display has digits.

The protocol for a size/increment message is as follows:

<STX> <2-digit address> <2-digit display size> <1-digit to 16-digit increment value> <LF> (from 5 to 8 characters total)

NOTE: While a leading zero is required in the address field, and is required in the display size field, leading zeros are not required in the increment value field.

Examples:

To cause a four digit display to increment by 10 for each time interval from a TELNET or other terminal window, press the following sequence of keys:

<CONTROL B><01><0410><CONTROL J>

Examples:

To cause a six digit display to increment by 1 for each time interval from a TELNET or other terminal window, press the following sequence of keys:

<CONTROL B><01><061><CONTROL J>

KEYPAD EXAMPLES:

Example:

To cause a nine digit display to increment by 1 for each time interval from an EDI supplied keypad, send the following sequence of keys.

<A 0 1 0 9 1 B>

Example:

To cause a nine digit display to increment by 5 for each time interval from an EDI supplied keypad, send the following sequence of keys.

<A 0 1 0 9 5 B>

Service:

There are no parts in your unit classified as 'user serviceable' parts. The plastic or glass cover can be cleaned using a soft cloth and a gentle glass cleaning solution.

Warranty:

The standard warranty for all products is one year on all parts and labor at our facilities. All products are designed and manufactured by Electronic Displays Inc. If you need assistance, please call or FAX us and we will be happy to provide technical assistance. If you feel that your unit needs repair, please call us first and then ship the unit to:

Electronic Displays Inc.
135 South Church Street
Unit A
Addison, Ill. 60101
Attn: Repair department

Our telephone number is:

(630) 628-0658

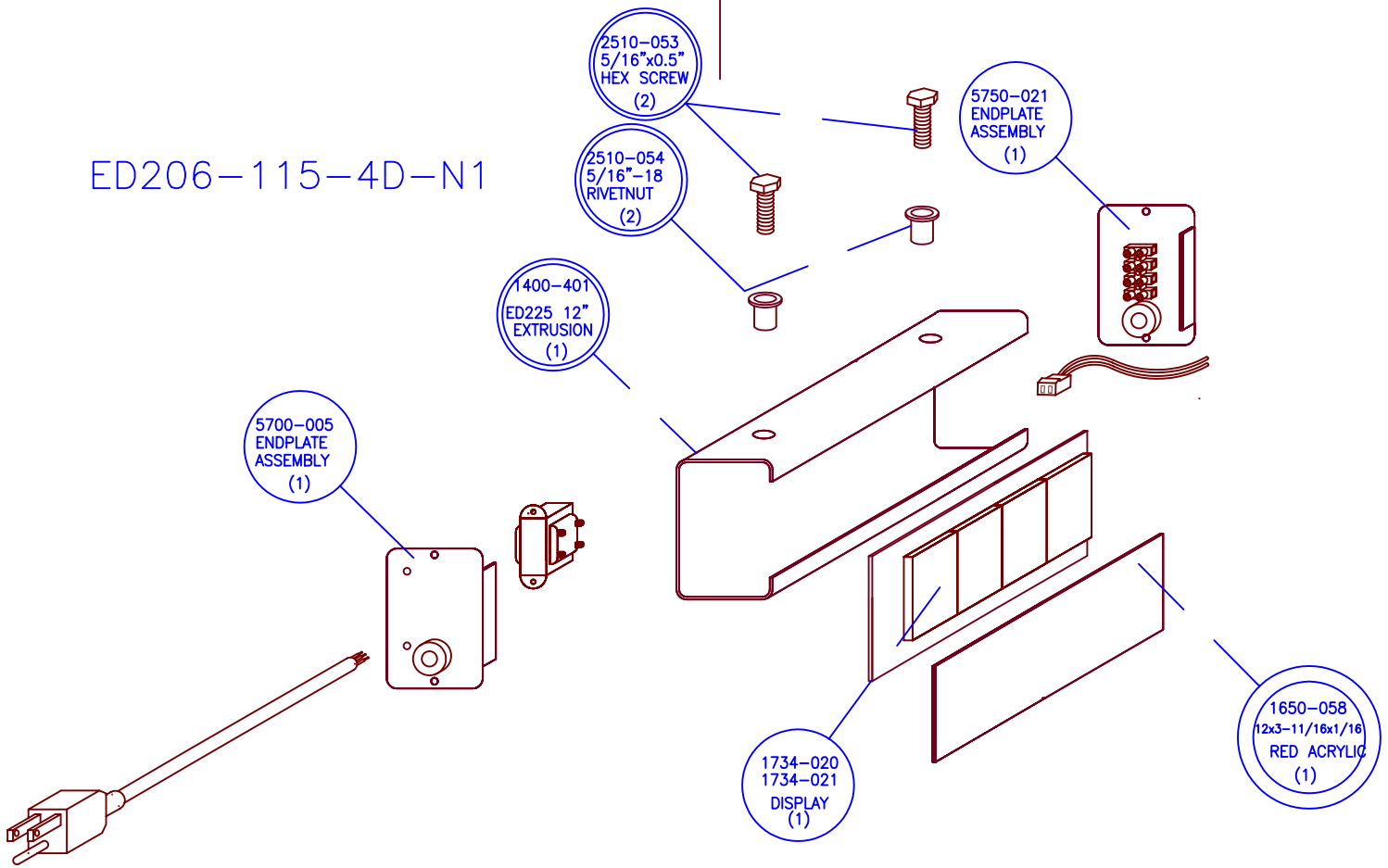
Our FAX number is:

(630) 628-0936

PROUDLY MADE IN THE U.S.A.

