8622

Technical Manual

INTRODUCTION

This publication is provided solely as a guide for individuals who have received METTLER TOLEDO Technical Training in servicing the METTLER TOLEDO product.

Information regarding METTLER TOLEDO Technical Training may be obtained by writing to:

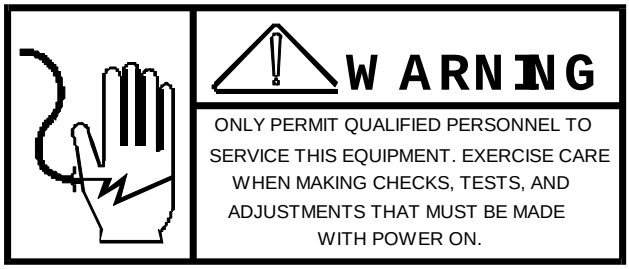
METTLER TOLEDO
Training Center
P.O. Box 1705
Columbus, Ohio 43216
(614) 438-4400

PRECAUTIONS

- **READ** this manual before operating or servicing this equipment.

- **ALWAYS REMOVE POWER** and wait at least 30 seconds **BEFORE** connecting or disconnecting any internal harnesses. Failure to observe these precautions may result in damage to, or destruction of the equipment.

- **ALWAYS** take proper precautions when handling static sensitive devices.



- **DO NOT** connect or disconnect a load cell scale base to the equipment with power connected or damage will result.

- **SAVE** this manual for future reference.

- **DO NOT** allow untrained personnel to operate, clean, inspect, maintain, service, or tamper with this equipment.

- **ALWAYS DISCONNECT** this equipment from the power source before servicing.

- **CALL** METTLER TOLEDO for parts, information, and service.

CONTENTS

1. GENERAL DESCRIPTION

The Model 8622 Electronic Remote Display is intended for use with all Toledo Electronic Remote Display is intended for use with all Toledo electronic digital indicators which can provide a continuous serial ASCII output of weight data using 20mA current loop, RS232-C or RS422. It may also be used with other devices which have the ability to transmit data in the proper format (See Section 6.4 and 6.5). The 8622 provides display of gross, net, or tare weights up to six digits. The unit is available in a desk/wall plastic enclosure, a stainless steel wall mount enclosure, a mild steel panel mount configuration and a cast aluminum enclosure. A data output option provides the ability to transmit weight information to a printer or compatible accessory device in bit serial ASCII code, even parity, 20mA current loop. The baud rate is selectable at 300, 1200, 2400, 4800 or 9600 baud.

1.1 FEATURES

- Provides the ability to display weight information up to 1000' from the source digital indicator.
- Keyboard configuration and setup.
- Displays Gross or Net Weight in either pounds (lb) or kilogram (kg) as selected by the source indicator.
- Display of Tare Weight provided by front panel pushbutton.
- Six character 0.5" high vacuum fluorescent type display, green-blue in color (except stainless which has a 0.8" high display).

2. SYSTEM DESCRIPTION

The 8622 consists of three (3) major blocks. These are:

1. Transformer - Steps down voltage from an A-C source to smaller magnitude voltages to be sent to the Control PCB.

2. Main PCB - Contains power supplies, control logic, program jumpers, input/-output connections and fluorescent display.

3. Keyboard - Allows operator interface for functions such as setup configuration, display of gross, tare, or net weights, and the actuation of the data output (if supplied).

3. SPECIFICATIONS

3.1 ELECTRICAL AND PHYSICAL SPECIFICATIONS

1. Environment

   The 8622 operates from - 10°C (14°F) to +40°C (104°F) at 0 to 95% relative humidity.

2. Power Requirements

   The Model 8622 operates at 120V, AC (+10%, -15%) at a line frequency from 49 to 61 Hz. Power consumption is 15 watts maximum.

CAUTION: ALL UNITS ARE SHIPPED FOR 120V A-C OPERATION.

3. U.L. and C.S.A. Standards

Materials, components, and electrical design comply with U.L. and C.S.A. standards and requirements including grounding of all metal parts, fusing, etc.

4. FCC Requirements

The 8622 meets or exceeds the FCC conducted and radiated emissions requirements.

5. RFI Specifications

The Model 8622 meets or exceeds all applicable RFI radiation susceptibility requirements.

6. Appearance and Dimensions

The Model 8622 is supplied with a green-blue display and gray display lens. The two piece plastic case used is 7.1" tall (18cm) x 11.8" wide (30cm) x 3" deep (7.7cm), and can be desk mounted or wall mounted by the use of a reversible bracket. The stainless steel NEMA IV is 10" tall (25.4cm) x 12.5" wide (31.8cm) x 5.5" deep (14cm) and can be wall or column mounted. The mild steel panel enclosure is 4" (10.2cm) tall, 7" (17.8cm) wide, 11" (27.9cm) deep and is used for flush, panel or rack installations. The cast aluminum enclosure is 14" (35.6cm) tall, 14" (35.6cm) wide, 10" (25.4cm) deep and is intended for Class I, Group C and D or Class II Group E, F or G applications.

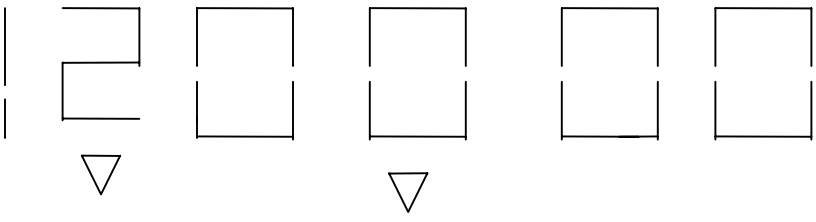
3.2 INTERNAL FUNCTIONS

The 8622 contains the necessary electronics to receive and display weight or other numeric information. The instrument receives the serial transmission of numeric data and formats it for the display.

3.3 DISPLAY FORMAT

The display is a green-blue, vacuum fluorescent, six character (6 digits or 5 digits and a minus sign) with a lighted decimal point. There are lighted descriptors above the LB, KG, gross, Net and Tare legends.

Sample Display:



LB KG Gross Net Tare

NOTE: The 8622 will alternately flash - - - - - - and net weight if the value for the net weight is less than -999990 and the 8622 is in the net weight mode. (See Net/ gross Section C, Page 9.

