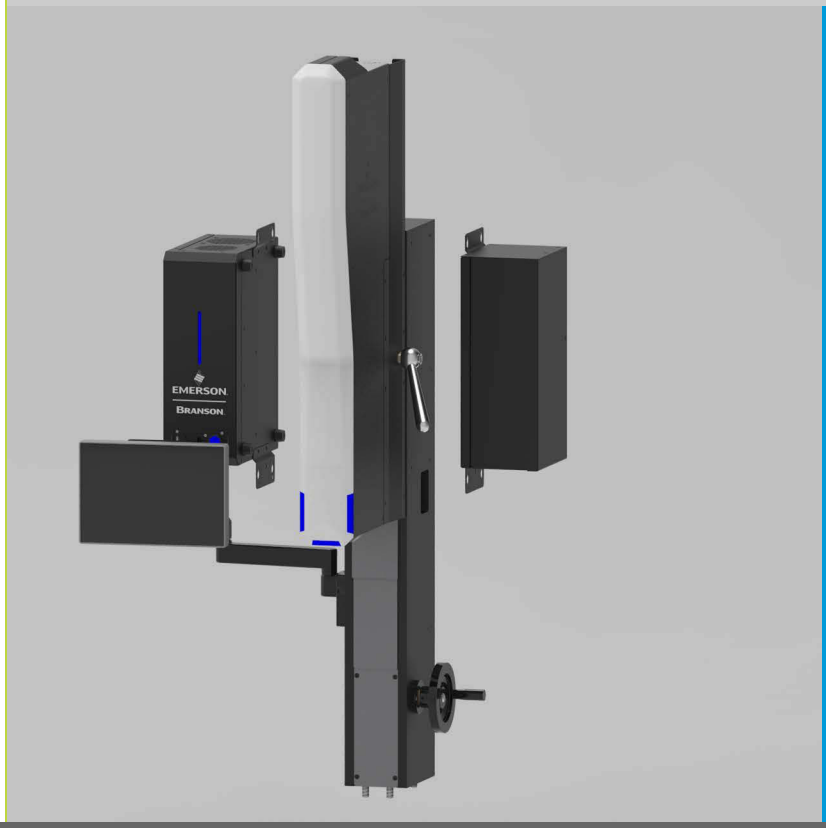
Original Instructions
1032610 - REV. 02

EMERSON



GSX-E1 V2
Automation Models

Quick Start Guide

Branson Ultrasonics Corporation
120 Park Ridge Road
Brookfield, CT 06804
(203) 796-0400
http://www.bransonultrasonics.com

BRANSON

[This page intentionally left blank]

Manual Change Information

At Branson, we strive to maintain our position as the leader in ultrasonics plastics joining, metal welding, cleaning and related technologies by continually improving our products. These improvements are incorporated as soon as they are developed and thoroughly tested.

This Quick Start Guide is supplemental to and should be used in conjunction with the documentation set for the GSX-E1 system.

Information concerning any improvements will be added to the appropriate technical documentation at its next revision. Therefore, when requesting service assistance for specific units, note the revision information found on this document.

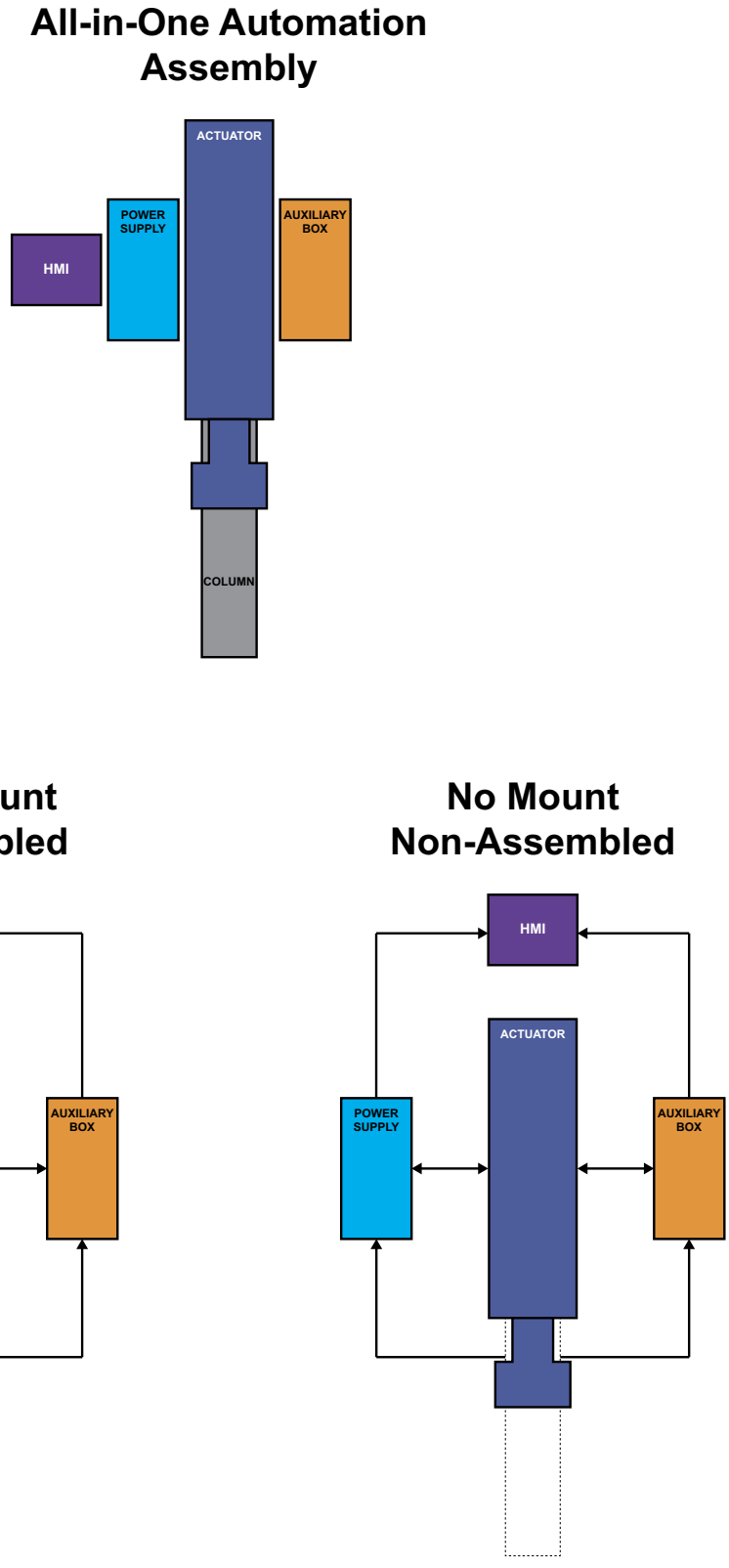
Copyright and Trademark Notice

[This page intentionally left blank]

Chapter 1: Introduction

1.1 Configuration Options

Figure 1.1



1.2 All-in-One Automation Assembly

Figure 1.2

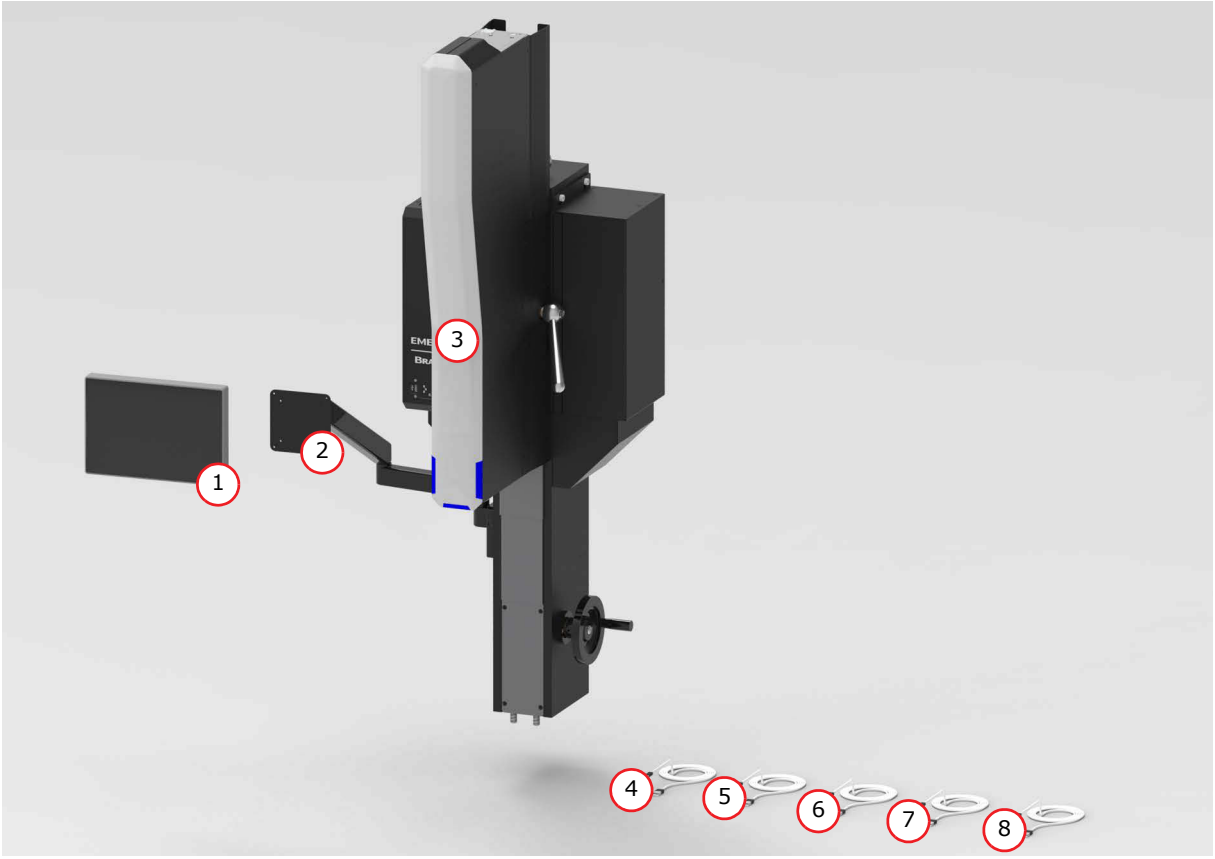


Table 1.1

Item	Description	Quantity
1	HMI Monitor	1
2	Monitor Arm	1
3	GSX All-In-One System	1
4	Actuator I/O Cable	1
5	Power Supply I/O Cable	1
6	Power Supply Line Cord	1
7	Start Cable	1
8	Ground Detect Cable (optional)	-

1.3 Column & Hub Mount (Non-Assembled)

Figure 1.3

Table 1.2

Item	Description	Quantity
1	HMI Monitor	1
2	Monitor Arm (optional)	-
3	Actuator*	1
4	Column	1
5	Power Supply*	1
6	Power Supply Mounting Bracket	2
7	Auxiliary Box*	1
8	Auxiliary Box Mounting Brackets	2
9	Cables (see Table 2.1 for more information)	13
10	Ground Detect Cable (optional)	-

NOTICE	
	*There are two different configurations for the actuator, power supply, and auxiliary box. See section 1.5 Actuator, Power Supply, Auxiliary Box Configurations for more information.