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

ED206-115-4D-N1



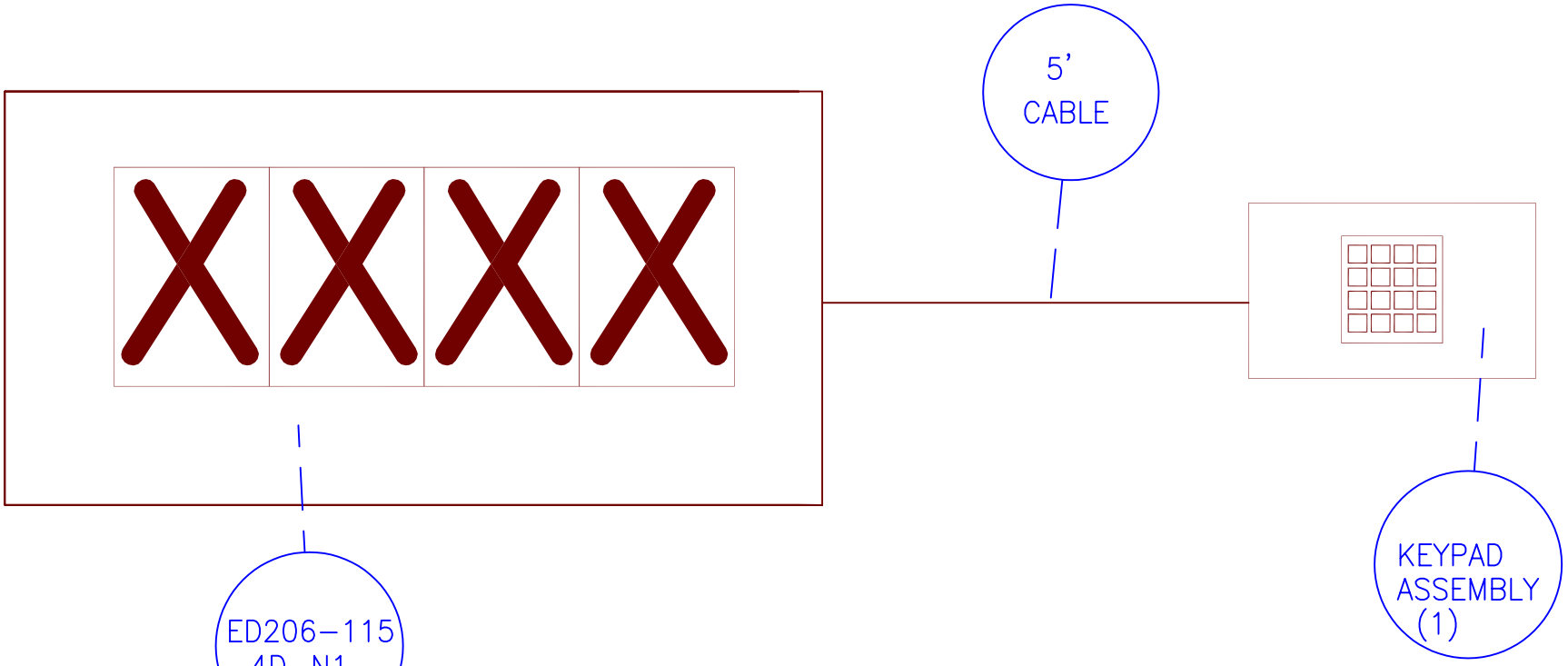
EDI Inc.
135 S CHURCH
ADDISON IL60101

APPENDIX A

LEVEL 1 ED206-115-4D-N1

APPROVED BY:	SIZE	FSCM NO.	DWG NO.	REV
	A		R:\LV1\ED206-115-4D-N1-KY	0
DRAWN BY: Zbigniew Jakubczak	SCALE NONE			SHEET

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED



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ADDISON IL 60101
PH#630 628-0658