3.4 DATA INTERFACE

1. Data Input

The 8622 is designed to receive a serial ASCII data string, 20mA Current Loop. RS232-C or RS422 interfaces are available on the input connector. 1200, 2400, 4800, or 9600 baud operation is selectable in setup mode. Refer to Section 6.4 for more detailed information.

2. Data Output

The 8622 is capable of transmitting serial 20mA current loop data at 300 to 9600 baud selectable through the keyboard with an optional data output K.O.P.

a). Demand Operation - 300 to 9600 Baud

When a print command is received, either from the Print key or an external "Print Demand" signal, the 8622 will output a message formatted by setup selections through the keyboard (See Output Tables, Section 6.5, b). Transmission of a checksum character is selectable as is expanded print format. Also from weight Display Print P.B. (B132 for example).

b). Continuous Operation - 300 to 9600 Baud

The data is transmitted every display update, approximately three to eight times each second. See Output Tables, Section 6.5, a) for format. Transmission of a checksum character is selectable.

4. INSTALLATION INSTRUCTIONS

4.1 PRELIMINARY INSPECTION

1. Inspect the outer case for loose or damaged parts.

2. Open the instrument and continue the inspection, noting that all Interconnecting harnesses are securely in place.

a). The plastic enclosure is opened by inserting a flat bladed screwdriver Into the two slots located on the rear cover. Twist the screwdriver until the catches release. Pull the front cover up and out until the bottom tabs clear the rear cover. When removing the front cover be careful not to damage the keyboard harness. See note 1.

b). The NEMA IV enclosure is opened by loosening the six fasteners located on top, bottom and right side first. This is done by flipping the wing-type handle on the fastener, and twist them counter clockwise 180 degrees. The two fasteners on the left side are used as hinges and should be loosened last and at the same time. See note 1.

NOTE 1: On several of the earlier units a tool operated locking device was installed. On the plastic enclosure this was a locking screw located on the rear sealing tabs. On the NEMA IV enclosure this was a 11/16" hex nut mounted onto one of the fasteners inplace of the wing-type handle.

3. All units operate on 117 VAC only. Check the outlet for correct voltage before plugging the unit in.

4. If a printer is to be used, at this time install the optional printer output harness.

   a). Printer Harness Installation Instructions (Desk Type Unit).

      1). Remove the reversible bracket, located on the bottom rear of the unit, by removing the phillips screw.

      2). Install the printer output harness onto the J3 connector, located on the 8622 Logic PCB. Attach the ground wire of the printer harness to the ground lug attached to the rear cover.

      3). Position the harness along the inside bottom edge of the rear cover and out the slot located to the left of the transformer

      4). Reinstall the reversible bracket, making sure that the harness is completely in the slot.

   b). Printer Harness Installation Instructions (Wall Mount)

      1). Open the front cover and remove the access hole cover plate (JN), located on the bottom of the enclosure.

      2). Install the printer output harness. To do this, first lightly lubricate the o-ring is in place.

      3), Insert the connector into the enclosure hole (JN) from the inside, making certain that the o-ring is in place.

      4). Slip the connector cap retaining ring over the connector from the outside of the enclosure.

      5). Install and tighten the lock nut, making certain that the retaining ring chain tab does not interfere with the operation of the mating connector.

      6). Connect the other end of the printer harness onto the j3 connector, located on the Logic PCB. Care should be used when pressing this connector onto the pins as there is no support for the PCB at this location.

   5. Check the jumper positions, on the Logic PCB, for there correct settings. Refer to 4.4 for the jumper descriptions and there recommended settings.

   6. Reinstall the front cover.

   7. Install the interconnecting cable from the indicator.

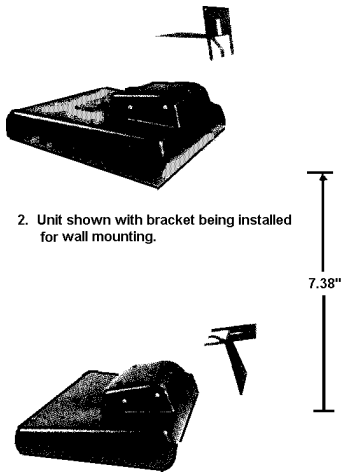
   8. Apply the AC power. When connecting power to the system, it is recommended that the power to the indicator be connected before you apply power to the 8622.

   9. The 8622 is now ready to be programmed for your operation. Refer to 4.5 for a more detailed explanation of the programming procedure.

4.2 REVERSIBLE BRACKET FOR THE PLASTIC ENCLOSURE

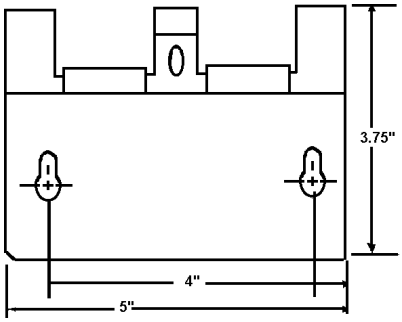
1. Unit shown with bracket being installed for desk top mounting.

2. Unit shown with bracket being installed for wall mounting.

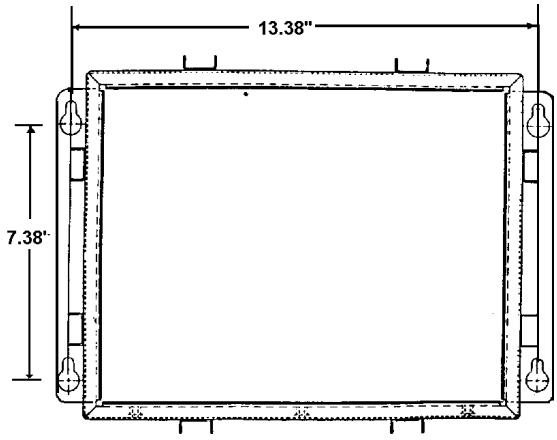


4.3 MOUNTING DIMENSIONS

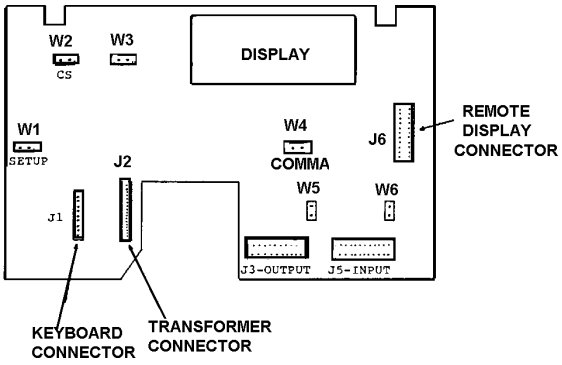
1. Mounting hole dimensions for wall mounting the plastic enclosure..