1.4 No Mount (Non-Assembled)

Figure 1.4

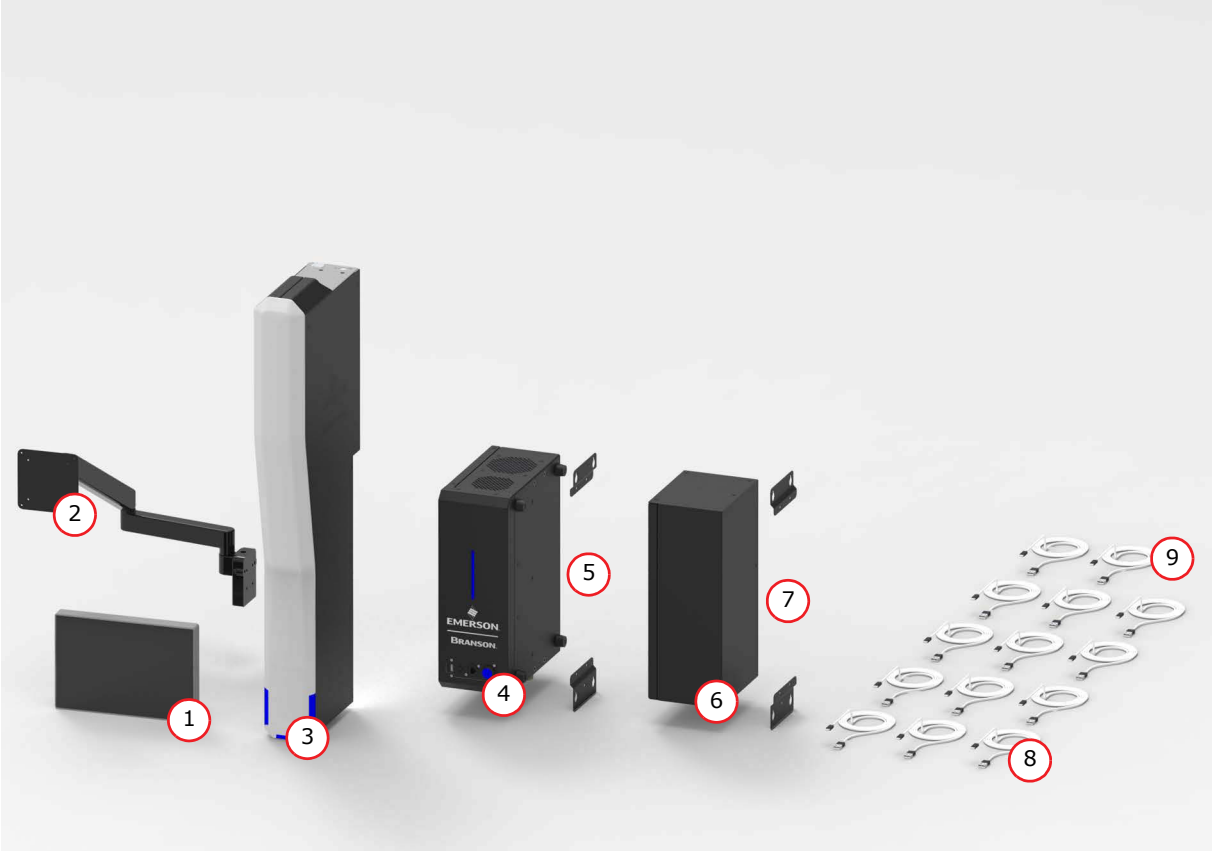


Table 1.3

Item	Description	Quantity
1	HMI Monitor	1
2	Monitor Arm (optional)	-
3	Actuator*	1
4	Power Supply*	1
5	Power Supply Mounting Bracket	2
6	Auxiliary Box*	1
7	Auxiliary Box Mounting Brackets	2
8	Cables (see Table 2.1 for more information)	13
9	Ground Detect Cable (optional)	-

NOTICE	
	*There are two different configurations for the actuator, power supply, and auxiliary box. See section 1.5 Actuator, Power Supply, Auxiliary Box Configurations for more information.

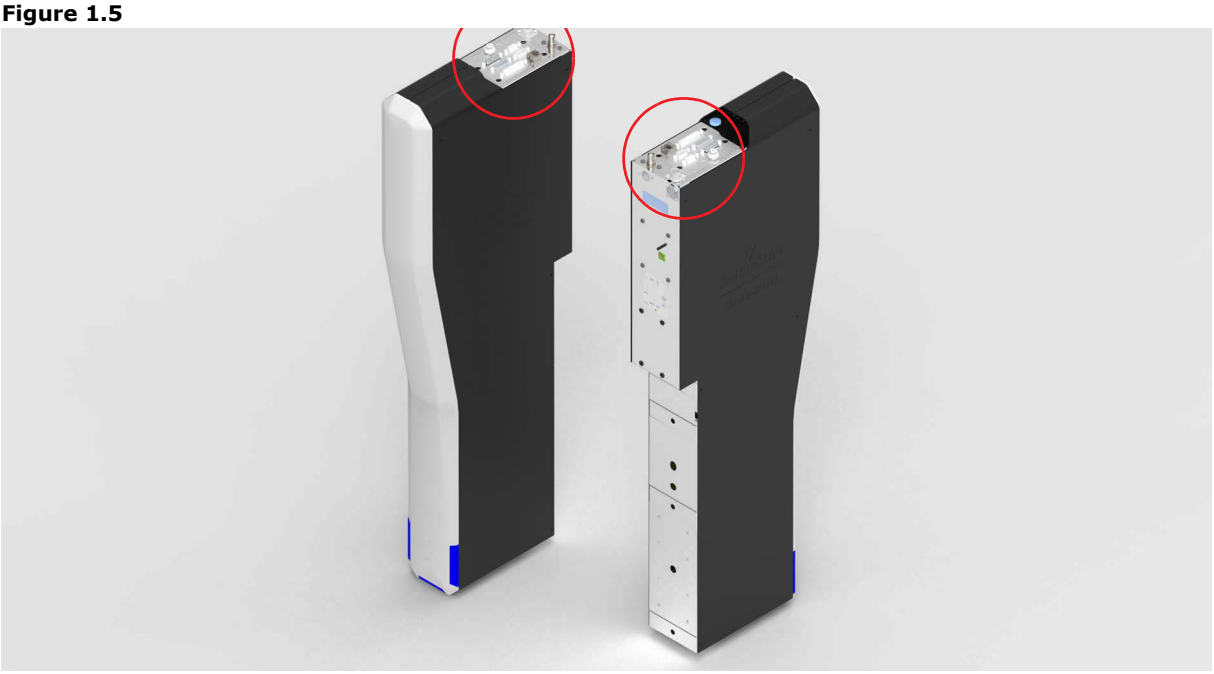
1.5 Actuator, Power Supply, Auxiliary Box Configurations

1.5.1 Actuator Configurations

1.5.1.1 Top Exit

Actuator with connections on top of the unit.

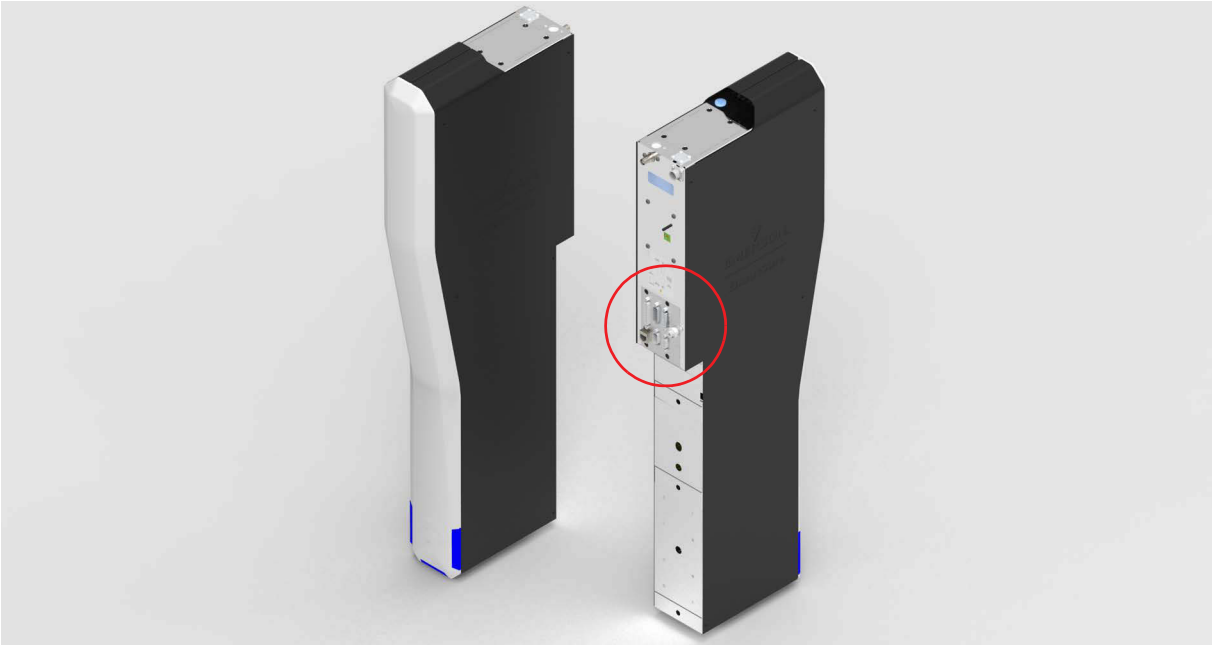
Figure 1.5



1.5.1.2 Rear Exit

Actuator with connections on the back of the unit.

Figure 1.6

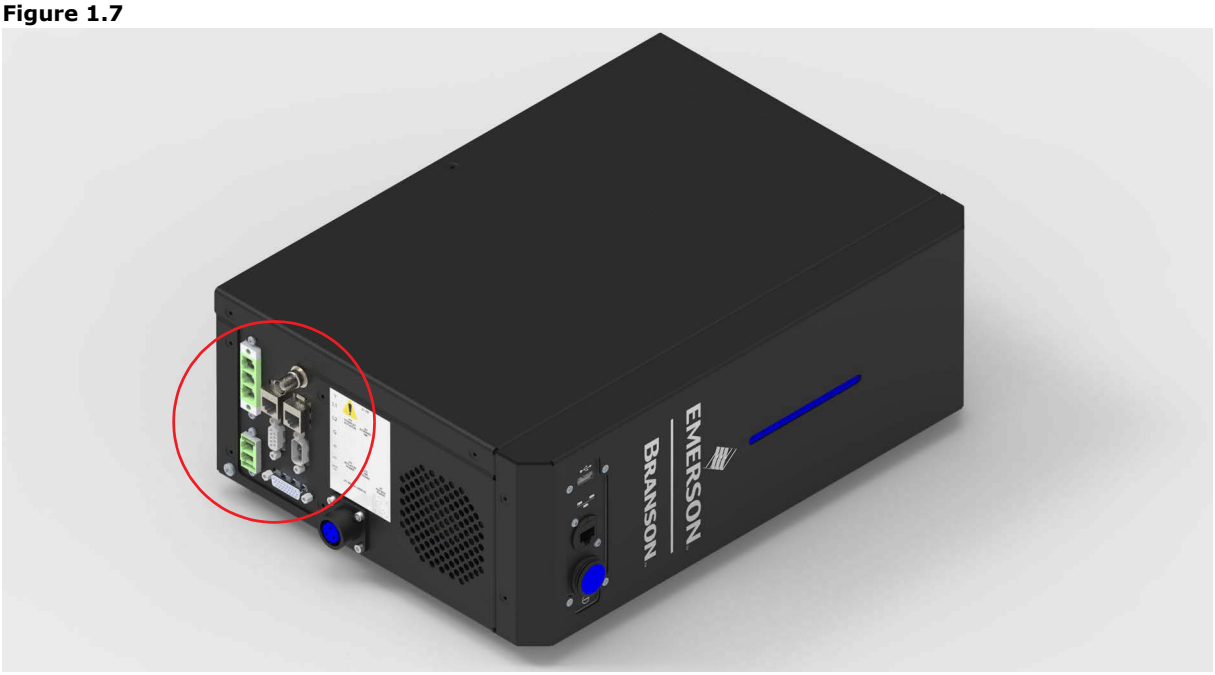


1.5.2 Power Supply Configurations

1.5.2.1 Bottom Exit

Power supply with connections on the bottom of the unit.