SYSTEM DRAWING

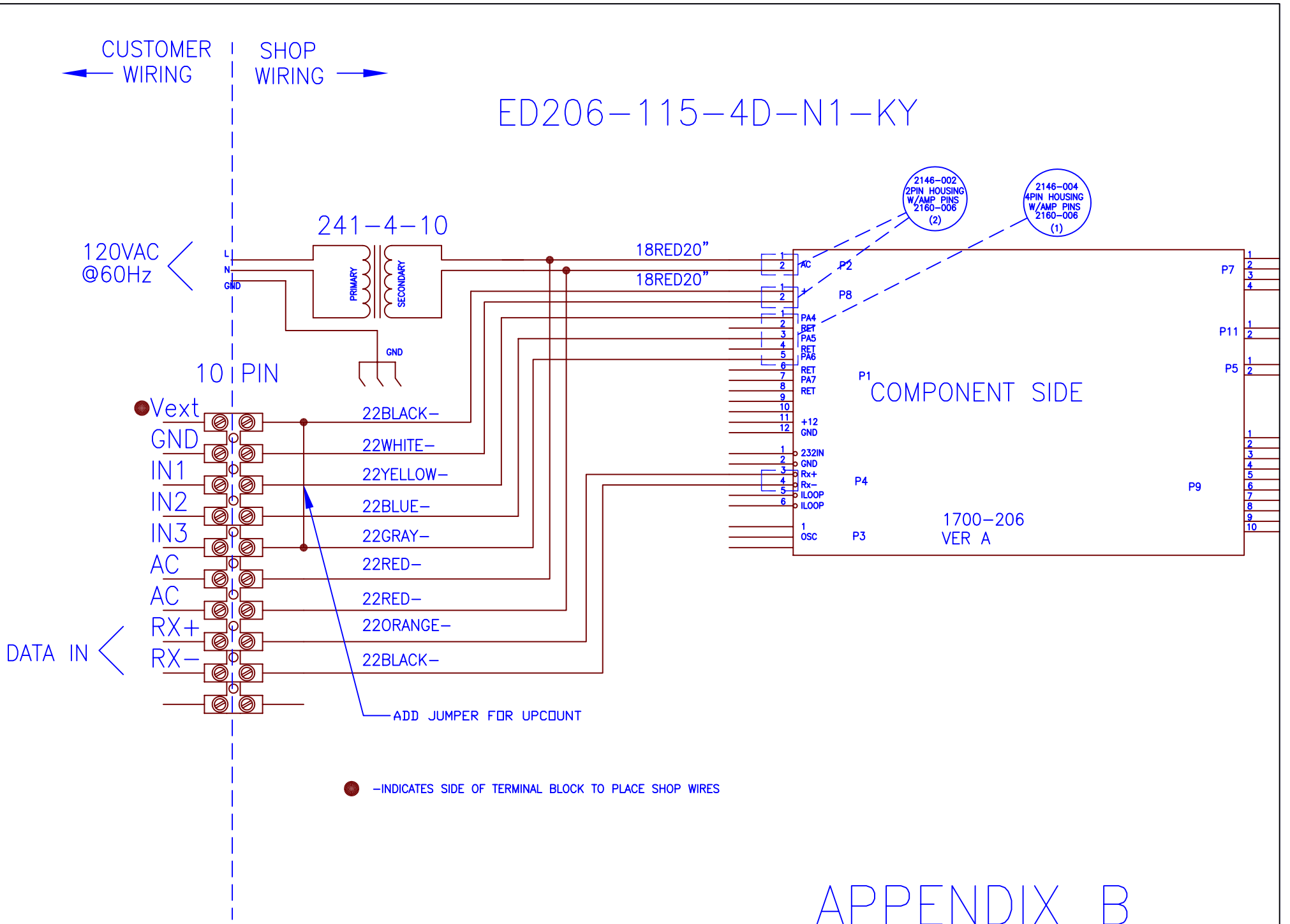
ED206-115-4D-N1-KYN1

SIZE	FSCM NO.	DWG NO.	REV
A		R:\SYSTEMS\ED206-115-4D-N1-KYN1	0

DRAWN BY: Z.JAKUBCZAK

SCALE NONE

SHEET


CUSTOMER WIRING
SHOP WIRING
ED206-115-4D-N1-KY
241-4-10
120VAC @60Hz
L
N
GND
PRIMARY
SECONDARY
GND
10 PIN
Vext
GND
IN1
IN2
IN3
AC
AC
RX+
RX-
DATA IN
22BLACK-
22WHITE-
22YELLOW-
22BLUE-
22GRAY-
22RED-
22RED-
22ORANGE-
22BLACK-
ADD JUMPER FOR UPCOUNT
18RED20"
18RED20"
2146-002
2PIN HOUSING
W/AMP PINS
2160-006
(2)
2146-004
4PIN HOUSING
W/AMP PINS
2160-006
(1)
P1
P2
P3
P4
P5
P7
P8
P9
P11
AC
PA4
RET
PA5
RET
PA6
RET
PA7
RET
+12
GND
232IN
GND
Rx+
Rx-
ILOOP
ILOOP
OSC
COMPONENT SIDE
1700-206
VER A
-INDICATES SIDE OF TERMINAL BLOCK TO PLACE SHOP WIRES
APPENDIX B
DRAWN BY:
HENRY BILITZKI
ED206-115-4D-N1
R:\WIRING\ED206-115-4D-N1-KYN1