2. Mounting hole dimensions for wall mounting the stainless steel enclosure.



4.4 JUMPER DESCRIPTIONS AND RECOMMENDED SETTINGS



See table below.

JUMPER	DESCRIPTION	OPERATION
W1	SETUP	IN - Allows entry to the Setup mode. OUT - Prevents entry to the Setup mode
W2	CHIP SELECT	MUST BE IN PLACE (connecting the two pins)
W3	MEMORY SIZE	MUST BE OUT (not connecting the two pins)
W4	COMMA* (display only)	IN - Lights the comma OUT - Lights the decimal point
W5	20mA OUTPUT SUPPLY	IN - 8622 supplies the current for the printer output loop. OUT - Printer supplies the current
W6	20mA INPUT SUPPLY**	IN - 8622 supplies the current for the indicator input loop. OUT - Indicator supplies the current.

* This jumper will only light the comma on the Logic PCB display. If you have a stainless steel unit you must also install the comma jumper located on the Display PCB.

** For all standard installations, this jumper should be OUT (not connecting the two pins).

This jumper has been removed on the later revision Logic PCB.

4.5 PROGRAMMING PROCEDURE

This section of the technical manual describes the programming procedure used to set up the operating modes and features that are available on the model 8622 Remote Display.

When prompted by the display, you are required to either accept or change the current status of this feature. Sample displays are shown with programming prompts. Described under each sample display you will find the possible answers that the unit will except, along with what effect the answer will have on the units operation.

Five front panel keys are used throughout the programming procedure. The key names and there functions are as follows:

KEY NAME	KEY FUNCTION
YES	This is used to enable the operation of the displayed function. The response to this key is represented as a “1” on the display.
NO	This is sued to disable the operation of the displayed function. The response to this key is represented as a “0” on the display.

DISPLAY TARE — This key is used to backup to the previously displayed configuration will jump to the last prompt in the setup procedure which is “S FILE”.

SETUP — When pressed, the displayed configuration will be accepted and the display will jump to the last prompt in the setup procedure which is ‘S FILE”

PRINT — When pressed, the displayed configuration will be accepted and the routine will proceed to the next prompt.

With jumper W1 in place, press the “SETUP” key to gain access to the programming procedure. If W1 is not in place, this procedure can not be entered.

When the “SETUP” key is pressed the following sequence of prompts will be displayed.

[F1] SETUP DATA INPUT

Press:

YES - To enter into the input data setup routine.

NO - To skip the input data setup. The display will jump to **the [F2_ _ _ _]** prompt.

[1 X] TYPE OF INPUT CIRCUIT USED

Press:

YES - If using RS422 - A type input.

NO - If using Current Loop or RS232-C type input.

[2 X] INPUT FORMAT MODE SELECTION

Press:

YES - If Multidrop format mode is used.

NO - If Continuous format mode is used if selected the display will skip the next prompt and proceed to the **[4 _ _ _X]** prompt.

[3 X] MULTIDROP ADDRESS SELECTION (1 through 15)

This prompt is only displayed if the multidrop mode was selected.

Press:

YES - To select the currently displayed address.

NO - To advance the display to the next usable address.

[4 XXXX] INPUT BAUD RATE SELECTION

Selectable baud rates are: 1200, 2400, 4800, and 9600.

Press:

YES - To select the currently displayed baud rate.

NO - To advance the display to the next usable baud rate.

[5 X] CHECKSUM

Press:

YES - If a checksum character is being transmitted from the indicator.

NO - If a checksum character is NOT being transmitted from the indicator.

[6 X] TIMEOUT

The timeout feature is used to monitor the incoming data. If no data or continuous spaces are detected for a one second period the display will show the error code "E _ _ _ _4".

Press:

YES - Input timeout routine is used, (this is required when using the continuous input format.

NO - Input timeout is not used.

[F2] SETUP DATA OUTPUT

Press:

YES - To enter into the output data setup routine.

NO - To skip the output data setup routine, the display will proceed to the last prompt which is [S FILE].

NOTE: If you backup from this prompt you will jump back to the **[F1 _ _ _ _]** prompt.

[1 X] OUTPUT FORMAT MODE SELECTION

Press:

YES - If the demand mode is to be used.

NO - If the continuous mode is to be used.

NOTE: If the continuous mode is selected, questions 4,5,6 and 7 will not be asked.

[2 XXXX] OUTPUT BAUD RATE SELECTION

Selectable baud rates are: 300, 1200, 2400, 4800 and 9600.

Press:

YES - To select the current displayed baud rate.

NO - To advance the display to the next usable baud rate.

[3 X] CHECKSUM

Press:

YES - If a checksum character is to be transmitted.

NO - If a checksum character is NOT to be transmitted.

[4 X] PRINTER SELECTION

Press:

YES - If the number displayed corresponds to the correct model number of the printer used. Refer to Printer Model Chart.

NO - To advance the display to the next usable number.

PRINTER MODEL CHART

Displayed Number	Printer Model
1	307, 8806, and 8855
2	8805 (Receive only mode)
3	8805 (Smart mode)
4	8820/8830 (Ram 1)
5	8820/8830 (Rams 2 and 3)

NOTE: The two selections for the 8805 and 8820/8830 printers are required to determine how the 8622 will interpret the remote print signal. If the selected number is a 2 or 4, the signal will be interpreted as a busy signal.

If the number 3 or 5 is selected, the signal will be used as a print command.

[5 X] DATA FORMAT SELECTION

Press:

YES - To select the currently displayed format. Refer to the Format chart for selections.

NO - To advance the display to the next selection.

FORMAT CHART

Displayed Number	Format Description
1 2 3	Displayed weight only* Single line gross, tare and net multiple line gross, tare and net

* Displayed only is defined as the weight being shown on the indicators major display (not tare).

[6 X] EXPANDED PRINT SELECTION

Press:

YES - If an ASCII “SO” character should be transmitted so that the net weight (or gross weight if tare has not been taken) will print expanded, if the printer is capable of doing so.

NO - If all transmitted weight is to be standard size.

[7 X] DECIMAL POINT OR COMMA SELECTION

Press:

YES - If a comma is to be included in the output transmission. The indicator must be in the kg mode. Note: If this mode is selected the transmitted data will include all leading zeros.