Figure 1.7



1.5.2.2 Rear Exit

Power supply with connections on the back of the unit.

Figure 1.8

1.5.3 Auxiliary Box Configurations

1.5.3.1 Bottom Exit

Auxiliary box with connections on the bottom of the unit.

Figure 1.9

1.5.3.2 Rear Exit

Auxiliary box with connections on the back of the unit.

Figure 1.10

Chapter 2: Interconnection

2.1 Interconnection Diagram & Cables

Figure 2.1 Interconnection Diagram - 01

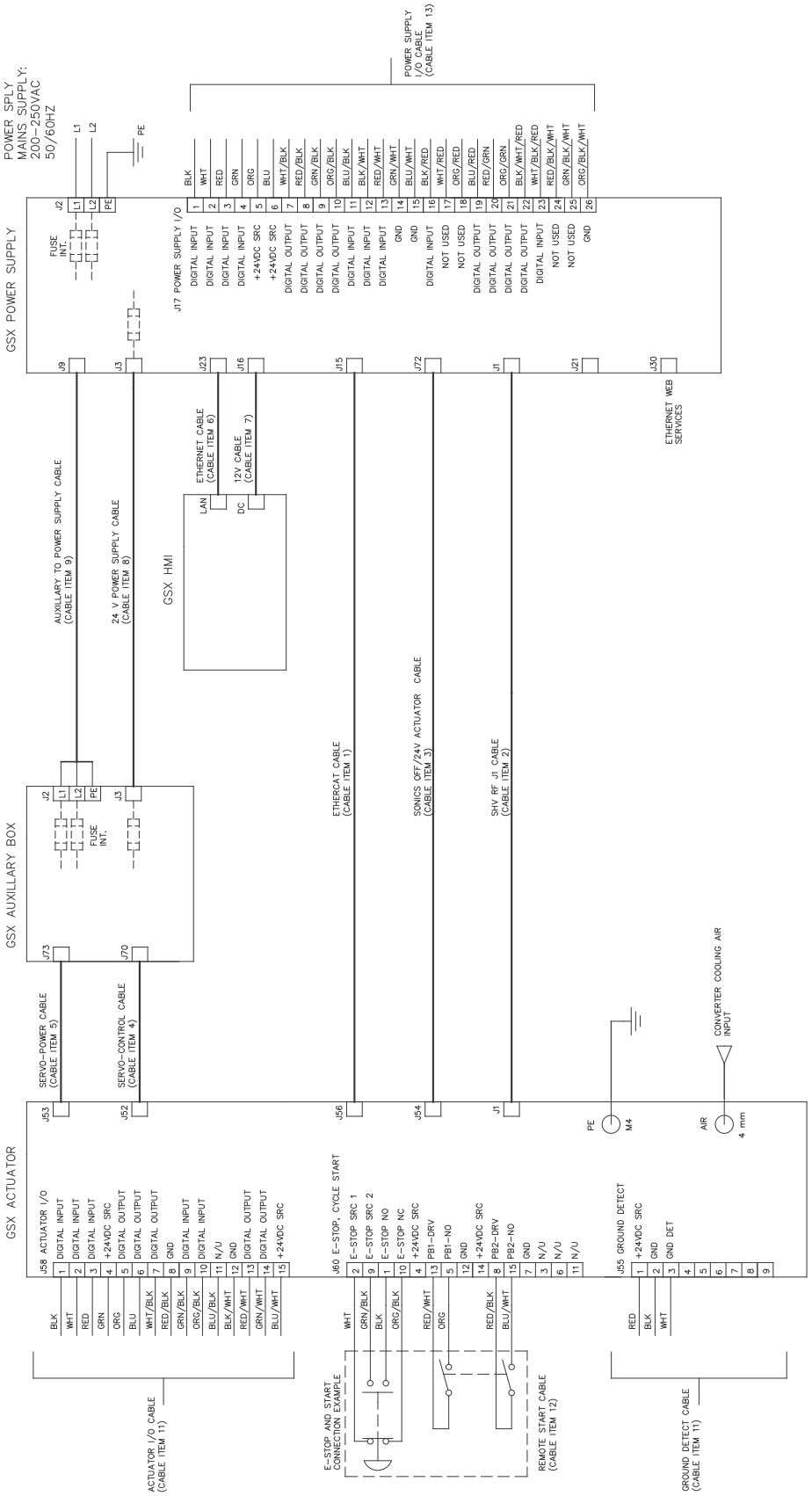
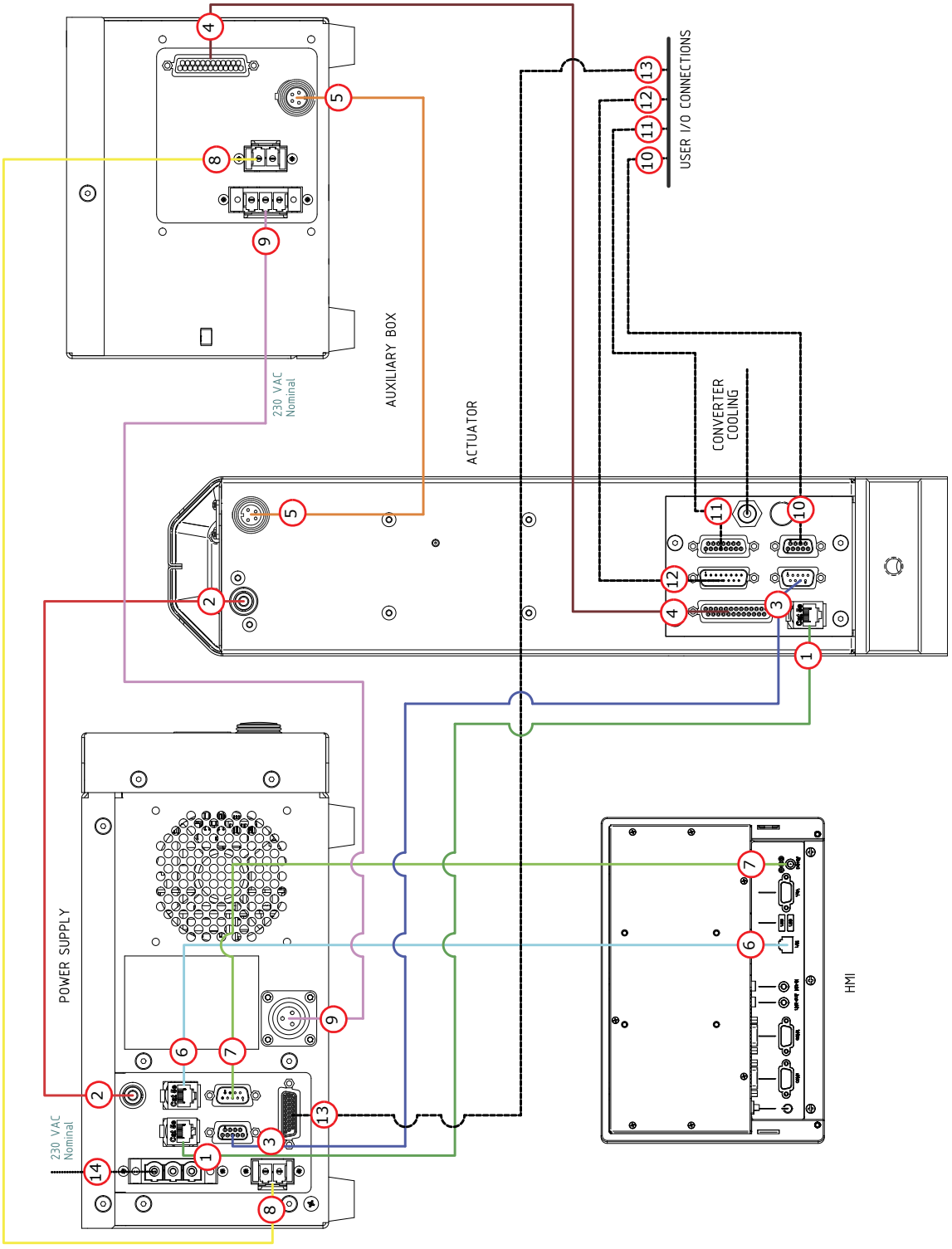


Figure 2.2 Interconnection Diagram - 02



NOTICE	
	For detailed pin-out information, please refer to the GSX-E1 User Manual.

Table 2.1 Interconnection Cables

Item	EDP	Length	Description	Connection Points	Reference
1	1018644	2.5 m	EtherCAT Cable	Actuator J56 - Power Supply J15	
	1018645	7.5 m			
	1018646	15 m			
2	100-240-383	2.5 m	SHV RF J1 Cable	Actuator J1 - Power Supply J1	
	100-240-385	7.5 m			
	100-240-386	15 m			
3	1030041	2.5 m	Sonics Off/24 V Actuator Cable	Actuator J54 - Power Supply J72	
	1030042	7.5 m			
	1030043	15 m			
4	1018558	2.5 m	Servo-Control Cable	Actuator J52 - Auxiliary Box J70	
	1018559	7.5 m			
	1018561	15 m			
5	1033941	2.5 m	Servo-Power Cable	Actuator J53 - Auxiliary J73	
	1033942	7.5 m			
	1033943	15 m			

Table 2.1 Interconnection Cables

Item	EDP	Length	Description	Connection Points	Reference
6	1018648	2.5 m	Ethernet Cable	Power Supply J23 - HMI LAN Port	
	1018649	7.5 m			
	1018650	15 m			
7	1029730	2.5 m	12 V HMI Cable	Power Supply J16 - HMI DC Input	
	1029731	7.5 m			
	1029732	15 m			
8	1018652	2.5 m	24 V Power Supply Cable	Auxiliary Box J3 - Power Supply J3	
	1018653	7.5 m			
	1018654	15 m			
9	1031348	2.5 m	Auxiliary Box to Power Supply Cable	Auxiliary Box J2 - Power Supply J9	
	1031349	7.5 m			
	1031350	15 m			
10*	1018466	2.5 m	Ground Detect Cable **NOTICE** *Optional	Actuator J55	
	1018467	7.5 m			
	1018468	15 m			

Table 2.1 Interconnection Cables

Item	EDP	Length	Description	Connection Points	Reference
11	1018437	2.5 m	Actuator I/O Cable	Actuator J58	
	1018438	7.5 m			
	1018439	15 m			
12	1017955	2.5 m	Remote Start Cable	Actuator J60	
	1017956	7.5 m			
	1017957	15 m			
13	1019375	2.5 m	Power Supply I/O Cable	Power Supply J17	
	100-240-392	7.5 m			
	100-240-393	15 m			
14	1014991	3 m	Power Supply Line Cord	Power Supply J2	