NO - If a decimal point is to be included in the output transmission. Note: If this mode is selected all unused leading zeros will be replaced with spaces in the transmitted data.

[S FILE] SAVE FILE

This question is the last one in the setup procedure. It is asking if the changes made are to be stored into the units permanent memory. At this point you may not backup. If you have to make a correction, you must exit the setup mode and then reenter the setup mode and make the corrections..

Press:

YES - If the changes entered are to be stored permanently

NO/SETUP -If the changes entered are to be ignored. The unit will return to the last setup values that were permanently stored.

[P1 OFF] PLUG 1 OFF

At this time remove the setup jumper W1 and place the jumper on to one pin of W1. The 8622 will exit the setup routine.

NOTE: This step is not present on earlier units.

5. OPERATING INSTRUCTIONS

5.1 DISPLAY

The display shows the digital value represented in the serial data input as selected from the keyboard typically gross, tare, or net).

5.2 LEGENDS

The 8622 illuminates a pointer above the proper legend for the status of the display. The printed legends are:

1. LB - Will be lit when motion has ceased and the LB mode has been selected at the source indicator.

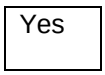
2. KG - This is illuminated when there is no motion and the KG mode has been selected at the source indictor.

3. Gross - When lit, this indicates that the gross load on the scale is being displayed.

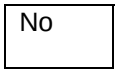
4. Net- when illuminated, indicates tare has been entered at the source indicator and net weight is displayed on the 8622.

5. Tare- When lit, this signifies that the tare weight in use by the source indicator is being displayed on the 8622.

5.3 KEYBOARD



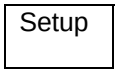
1. Yes- Provides a “Yes” or “Enable” function during setup of the 8622. it is functional **only in setup mode**.



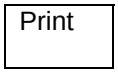
2. No- Provides a “No” or “Disable” function during setup of the 8622. It is functional **only in setup mode**.

3. Display Tare- When the Display Tare key is depressed, the tare descriptor is illuminated and the tare weight which has been entered at the source indictor is displayed.

4. Net/Gross- The Net/Gross key is an alternate action key, i.e. consecutive depressions will alternately display the gross or net weights as transmitted from the source indicator. This key may also be used to return the 8622 display to a net or gross weight display after actuation of the Display Tare key.



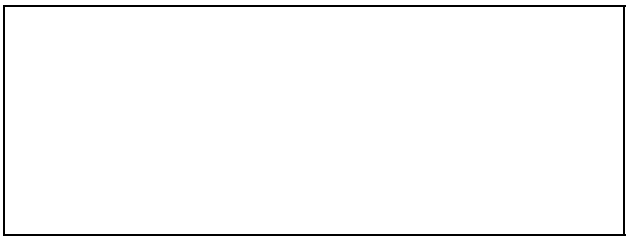
5. Setup- Depressing the Setup key with the internal enable jumper (W1) “on” allows access to setup mode. this key is ignored if the internal enable jumper is not installed.

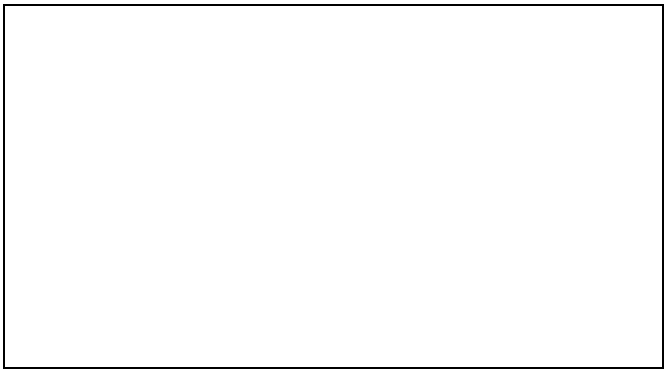


6. Print Key- A print key is provided to initiate data transmission to an external device. The format of the data output is programmed by keyboard setup selection.

6. INPUT/OUTPUT DESCRIPTIONS

6.1 I/O CONNECTIONS





6.2 CHARACTER FRAME DESCRIPTION

Each character is ASCII coded and is eleven bits in length. The character bit frame consists of: 1 start bit, 7 data bits, 1 even parity bit, and 2 stop bits. The character bit frame is a fixed frame and can not be changed.

6.3 CHECKSUM CHARACTER DESCRIPTION

Checksum is defined as a longitudinal character accuracy test.

The checksum character is the binary two's complement of the sum of all preceeding characters, including the STX and CR characters.

1. Input Checksum Character Usage

   The transmission of the checksum character, in the data format, is controlled by the indicator used. If the 8622 is programmed to receive the character then the indicator must be programmed to transmit one.

2. Output Checksum Character Usage

   The checksum character is a programmable option. If selected for transmission this character will be inserted into the output format between the CR and LF characters.

6.4 DATA INPUT DESCRIPTION

The 8622 has been designed to receive data on one of three types of input circuits. They are:

1. 20 Milliamp current Loop
2. RS232-C
3. RS422-A

The input data received must always be in one of the following two formats.

1. Continuous Input (usable on all three types of input circuits)

2. Multidrop Input (usable only with the RS422-A and 20 milliamp current loop circuits)

The Baud Rates at which the data can be received is :

1. 1200
2. 2400
3. 4800
4. 9600

These three input parameters are selected during the initial setup. Refer to the following paragraphs for a more detailed description of the two available input formats.

1. Continuous Input

   This type of input is required when the 8622 is being used as a remote weight display and is required to track the indicator's display.

   This data input will accept information from the indicator, in a continuous format.. The format must be seventeen characters (eighteen if checksum is used). in length. Refer to Section 6.5, paragraphs 1 and 2. for the actual format string composition. Check the technical manual of the indicator for programming options which may affect this format.

2. Multidrop Input

This input is used when the 8622 is being used as a remote operator display.
This type of operation will most often be used when the 8622 is part of a larger system.

The multidrop mode allows up to fifteen displays to be connected to one output port of the host. The use of unit addressing allows each 8622 to operate independently of the others. The units address is selected during the initial setup, once selected the 8622 will only respond when the input message includes this address.

NOTE: Usable addresses are 1 through 15. Address 0 is a universal address, all units will respond regardless of their selected address.

It is assumed that in the multidrop mode the 8622 is not required to track the weight value of the indicator or host. Because of this, a data input string is only required when it necessary to change the information on the display. To prevent a no data input error from occurring, you must disable the input timeout feature. (Refer to Section 4.5 for this feature.

1. Multidrop Data Input Format

   The input data format must be eighteen characters (nineteen if checksum is used) in length. The format is as follows:

   ENQ/UNIT ADDRESS/TEXT/CR/CHECKSUM

   a). Units Address is one byte, and is transmitted as the ASCII character 1 through F (Hex).

   b). Text is fifteen bytes in length.

Status Words A, B, and C	= 3
Indicated Weight Value	= 6
Tare Weight Value	= 6
Total Bytes	=15

   c). Checksum is one byte (optional).

   d). / is used for clarity only and is not part of the transmission.

6.5 DATA OUTPUT DESCRIPTION

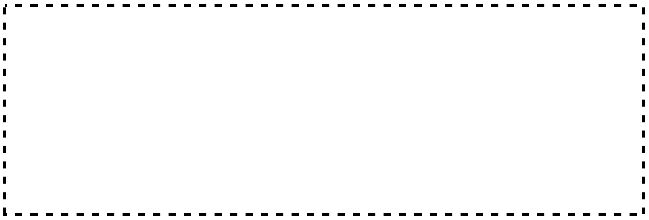
The 8622 data output is configured for transmission on a 20 milliamp current loop only. The output formats are selectable, via the setup routine, for either a “continuous” or “on demand” transmission only. Refer to the following paragraphs for a more detailed description of these formats.

1. Continuous Data Transmission

   This character output format is designed to transmit all seventeen characters (eighteen if checksum is sued) on a continuous basis. The speed of this transmission is determined by the baud rate selected during the initial setup. The selectable baud rates are: 300, 1200, 2400, 4800, and 9600. This format consists of three status words, the gross or net weight value and the tare weight (if a tare has been taken), along with the STX and CR used to transmit certain setup and operating parameters of the indicator. Refer to the output character charts for a more detailed description of the status words and format..

NOTE: Using the continuous output at 300 baud causes the 8622 display to respond slowly. This configuration is usable but is not recommended.

1. Continuous Output Format Chart
(without setpoint data)



NOTE 1: Status Word Descriptions

STATUS WORD A:

DECIMAL POINT OR DUMMY ZERO LOCATION

BIT NO.	X00	X0	X	.X	.XX	.XXX	.XXXX	.XXXXX
0	0	1	0	1	0	1	0	1
1	0	0	1	1	0	0	1	1
2	0	0	0	0	1	1	1	1

INCREMENT SIZE

BIT NO.	COUNT BY 1	COUNT BY 2	COUNT BY 5
3	1	0	1
4	0	1	1

5	ALWAYS A 1
6	ALWAYS A 0
7	EVEN PARITY

STATUS WORD B:

BIT NO.	OPERATING PARAMETERS
0	GROSS MODE = 0 / NET MODE = 1
1	POSITIVE WEIGHT = 0 / NEGATIVE WEIGHT = 1
2	IN RANGE = 0 / OVERCAPACITY = 1
3	NO MOTION = 0 / IN MOTION = 1

4	LB MODE = 0 / kg MODE = 1
5	ALWAYS A 1
6	ALWAYS A 0
7	EVEN PARITY

STATUS WORD C:

BIT NO.	OPERATING PARAMETERS
0	ALWAYS A 0
1	ALWAYS A 0
2	ALWAYS A 0
3	NORMAL = 0 / PRINT REQUESTED = 1
4	NORMAL = 0 / DISPLAY EXPANDED BY 10 = 1
5	ALWAYS A 1
6	NORMAL = 0 / MANUAL TARE IN kg ONLY = 1
7	EVEN PARITY

NOTE 1: Status Word Descriptions

STATUS WORD A:

DECIMAL POINT OR DUMMY ZERO LOCATION

BIT. NO.	X00	X0	X	.X	.XX	.XXX	.XXXX	.XXXXX
0	0	1	0	1	0	1	0	1
1	0	0	1	1	0	0	1	1
2	0	0	0	0	1	1	1	1

3	SP1 FEEDING - ON = 0 / OFF = 1
4	SP2 FEEDING - ON = 0 / OFF = 1
5	ALWAYS A 1
6	SP1 FAST FEED OR SP3 FEED - ON = 0 / OFF = 1
7	EVEN PARITY

STATUS WORD B:

BIT NO.	OPERATING PARAMETERS
0	GROSS MODE = 0 / NET MODE = 1
1	POSITIVE WEIGHT = 0 / NEGATIVE WEIGHT = 1
2	IN RANGE = 0 / OVERCAPACITY = 1
3	NO MOTION = 0 / IN MOTION = 1
4	LB MODE = 0 / kg MODE = 1
5	ALWAYS A 1
6	SP1 IN TOLERANCE = 0 / OUT OF TOLERANCE = 1
7	EVEN PARITY

STATUS WORD C:

BIT NO.	OPERATING PARAMETERS
0	ALWAYS A 0
1	ALWAYS A 0
2	ALWAYS A 0
3	NORMAL = 0 / PRINT REQUESTED = 1
4	NORMAL = 0 / DISPLAY EXPANDED BY 10 = 1
5	ALWAYS A 1
6	NORMAL = 0 / MANUAL TARE IN kg ONLY = 1
7	EVEN PARITY

2. On Demand Data Transmission

This output is used to transmit only the weight data (i.e., gross, tare and/or net) in one of six formats. There are:

1). Displayed Weight Only - Single Width

2). Displayed Weight Only - Double Width

3). Gross, Tare, Net - Single Line - Single Width

4). Gross, Tare, Net - single Line - Net is Double Width*

5). Gross, Tare, Net - Multiple Line - Single Width

6). Gross, Tare, Net - Multiple Line - Net is Double Width

This data is transmitted only on a demand bases. That is, only when a “Print” key is pushed or a remote print command is received. The speed of this transmission is determined by the baud rate selected during the initial setup. The selectable baud rates are : 300, 1200, 2400, 4800 and 9600. Refer to the output character charts for this format.

* This format is over 40 characters long and can be used with certain printers.