2.2 Cable Interface Points

2.2.1 Actuator

Figure 2.3 GSX Actuator Cable Interface Points

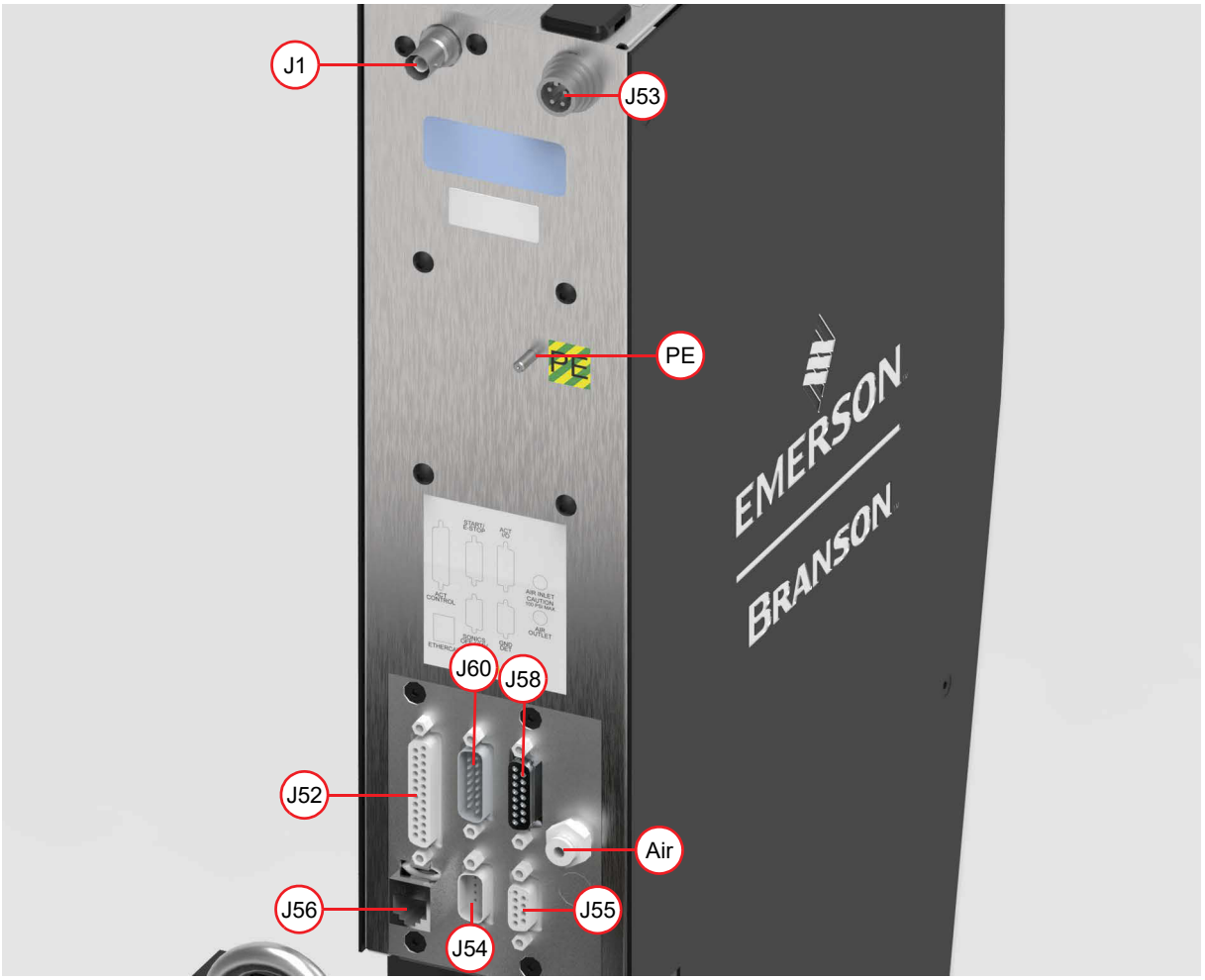


Table 2.2 GSX Actuator Cable Interface Points

Connection Point	Description	Cable Required/Notes
J1	RF In	SHV RF J1 Cable
J52	Servo Control	Servo-Control Cable
J53	Servo Power In	Servo-Power Cable
J54	Sonics Status In/24 VDC Actuator In	Sonics Off/24 V Actuator Cable
J55	Ground Detect	Ground Detect Cable
J56	P/S-Actuator Comm	EtherCAT Cable
J58	Actuator I/O	Actuator I/O Cable
J60	E-Stop, Cycle Start	Remote Start Cable
PE	Earth Ground	Ground Actuator - M4 stud
Air	Converter Cooling Air Input	Air Fitting - 4 mm tube

2.2.2 Power Supply

Figure 2.4 GSX Power Supply Cable Interface Points

Table 2.3 GSX Power Supply Cable Interface Points

Connection Point	Description	Cable Required/Notes
J1	RF Out	SHV RF J1 Cable
J2	Main Supply Voltage Input	Power Supply Line Cord
J3	24 VDC Power Supply In	24 V Power Supply Cable
J9	Auxiliary Box AC Supply	Auxiliary Box to Power Supply
J15	P/S-Actuator Comm	EtherCAT Cable
J16	12 VDC HMI Out	12 V HMI Cable
J17	Power Supply I/O	Power Supply I/O Cable
J23	Ethernet Monitor	Ethernet Cable
J72	24 VDC Actuator Out	Sonics Off/24 V Actuator Cable

2.2.3 Auxiliary Box

Figure 2.5 GSX Auxiliary Box Cable Interface Points

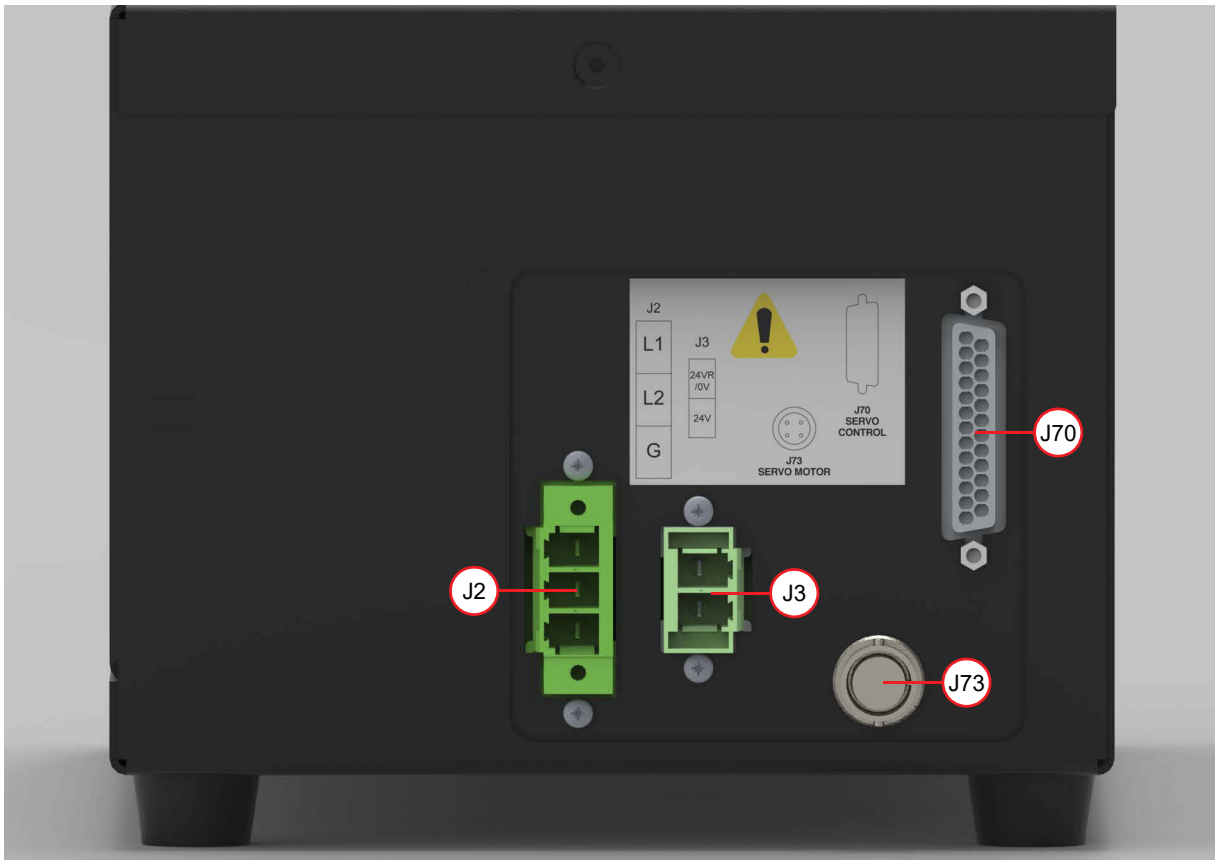


Table 2.4 GSX Auxiliary Box Cable Interface Points

Connection Point	Description	Cable Required/Notes
J2	Main Supply Voltage Input	Auxiliary Box to Power Supply
J3	24 VDC Power Supply Out	24 V Power Supply Cable
J70	Servo Control	Servo-Control Cable
J73	Servo Power Out	Servo-Power Cable

2.2.4 HMI

Figure 2.6 HMI Interface Points

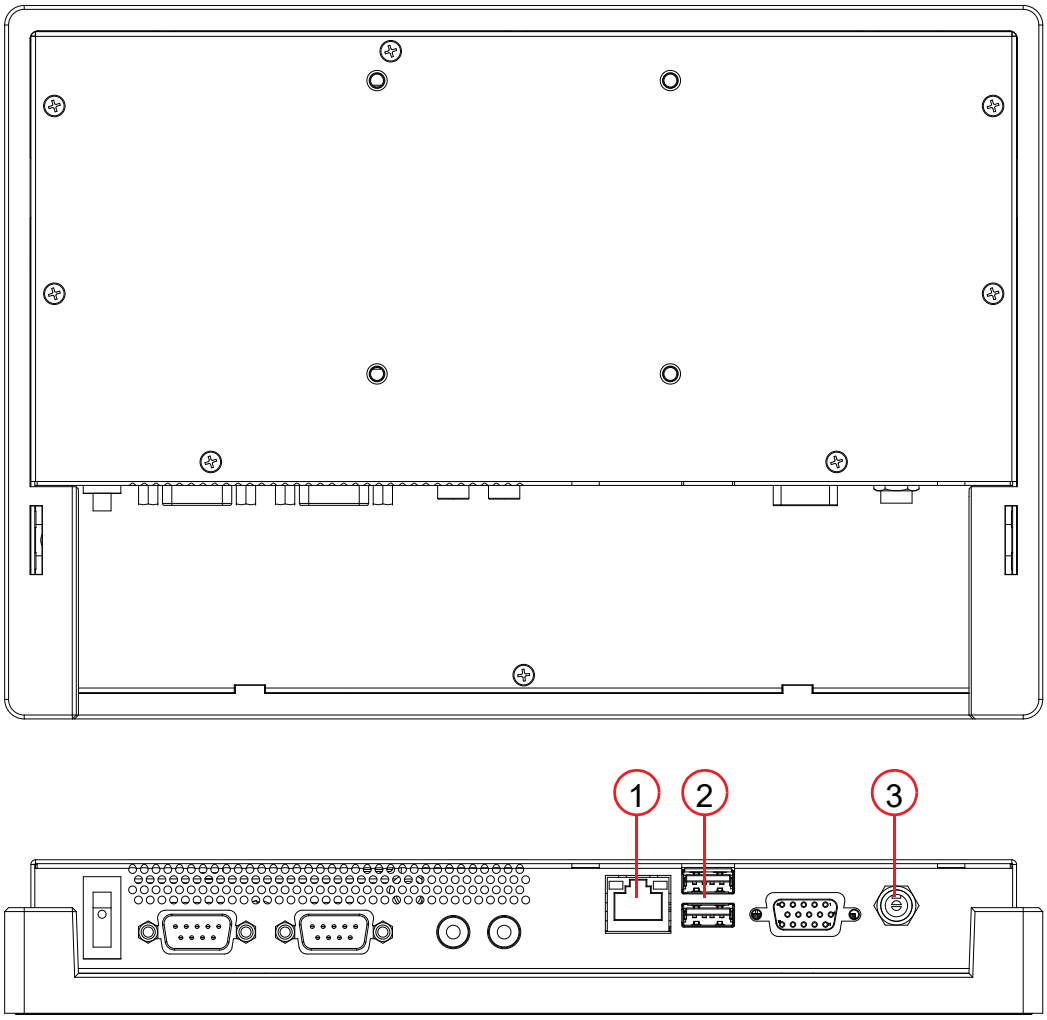


Table 2.5 Touchscreen Connections

Item	Description
1	LAN Port
2	USB 2.0/USB 3.0 Ports
3	DC Input

NOTICE	
	USB ports on the HMI are for keyboards and mice only. Do not use any other kind of device into these ports.