2.1) Displayed Weight Only - Single Width

GROSS WEIGHT ONLY	STX	MSD	-	-	-	>	LSD	SP	L/k	B/g	CR	CK SUM	LF

NET WEIGHT ONLY	STX	MSD	-	-	-	>	LSD	SP	L/k	B/g	SP	N	E	T	CR	CK SUM	LF

STX - START OF TEXT
- - -> - WEIGHT DATA
SP - SPACES
CR - CARRIAGE RETURN
CK
SUM - OPTIONAL CHECKSUM CHARACTER
LF - LINE FEED

2.2) Displayed Weight Only - Double Width

GROSS WEIGHT ONLY	STX	SO	MSD	-	-	-	>	LSD	SP	L/k	B/g	SI	CR	CK SUM	LF

NET WEIGHT ONLY	STX	SO	MSD	-	-	-	>	LSD	SP	L/k	B/g	SP	N	E	T	SI	CR	CK SUM	LF

STX - START OF TEXT
SO - SHIFT OUT CHARACTER
- - -> - WEIGHT DATA SP
SP - SPACES
SI - SHIFT IN CHARACTER
CR - CARRIAGE RETURN
CK
SUM - OPTIONAL CHECKSUM CHARACTER

2.3) Gross, tare, Net - Single Line - Single Width

STX	SO	MSD	-		-	-	LSD	SP	L/k	B/g	SP	MSD	-	-	-	-	LSD	SP	L/k	B/g	SP	T	R	SP	MSD	-	-	-	-	LSD

continued:

SP	L/k	B/g	SP	N	E	T	CR	CK SUM	LF

STX - START OF TEXT
- - - GROSS WEIGHT
SP - SPACES
- - - - TARE WEIGHT
SP - SPACES
- - - - NET WEIGHT
SP - SPACES
CR - CARRIAGE RETURN
CK SUM - OPTIONAL CHECKSUM CHARACTER
LF - LINE FEED

2.4 Gross, Tare, Net -- Single Line -- Net is Double Width

STX	MSD	-	-	-	-	LSD	SP	L/k	B/g	SP	MSD	-	-	-	-	LSD	SP	L/k	B/g	SP	T	R	SP	MSD	-	-	-	-	LSD

continued:

SP	L/k	B/g	SP	N	E	T	SI	CR	CK SUM	LF

STX - START OF TEXT
- - - GROSS WEIGHT
SP - SPACES
- - - - TARE WEIGHT
SP - SPACES
- - - - NET WEIGHT
SP - SPACES
SI - SHIFT IN CHARACTER
CR - CARRIAGE RETURN
CK SUM - OPTIONAL CHECKSUM CHARACTER
LF - LINE FEED

2.5 Gross, Tare, Net -- Multiple Line -- Single Width

GROSS WEIGHT

STX	MSD	-	-	-	>	LSD	SP	L/k	B/g	CR	CK SUM	LF

TARE WEIGHT

MSD	-	-	-	>	LSD	SP	L/k	B/g	SP	T	R	CR	CK SUM	LF

NET WEIGHT

MSD	-	-	-	>	LSD	SP	L/k	B/g	SP	N	E	T	CR	CK SUM	LF

MSD - WEIGHT DATA
SP - SPACES
CR - CARRIAGE RETURN
CKSUM - OPTIONAL CHECKSUM CHARACTER
LF - LINE FEED

2.6 Gross, Tare, Net -- Multiple Line -- Net is Double Width

GROSS WEIGHT

STX	MSD	-	-	-	>	LSD	SP	L/k	B/g	CR	CK SUM	LF

TARE WEIGHT

MSD	-	-	-	>	LSD	SP	L/k	B/g	SP	T	R	CR	CK SUM	LF

NET WEIGHT

SO	MSD	-	-	-	>	LSD	SP	L/k	B/g	SP	N	E	T	SI	CR	CK SUM	LF

SO - SHIFT OUT CHARACTER
MSD - WEIGHT DATA
SP - SPACES
SI - SHIFT IN CHARACTER
CR - CARRIAGE RETURN
CKSUM - OPTIONAL CHECKSUM CHARACTER
LF - LINE FEED

6.6 I/O CONNECTOR DESCRIPTIONS

1. Indicator Input Connector (JY)

SIGNAL NAME	8622 DESK PIN	8622 WALL PIN	8132 J19	8139 J7	8140 JN	8142 JN
Chassis Ground	1	A	*	*	*	*
Transmit (RS232-C)	2	B				
Receive (RS232C)	3	C				
RTS	4	D				
CTS	5	E				
Logic Ground	7	G				
20mA Receive+	8	H	11	11	9	9J
20mA Receive -	10	K	12	12	22	22Y
RS422-A	11	L				
RS422-B	12	M				
+20V	13	N				
+20V	15	R				
Logic Ground	19	V				
Logic Ground	22	Y				
Logic Ground	23	Z				
Jumper shown is in indictor end of interconnecting cable			10 25	10 25	4 5 14 15	4 5 14 15 P R

**Jumper is in the 8622 end of the interconnecting cable

* Denotes shield connection.

Pins not shown are not used.

2. Printer Output Connector (JN)

SIGNAL NAME	8622 DESK PIN	8622 WALL PIN	301 302 J9	8805 J1	8820 8806 J7	8830 J25	8855 J1
Chassis Ground	1	A	*	*	*	*	*
Logic Ground	7	G					
+Print (20mA)	8	H		24	11	15	
20mA Transmit -	9	J	6	26	16	16	3
-Print (20mA)	10	K		19	22	14	
+12V	13	N					
20Ma Tranmit + 20mA	14**	P**					
Supply (+20V)	15	R					
+Print (EIA)	16	S					
Logic Ground	19	V					
Logic Ground	22	Y	7	28	18	18	22
Logic Ground	23	Z					
Jumper shown is in indictor end of interconnecting cable					12 23	9 19	

** Jumper is in he 8622 end of the interconnecting cable.

* Denotes shield connection

Pins not shown are not used.

3. Interconnecting Cables

a). Data Input Cables

INDICATOR	TYPE	8622	LENGTH	SERVICE PART NUMBER	SALES PART NUMBER
8132/8139	DESK WALL	DESK WALL	25' 25'	125061 00A 125059 00A	0900-206 0900-0204
8140/8142	DESK WALL	DESK WALL	25' 25'	125060 00A 125058 00A	0900-0205 0900-0203

b). Data Output Cables

PRINTER	8622	LENGTH	SERVICE PART NUMBER	SALES PART NUMBER
301/307	DESK	6’	A119714 00A	099-0191
		20’	A119715 00A	0900-0199
	WALL	6’	122570 00A	0900-0180
		20’	122571 00A	0900-0181
8805	DESK	6’	A119716 00A	0900-0200
		20’	A119717 00A	0900-0201
	WALL	6’	122572 00A	0900-0182
		20’	122573 00A	0900-0183
8806	DESK	6’	115544 00A	0900-0136
		20’	115545 00A	0900-0137
	WALL	6’	122574 00A	0900-0188
		20’	122575 00A	0900-0189
8810 8820 8830	DESK	6’	A119720 00A	0900-0195
		20’	A119721 00A	0900-0196
	WALL	6’	122576 00A	0900-0184
		20’	122577 00A	0900-0185
8855	DESK	6’	A119722 00A	0900-0197
		20’	A119723 00A	0900-0198
	WALL	6’	122578 00A	0900-0186
		20’	122579 00A	0900-0187

NOTE: To remove wall mount printer cables, press in toward enclosure and twist counterclockwise.

ASCII CHARACTER CHART

ASCII CHAR.	DECIMAL	HEX	76543210	ASCII CHAR.	DECIMAL	HEX	76543210
NULL	0	00	00000000	@	64	40	01000000
SOH	1	01	00000001	A	65	41	01000001
STX	2	02	00000010	B	66	42	01000010
ETX	3	03	00000011	C	67	43	01000011
EOT	4	04	00000100	D	68	44	01000100
ENQ	5	05	00000101	E	69	45	01000101
ACK	6	06	00000110	F	70	46	01000110
BELL	7	07	00000111	G	71	47	01000111
BACKSPACE	8	08	00001000	H	72	48	01001000
TAB	9	09	00001001	I	73	49	01001001
LineFeed	10	0A	00001010	J	74	4A	01001010
Vert. Tab	11	0B	00001011	K	75	4B	01001011
Form Feed	12	0C	00001100	L	76	4C	01001100
Carr.Return	13	0D	00001101	M	77	4D	01001101
Shift Out	14	0E	00001110	N	78	4E	01001110
Shift In	15	0F	00001111	O	79	4F	01001111
Data Link Esc	16	10	00010000	P	80	50	01010000
DC1	17	11	000010001	Q	81	51	01010001
DC2	18	12	00010010	R	82	52	01010010
DC3	19	13	00010011	S	83	53	01010011
DC4	20	14	00010100	T	84	54	01010100
NAK	21	15	00010101	U	85	55	01010101
SYNCH IDLE	22	16	00010110	V	86	56	01010110
End Trans. Block	23	17	00010111	W	87	57	01010111
CANCEL	24	18	00011000	X	88	58	01011000
End Of Medium	25	19	00011001	Y	89	59	01011001
SUBSTITUTE	26	1A	00011010	Z	90	5A	01011010
ESCAPE	27	1B	00011011	[	91	5B	01011011
FS (Cursor Right)	28	1C	00011100	\	92	5C	01011100
GS (Cursor Left)	29	1D	00011101	]	93	5D	01011101
RS (Cursor Up)	30	1E	00011110	^	94	5E	01011110
US (Cursor Down)	31	1F	00011111	_	95	5F	01011111
SPACE	32	20	00100000	`	96	60	01100000
!	33	21	00100001	a	97	61	01100001
"	34	22	00100010	b	98	62	01100010
#	35	23	00100011	c	99	63	01100011
$	36	24	00100100	d	100	64	01100100
%	37	25	00100101	e	101	65	01100101
&	38	26	00100110	f	102	66	01100110
'	39	27	00100111	g	103	67	01100111
(	40	28	00101000	h	104	68	01101000
)	41	29	00101001	i	105	69	01101001
*	42	2A	00101010	j	106	6A	01101010
+	43	2B	00101011	k	107	6B	01101011
,	44	2C	00101100	l	108	6C	01101100
-	45	2D	00101101	m	109	6D	01101101
.	46	2E	00101110	n	110	6E	01101110
/	47	2F	00101111	o	111	6F	01101111
0	48	30	00110000	p	112	70	01110000
1	49	31	00110001	q	113	71	01110001
2	50	32	00110010	r	114	72	01110010
3	51	33	00110011	s	115	73	01110011
4	52	34	00110100	t	116	74	01110100
5	53	35	00110101	u	117	75	01110101
6	54	36	00110110	v	118	76	01110110
7	55	37	00110111	w	119	77	01110111
8	56	38	00111000	x	120	78	01111000
9	57	39	00111001	y	121	79	01111001
:	58	3A	00111010	z	122	7A	01111010
;	59	3B	00111011	{	123	7B	01111011
<	60	3C	00111100 |	124	7C	01111100
=	61	3D	00111101	}	125	7D	01111101
>	62	3E	00111110	~	126	7E	01111110
?	63	3F	00111111		127	7F	01111111

7. PREVENTIVE MAINTENANCE

The Model 8622 Remote Display is designed to require a minimum of maintenance and service. This section provides instructions and procedures for the maintenance for this display, as well as a troubleshooting guide to aid in problem analysis.

7.1 REQUIRED TOOLS AND SUPPLIES

The following items are recommended for proper maintenance and repairs. Common hand tools are also required.

Volt - Ohm Meter
Cleaning Cloth
PCB Static Bags
Static Wrist Strap or Static Work Station

7.2 MAINTENANCE SCHEDULE

The frequency at which normal maintenance (cleaning and inspection) should be performed, when installed in a clean office environment, should be once a year. However, if the unit is subjected to a dusty or dirty environment the frequency should be increased as required

7.3 CLEANING

Clean the keyboard and cover with a soft clean cloth that has been dampened with a mild window type cleaner. (DO NOT USE ANY TYPE OF INDUSTRIAL SOLVENT). DO NOT SPRAY CLEANER DIRECTLY ONTO THE UNIT.

7.4 TROUBLESHOOTING

1. Procedure

a). If operational difficulties are encountered, obtain as much information as possible regarding your particular problem, as this may eliminate a lengthy, detailed checkout procedure.

b). Check fuses, primary power lines, external circuit elements and related wiring for possible faults. Failures and malfunctions often can be traced to simple causes such as improper power supply connections or fuse failure.

c) Use the electrical interconnecting diagram and the power supply testing section an aid to locating trouble causes. These sections contain various voltage measurements that are average for normal operation. Use instrument probes carefully to avoid causing short circuits and damaging circuit components.

d) Malfunctions in the 8622 are best located by substitution. A PCB believed to be defective may be checked by replacing it with a known good PCB, and then observing whether the problem is corrected.
WHEN HANDLING A PCB, USE A “VELOSTAT” STATIC BAG FOR BOTH THE NEW AND DEFECTIVE PCB.

e). To verify the problem as being in the removed PCB, replace the defective PCB and retest. This simple test will eliminate the possibility of having replaced a good PCB because of a loose or poor connection.