Chapter 3: I/O Specifications

3.1 Start Switch and E-Stop Connections

The system requires two start switches and one emergency stop connection. The start switches and E-Stop switches need to be electrically isolated from each other to complete their circuit closure. Solid state switches may be used if the leakage current is less than 0.1mA. The start switches must be closed within 200 milliseconds of each other and must remain closed until the PB Release signal is logic high.

Figure 3.1 Start and E-Stop I/O Pin Numbers and Equivalent Circuit

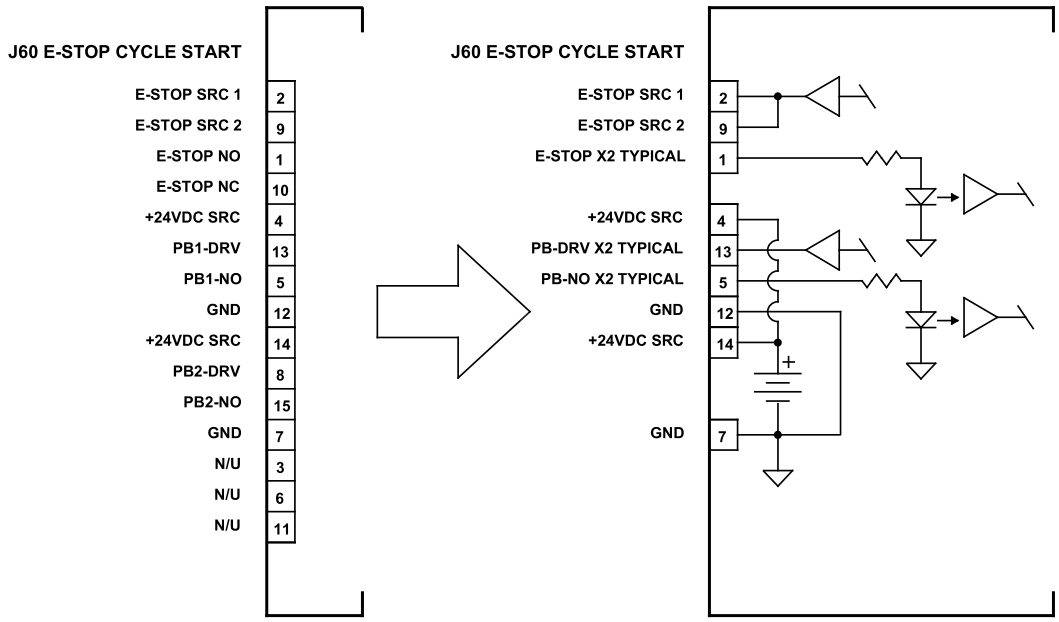
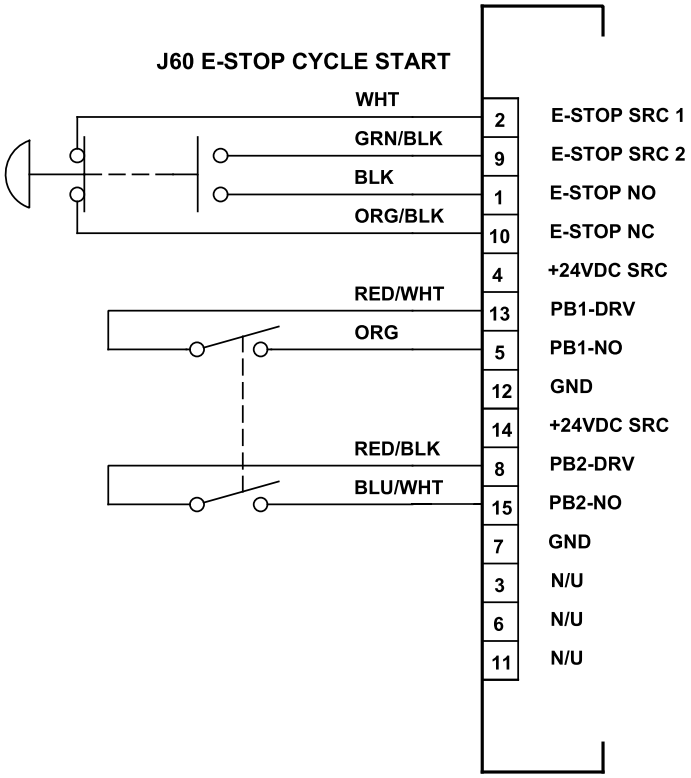


Figure 3.2 Example of external start and emergency stop switch connections using remote start cable



3.1.1 Specifications

Table 3.1 E-Stop Specifications

Description	Value
Outputs	2 Source: SRC1 & SRC2
Output Voltage	24 VDC
Inputs	2 Sink: E-Stop NO & E-Stop NC
Input Impedance	2 kΩ
Input Current	12 mA
Protection	N/A
Ext. Switch Type	1 NO & 1 NC Isolated
Ext. Switch Contact	Dry Contact

Table 3.2 PB Start Switch Specifications

Description	Value
Outputs	2 Source: PB1-DRV & PB2-DRV
Output Voltage	24 VDC
Inputs	2 Sink: PB1-NO & PB2-NO
Input Impedance	2 kΩ
Input Current	12 mA
Protection	N/A
Ext. Switch Type	2 N.O. Isolated DPST
Ext. Switch Contact	Dry Contact

Table 3.3 +24 VDC Source

Description	Value
Number of Output Pins	2
Maximum Current	2 A (1 A/pin)
Protection	Internal Fuse
Common Points	Ground Pins - 2

3.2 Actuator I/O Specifications

Figure 3.3 Actuator I/O Pin Number and Equivalent Circuit

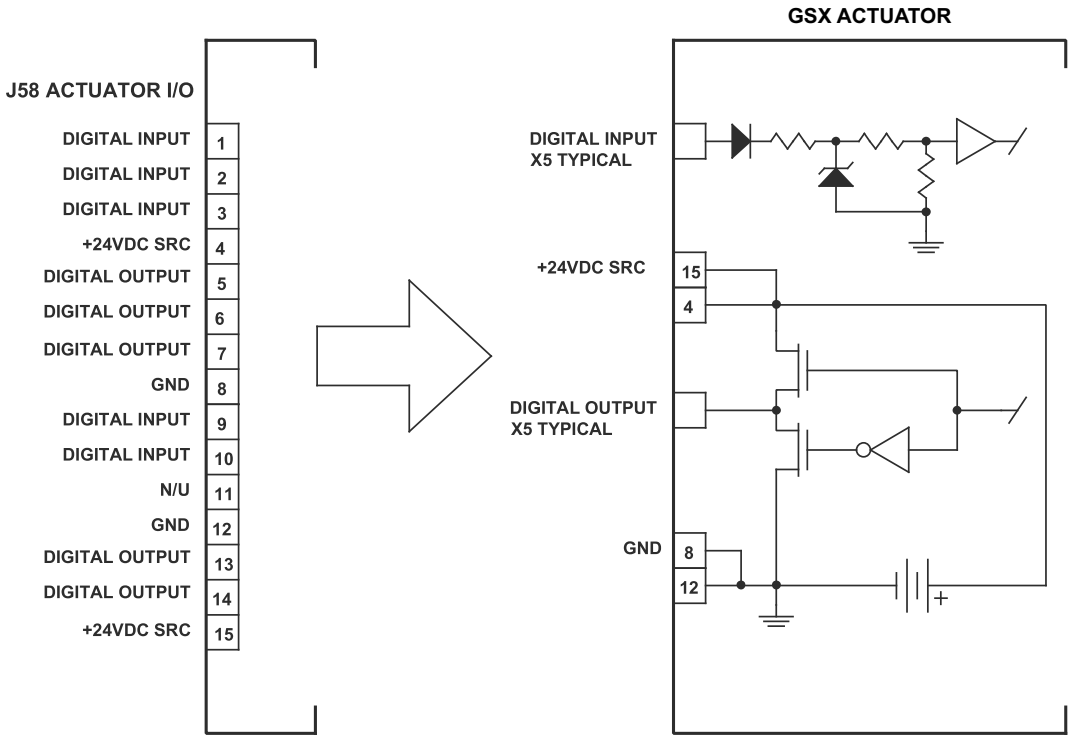


Figure 3.4 Typical Connection to PLC/Controller

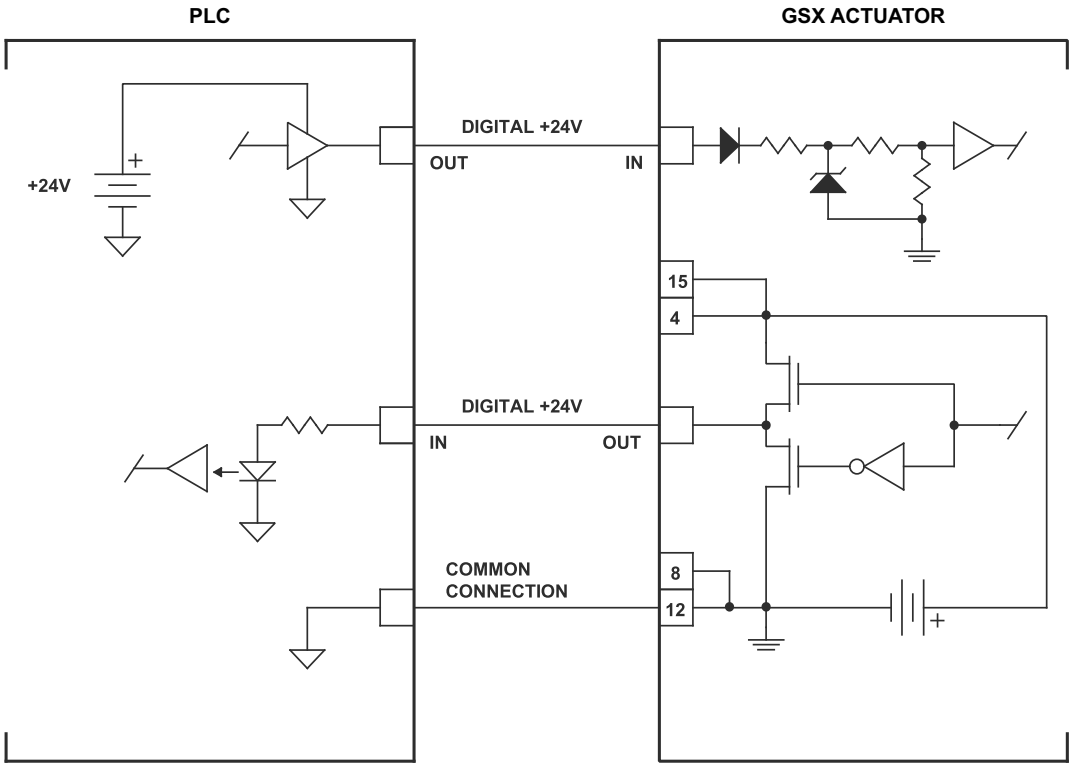


Table 3.4 Digital I/O Specifications

Inputs		Outputs	
Description	**Value**	**Description**	**Value**
Number of Inputs	5 (Sink)	Number of Outputs	5 (Source/Sink)
Wiring	PNP	Wiring	PNP/NPN
Input Voltage Range	15-30 VDC	ON Output Voltage	24 VDC
Input Impedance	16 kΩ	OFF Output Voltage	0 VDC
Maximum Input Current	1.5 mA @ 24 VDC	Source Output Impedance	110 mΩ @25°C
	1.8 mA @ 27 VDC	Sink Output Impedance	1 Ω @ 25°C
ON Voltage Level	> 15 VDC	Maximum Source Current	870 mA @ 25°C
Off Voltage Level	< 5 VDC	Maximum Sink Current	680 mA @ 25°C
Protection	Over/Under Voltage	Protection	Thermal/Over Current/ Inductive-Kick
Common Points	Ground Pins - 2		Ground Pins - 2
		Common/Source Points	24 VDC Source Pins - 2

Table 3.5 +24 VDC Source

Description	Value
Number of Output Pins	2
Maximum Current	0.5 A Total
Protection	Internal Resettable Fuse
Common Points	Ground Pins - 2

3.3 Power Supply I/O Specifications

Figure 3.5 Power Supply I/O Pin Number and Equivalent Circuit

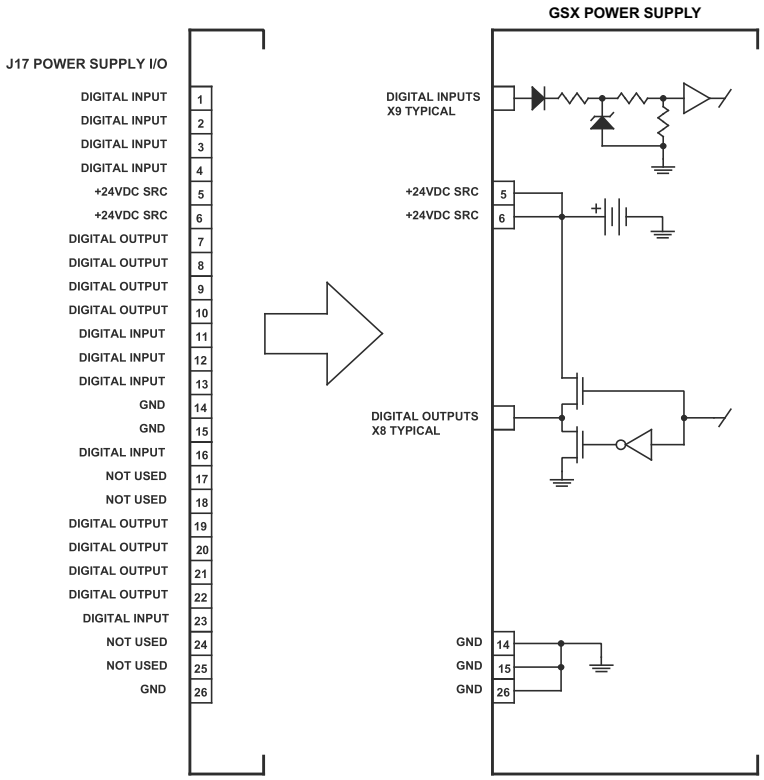


Figure 3.6 Typical Connection to PLC/Controller

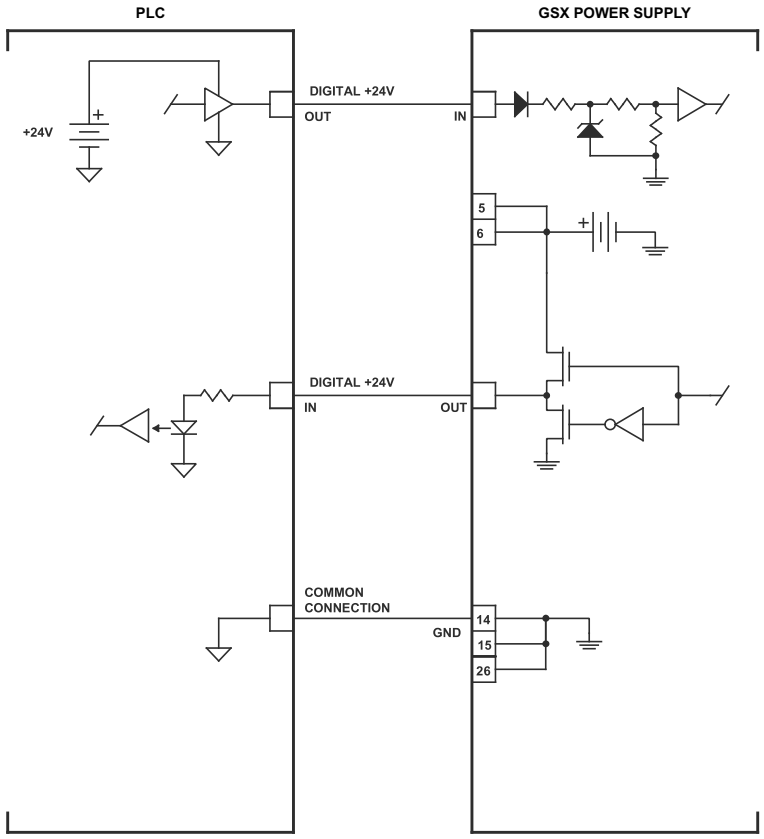


Table 3.6 Digital I/O Specifications

Inputs		Outputs	
Description	**Value**	**Description**	**Value**
Number of Inputs	9 (Sink)	Number of Outputs	8 (Source/Sink)
Wiring	PNP	Wiring	PNP/NPN
Input Voltage Range	15-30 VDC	ON Output Voltage	24 VDC
Input Impedance	16 kΩ	OFF Output Voltage	0 VDC
Maximum Input Current	1.5 mA @ 24 VDC	Source Output Impedance	110 mΩ @25°C
	1.8 mA @ 27 VDC	Sink Output Impedance	1 Ω @ 25°C
ON Voltage Level	> 15 VDC	Maximum Source Current	870 mA @ 25°C
Off Voltage Level	< 5 VDC	Maximum Sink Current	680 mA @ 25°C
Protection	Over/Under Voltage	Protection	Thermal/Over Current/ Inductive-Kick
Common Points	Ground Pins - 3		Ground Pins - 3
		Common/Source Points	24 VDC Source Pins - 2

Table 3.7 +24 VDC Source

Description	Value
Number of Output Pins	2
Maximum Current	0.42 A Total
Protection	Internal Resettable Fuse
Common Points	Ground Pins - 3

3.4 GSX Default I/O Configurations

Inputs and outputs can be reconfigured to specific pin numbers. The I/O configuration is in the system configuration setup.

3.4.1 Default Actuator I/O Configurations

Table 3.8 Default Actuator I/O Configurations

Pin	Input/Output	Default Function	Cable Color (IEC)
1	Digital Input	N/A	BLK
2	Digital Input	Part Present	WHT
3	Digital Input	Home Position	RED
4	+24VDC SRC	Supplied from GSX System	GRN
5	Digital Output	Home Position	ORG
6	Digital Output	Ready Position	BLU
7	Digital Output	PB Release	WHT/BLK
8	Gnd	+24VDC Common	RED/BLK
9	Digital Input	Ready Position	GRN/BLK
10	Digital Input	N/A	ORG/BLK
11	Not Used	N/A	BLU/BLK
12	GND	+24VDC Common	BLK/WHT
13	Digital Output	N/A	RED/WHT
14	Digital Output	N/A	GRN/WHT
15	+24VDC SRC	Supplied from GSX System	BLU/WHITE

Default Power Supply I/O Configurations

Table 3.9 Default Power Supply I/O Configurations

Pin	Input/Output	Default Function	Cable Color (IEC)
1	Digital Input	Cycle Abort	BLK
2	Digital Input	U/S Disable	WHT
3	Digital Input	Reset	RED
4	Digital Input	N/A	GRN
5	+24VDC SRC	Supplied from GSX System	ORG
6	+24VDC SRC		BLU
7	Digital Output	Ready	WHT/BLK
8	Digital Output	Sonics Active	RED/BLK
9	Digital Output	General Alarm	GRN/BLK
10	Digital Output	Cycle Running	ORG/BLK
11	Digital Input	Hold Delay	BLU/BLK
12	Digital Input	Horn Seek	BLK/WHT
13	Digital Input	N/A	RED/WHT
14	Gnd	+24 VDC Common	GRN/WHT
15	Gnd		BLU/WHT
16	Digital Input	N/A	BLK/RED
17	Not Used	N/A	WHT/RED
18	Not Used	N/A	ORG/RED
19	Digital Output	Horn Seek	BLU/RED
20	Digital Output	Cycle OK	RED/GRN
21	Digital Output	Suspect Alarm	ORG/GRN
22	Digital Output24	Reject Alarm	BLK/WHT/RED
23	Digital Input	N/A	WHT/BLK/RED
24	Not Used	N/A	RED/BLK/WHITE
25	Not Used	N/A	GRN/BLK/WHT
26	Gnd	+24VDC Common	ORG/BLK/WHT

3.5 I/O Descriptions

Inputs and outputs are configurable to specific pin numbers. The configuration is in the system configuration setup.

All discrete or digital inputs are 0 or 24VDC.

3.5.1 Available Actuator I/O

Table 3.10 GSX Actuator I/O Descriptions - Inputs

Input	Level Range	Definition	Default Value & Logic
Part Present	0/24VDC	An external Input to let the system controller know that the part to be welded in position. **NOTICE** Use this input only with the benchtop GSX.	24VDC - The part to be welded is in position.
Home Position	0/24VDC	Commands the actuator to go to its home position when the start switches are closed.	24VDC - Configures the actuator to go to its home position.
Ready Position	0/24VDC	Commands the actuator to go to its ready position after power up or an e-stop and the start switches are closed.	24VDC - Configures the actuator to go to its ready position.

Table 3.11 GSX Actuator I/O Descriptions - Outputs

Output	Level Range	Definition	Default Value & Logic
Home Position	0/24VDC	The Actuator is at its home position.	24VDC - The actuator is at its home position.
Ready Position	0/24VDC	The actuator is at its ready position.	24VDC - The actuator is at its ready position.
PB Release	0/24VDC	The hold cycle is complete and the start switches can be opened.	24VDC - Hold cycle is complete and the start switches can be opened.
Hold Active	0/24VDC	The hold state is active in the cycle.	24VDC - The hold state is active.

3.5.2 Available Power Supply I/O

Table 3.12 GSX Power Supply I/O Descriptions - Inputs

Input	Level Range	Definition	Default Value & Logic
Cycle Abort	0/24VDC	Terminates a running cycle and returns the actuator to home position.	24VDC - Terminates a cycle.
U/S Disable	0/24VDC	Disables the ultrasonics from operating during the weld cycle.	24VDC - Disables Ultrasonics during the weld cycle.
Reset	0/24VDC	Resets and clears a fault or weld alarm.	24VDC - Resets/clears an alarm.
Hold Delay	0/24VDC	Delays the start of the hold cycle after the weld cycle is complete.	24VDC - Initiates the start of the hold cycle.
Horn Seek	0/24VDC	A low amplitude and short ultrasonic burst to find the tuning frequency of the horn.	24VDC - Initiates a horn seek.