Be sure to consult the technical manual for proper programming. Do not automatically program the replacement PCB like the suspected faulty PCB as the problem may be a programming error.

Exchange PCB's, or sub-assemblies are available from your authorized Toledo Scale representative. These assemblies are repaired and tested at various Toledo Scale facilities.

2. Error Codes

The Model 8622 has eight error detection test routines included in this operation. If any one of these errors are detected the associated error code will be displayed. The following chart shows the eight error codes, their descriptions and a recommended corrective measure.

ERROR CODE CHART

ERROR CODE	DESCRIPTIONS	CORRECTIVE MEASURE
E_ _ _ _1	Program Error	1. Check setup entries. 2. Reset by temporally removing power. 3. Replace the logic PCB.
E _ _ _ _2	Ram Error	1. Reset by temporarily removing power. 2. replace the logic PCB.
E _ _ _ _3	Novrom Error	1. Reset by temporarily removing power. 2. Replace the Logic PCB.
E _ _ _ _4	No Data Input	1. Check programming and data output of the indicator used. Refer to Section 6.4 for Input Spaces.
E _ _ _ _5	Incrt Data Format	1. Check programming of the indicator used. (data output must be of the continuous format)
E _ _ _ _6	Checksum Eror	1. Check programming of the checksum character in the indictor output and the 8622 input. Both units must be programmed the same.
E _ _ _ _7	Novram Error	1. Reset by temporarily removing power. 2. Replace the Logic PCB.
E _ _ _ _8*	Open Input	1. Reset by temporarily removing power. 2. Check interconnecting cable. 3. Check indicator and 8622 internal harnesses.

* This test is only performed during the power up of the 8622.

3. Voltage Testing

This section deals with the operating voltage levels and there tolerances, as well as where these voltages can be checked.

a). Transformer Voltages

These voltages are average voltages for 118 VAC power line.

CHECK		VOLTAGE	TOLERANCE	
FROM	**TO**	**READINGS**	**MIN.**	**MAX.**
J2-1	J2-4	6.2 VAC	5.4 VAC	7.0 VAC
J2-2	J2-3	3.3 VAC	2.6 VAC	3.5 VAC
J2-8	J2-9	20.0 VAC	16.0 VAC	23.0 VAC
J2-9	J2-12	20.0 VAC	16.0 VAC	23.0 VAC
J2-13	J2-14	10.0 VAC	8.5 VAC	11.5 VAC

b). Regulated DC Voltages

The regulated voltages can be tested at there respective filter capacitors on the Logic PCB. Refer to the following diagrams for the capacitor locations. If any of these voltages are not within the allowable tolerances the Logic PCB should be replaced. The voltages should be;

TEST POINT	REGULATED VOLTAGES	TOLERANCE		MAXIMUM AC RIPPLE
		MIN.	**MAX.**	
C5	+5 VDC	+4.8 VDC	+5.2 VDC	0.1 VAC
C9	- 12 VDC	-11.4 VDC	-12.6 VDC	0.07 VAC
C10	+12 VDC	+11.4 VDC	+12.6 VDC	0.07 VAC

c). Unregulated DC Voltages

The unregulated voltages can be tested at various locations on the Logic PCB. Refer to the following diagram for these locations. If any of these voltages are not within the allowable tolerances the Logic PCB should be replaced. The voltages should be;

TEST POINT	VOLTAGE READING	TOLERANCE	
		MIN.	**MAX.**
J4 - Pin 14	+20 VDC	+16.0 VDC	+23.0 VDC
Q10 - Pin 2	-40 VDC	-33.0 VDC	-42.0 VDC

VOLTAGE TEST POINT DIAGRAM

d). Voltage Descriptions

This paragraph will explain what each of the DC voltages are used or and which AC voltage the DC is derived from.

1). The +VDC supply is derived from the 10.0 VAC supply. It s used to power the logic circuits and the RS422 communications circuit.

2). The + and - 12 VDC is derived from the 35.5 VAC supply. It's main function is to provide power for the RS232-C communications port.

3). The +20 VDC is used to supply the current for the 20 milliamp communications loop. this voltage is derived from the 35.5 VAC supply.

4). The -40 VDC is used to power both the onboard and remote displays. It originates from the 35.5 VAC supply.

5). The 3.3 VAC is used as a "keep alive" voltage for the remote display, used on the stainless steel type.

6). The 6.2 VAC is used as a "keep alive" voltage for the remote display, used on the stainless steel type.

e). Logic PCB Replacement

1). Remove or open the front cover being careful not to damage the keyboard harness.

2). Remove the harnesses connected to the Logic PCB. They are:

-Keyboard harness / J1
-Power Supply harness / J2
-Data Input harness / J5
- Data Output harness / J3 (optional)
-Remote Display harness / J6
(wall mount only)

3). Remove the phillips screw located in the center of the PCB.

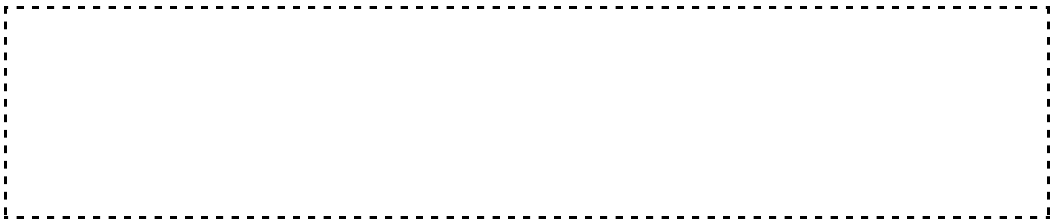
4). On the desk type pull off the four plastic retaining clips, there is one clip located at each corner of the PCB.

5). On the wall unit remove the four phillips screws, there is one screw located at each corner of the PCB.

6). Install the replacement PCB in the reverse order of above.

8.0 INTERCONNECTING DIAGRAMS

8.1 INTERCONNECTING DIAGRAM, DESK UNIT



8.2 INTERCONNECTING DIAGRAM, WALL UNIT