Table 3.13 GSX Power Supply I/O Descriptions - Outputs

Output	Level Range	Definition	Default Value & Logic
Ready	0/24VDC	The system is in a ready state to begin a cycle.	24VDC - The system is in a ready state.
Sonics Active	0/24VDC	The ultrasonics are on.	24VDC - Ultrasonics are active/on.
General Alarm	0/24VDC	An alarm or fault has occurred during a cycle or system check.	24VDC - An alarm occurred.
Cycle Running	0/24VDC	A cycle is in progress.	24VDC - Cycle is in progress.
Horn Seek	0/24VDC	A low amplitude and short ultrasonic burst to find the tuning frequency of the horn.	24VDC - A horn seek is in progress.
Cycle OK	0/24VDC	A cycle is complete and no alarms or faults occurred during the cycle.	24VDC - cycle is complete and no alarms occurred.
Suspect Alarm	0/24VDC	A weld characteristic was outside of its set suspect minimum or maximum limit during the cycle.	24VDC - A weld characteristic was outside of its set suspect limit range.
Reject Alarm	0/24VDC	A weld characteristic was outside of its set reject minimum or maximum limit during the cycle.	24VDC - A weld characteristic was outside of its set reject limit range.
Weld Active	0/24VDC	The weld state is active in the cycle.	24VDC - Weld state is active.
Hold Active	0/24VDC	The hold state is active in the cycle.	24VDC - Hold state is active.

[This page intentionally left blank]

Chapter 4: Mounting & Dimensions

4.1 Enclosure Mounting Considerations

Depending on the weld cycle rate and total weld power used, the ultrasonic Power Supply and Auxiliary Box can generate a large amount of internal heat.

Cooling and heat management need to be considered when selecting and designing an enclosure to house the Power Supply and Auxiliary Box. Select an enclosure that is specifically designed for electrical control equipment. The enclosure should be sized and laid out to allow adequate air flow and heat dissipation. Enclosure fans for ventilation or air conditioning may be necessary depending on the application and the number of GSX components installed in a single enclosure. The internal temperature of the enclosure should not exceed 40°C.

Figure 4.1 Air flow paths and clearances needed

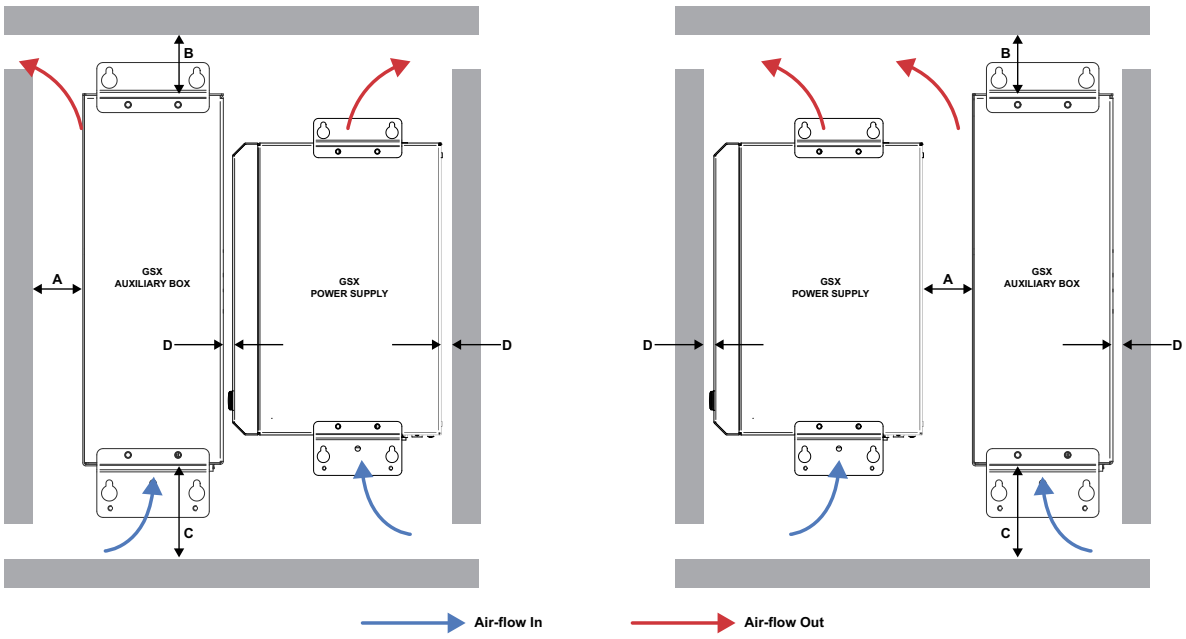


Table 4.1

Reference	Min. Distance
A	76 mm (3 in)
B	50 mm (2 in)
C	127 mm (5 in)
D	13 mm (0.5 in)

Heat loss generated by the Auxiliary Box and Power Supply

Dynamic Loss - For the Power Supply, it is the internal heat generated in Watts during the ultrasonic on phase of a cycle. For the Auxiliary Box, the Dynamic Loss is the internal heat generated by the servo amplifier during the weld and hold phases of a cycle

Static Loss - The quiescent power loss in Watts due to the normal operation of the system controller and other related circuits. This value is about 10W for the Power Supply and 20W for the Auxiliary Box

Total Loss - The Total Loss is the sum of the Dynamic and Static Losses

Formula for estimating the Dynamic Loss generated by the Power Supply

Dynamic Loss (W) = (1.85 · 10^{-6}) · (PP) · (U/S Time) · (CR)

PP (W) = Peak Power. The power meter display in Watts after a weld cycle. This is the peak power of a weld%

U/S Time (mS) = Ultrasonic on time. The time in milliseconds that the ultrasonics are on

CR (Cycles/Min) = Cycle rate. The expected cycles per minute rate during normal operation

Formula for estimating the Dynamic Loss generated by the Auxiliary Box

Dynamic Loss (W) = (8.33 · 10^{-4}) · (Hold Time + U/S Time) · (CR)

U/S Time (mS) = Ultrasonic on time. The time in milliseconds that the ultrasonics are on

Hold Time (mS) = Hold time. The time in milliseconds during a cycle that the actuator is in the hold state

CR (Cycles/Min) = Cycle rate. The expected cycles per minute rate during normal operation

Example of heat loss calculation for the Power Supply

Table 4.2 Information on the GSX model and measured and expected weld characteristics

Maximum Power Rated (Watts)	2500
Ultrasonic On Time (milliseconds)	100
Hold Time (milliseconds)	200
Cycle Rate (Cycle/Minute)	60
Peak Power (W)	1250

Dynamic Loss = 1.85 · 10^{-6} · (1250) · (100) · (60) = 14W

Static Loss = 10W

Total Loss = 14W + 10W = 24W

The total heat generated by the Power Supply is 24W

Example of heat loss calculation for the Auxiliary Box

Dynamic Loss = 8.33 · 10^{-4} · (100 + 200) · (60) = 15W

Static Loss = 20W

Total Loss = 15W + 20W = 35W

The total heat generated by the Auxiliary Box is 35W

4.2 Column

Remove the M4 screws from the front cover and backplate and remove them. Mount the column to a work surface using the four M12x1.75 bolts inside. Reinstall the front cover and backplate.

NOTICE	
	Torque bolts to 135 N·m (100 f-lb) in an X pattern.

Figure 4.2

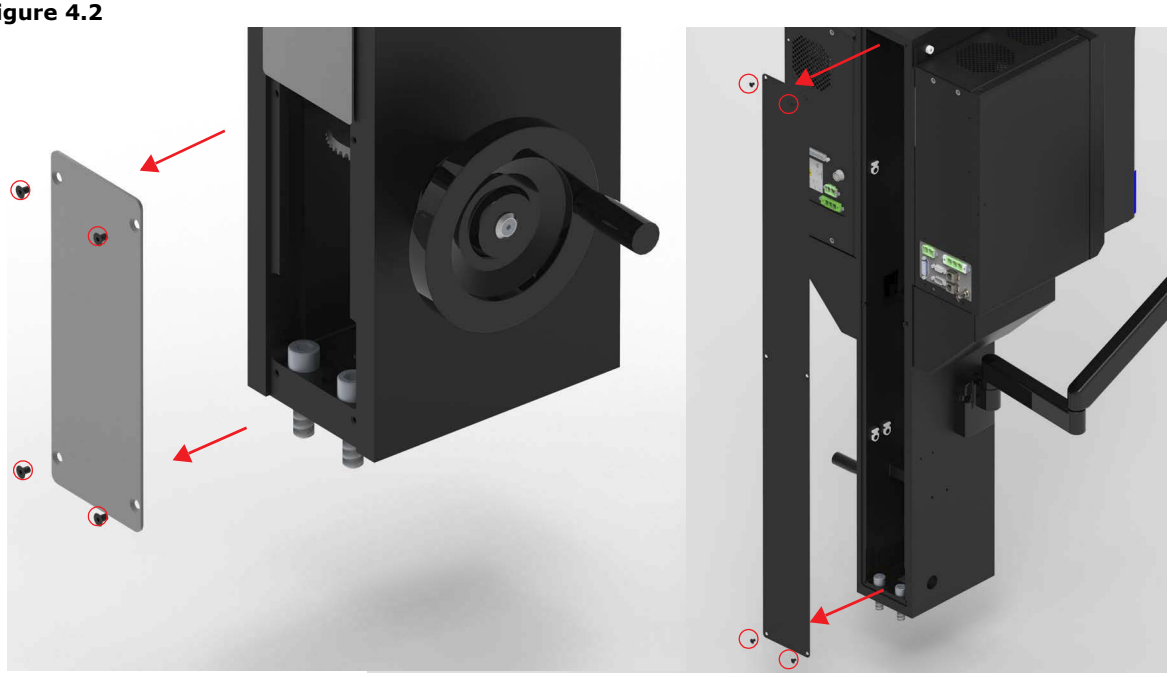


Figure 4.3

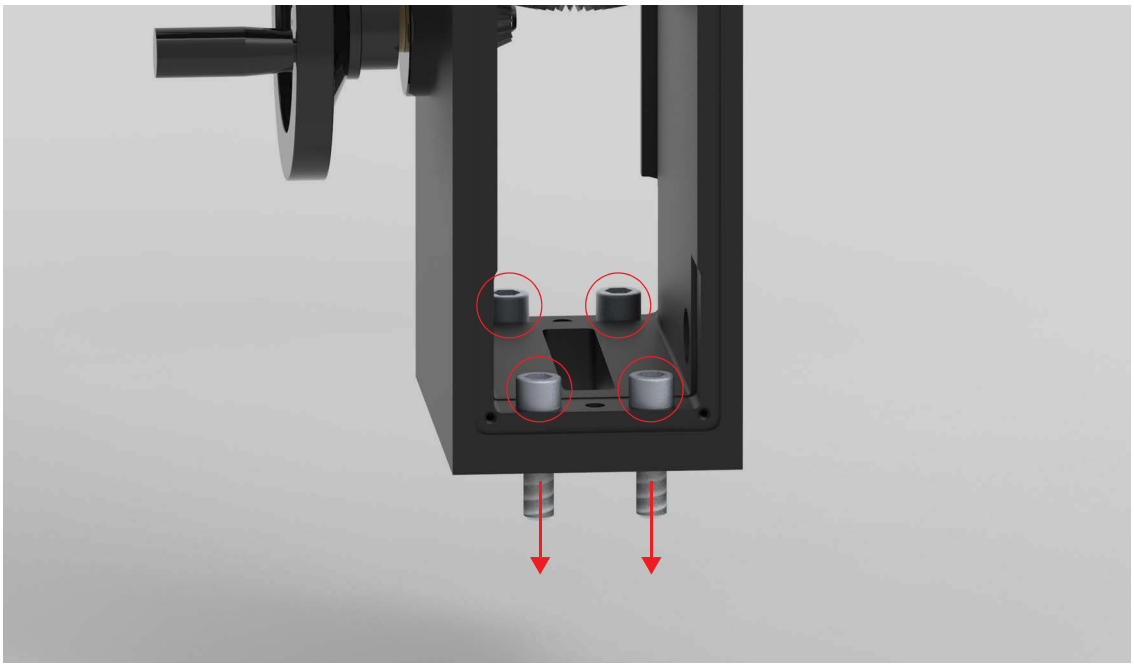
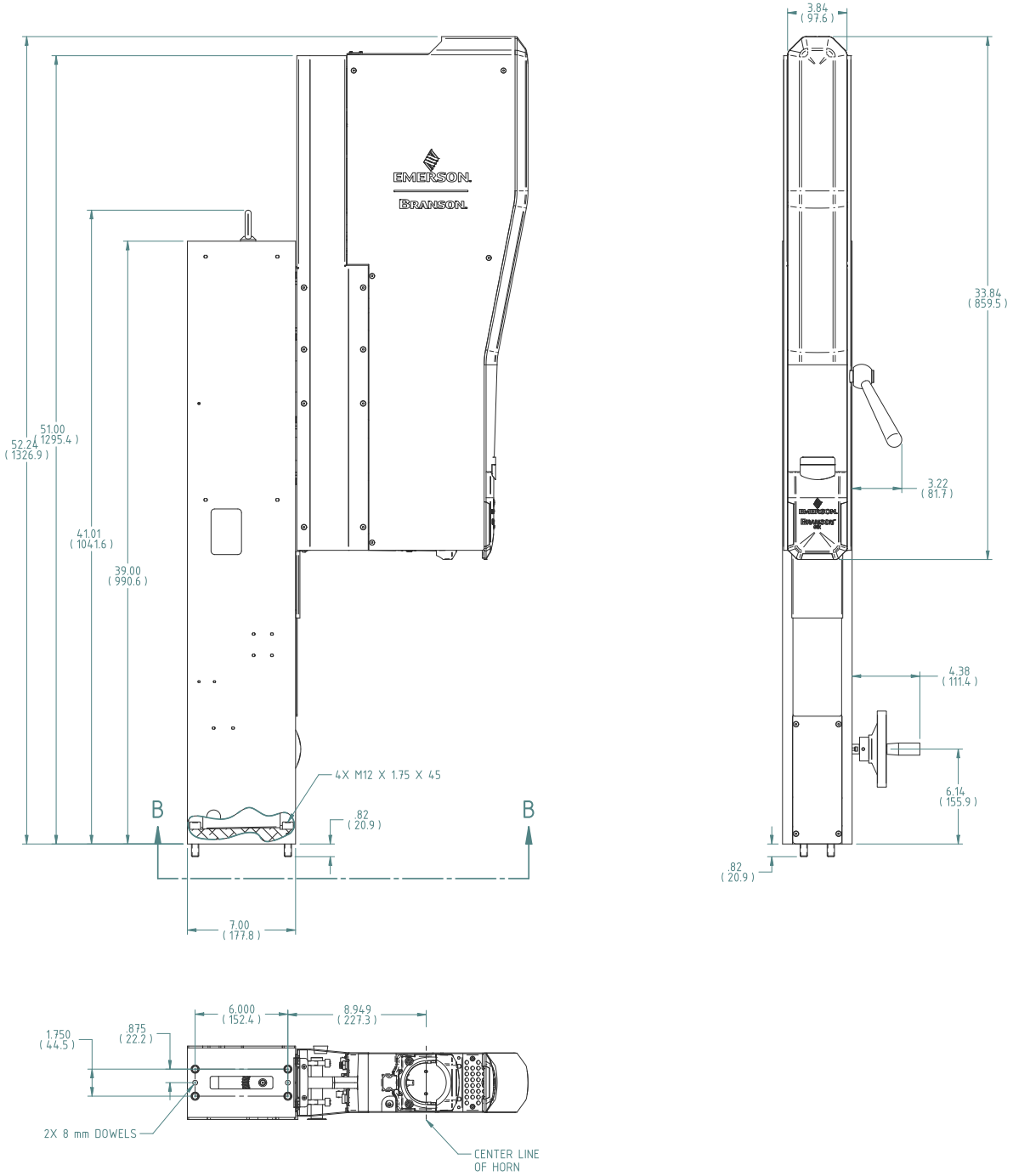


Figure 4.4


EMERSON.
BRANSON.
51.00
(1295.4)
52.24
(1326.9)
41.01
(1041.6)
39.00
(990.6)
4X M12 X 1.75 X 45
B
B
.82
(20.9)
7.00
(177.8)
3.84
(97.6)
33.84
(859.5)
3.22
(81.7)
4.38
(111.4)
6.14
(155.9)
.82
(20.9)
6.000
(152.4)
8.949
(227.3)
1.750
(44.5)
.875
(22.2)
2X 8 mm DOWELS
CENTER LINE
OF HORN

4.3 Actuator

Mount the actuator to an I-Beam or other rigid structure using four M10x1.5 bolts. Use dowel pins to aid with insertion and alignment (customer providzed hardware).

NOTICE	
	Mounting bolts must not extend more than 10 mm into the actuator

Figure 4.5

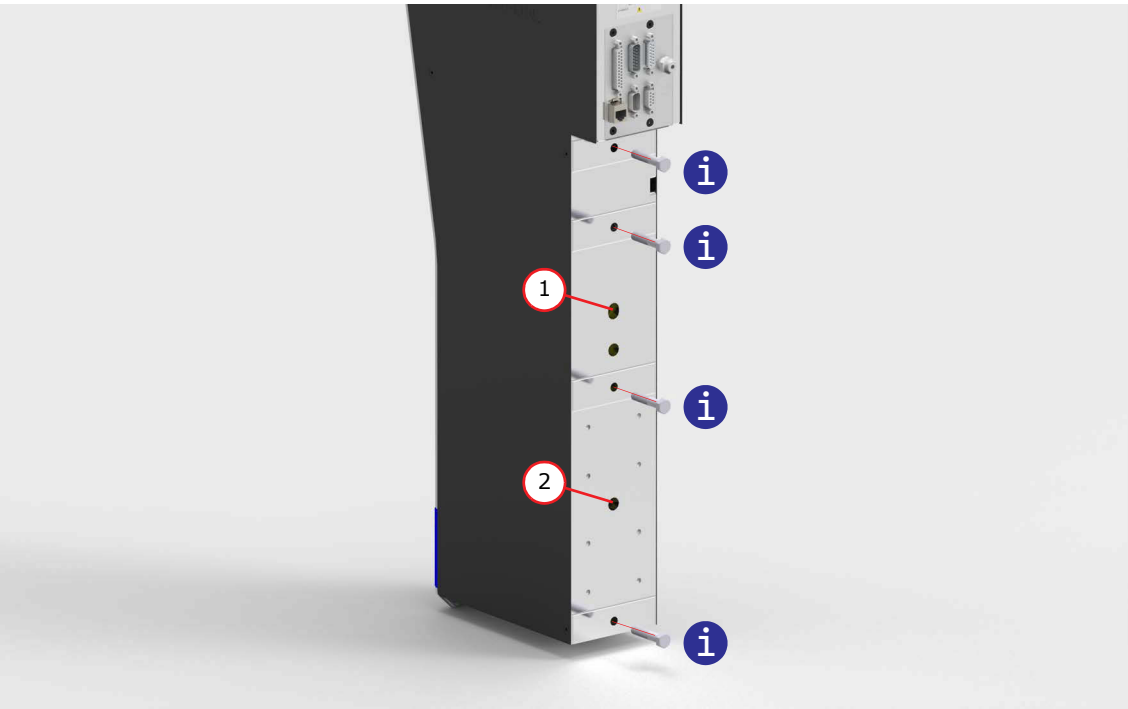
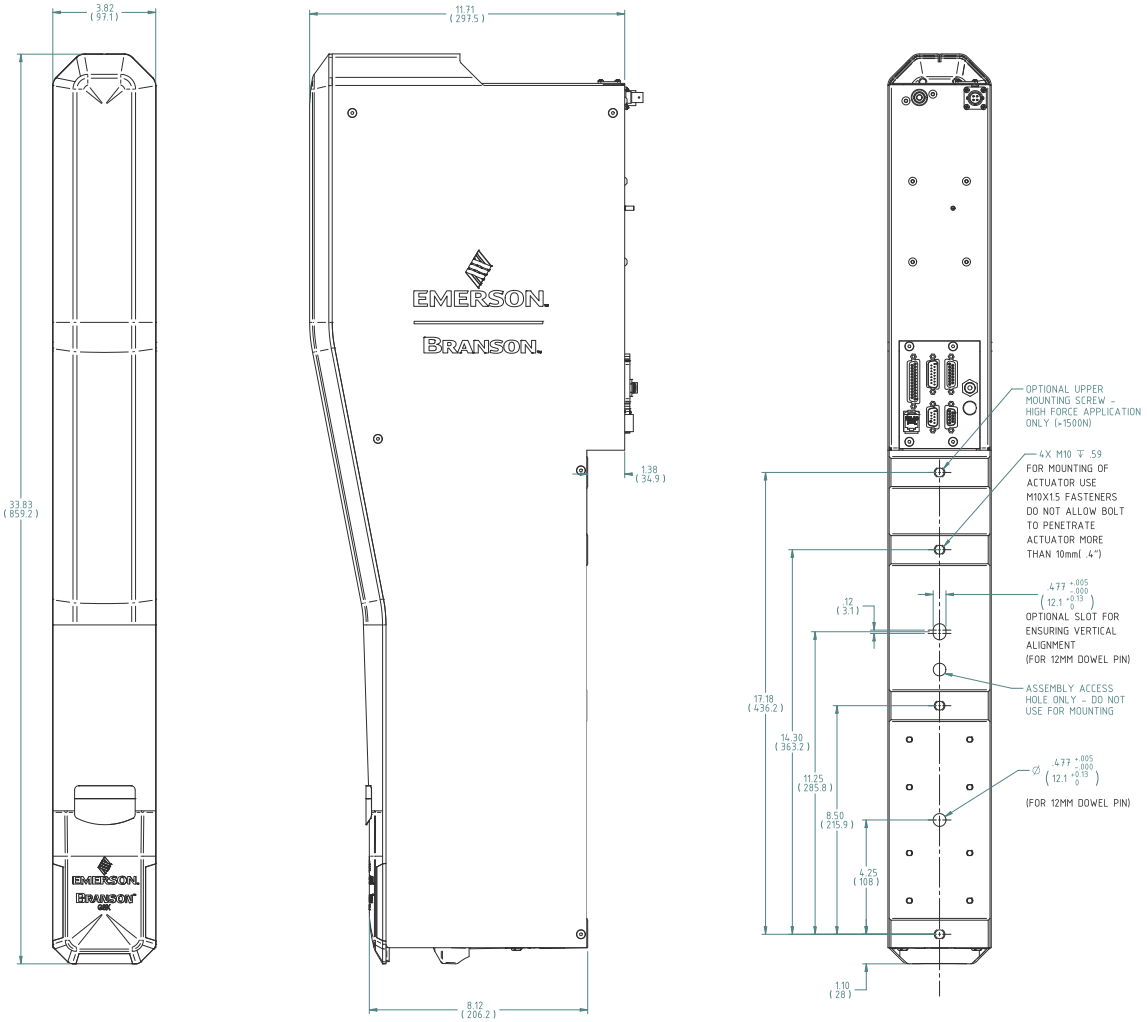


Table 4.3

Item	Description
1	Slot for 12 mm Dowel Pin
2	Hole for 12 mm Dowel Pin

Figure 4.6


3.82
(97.1)
33.83
(859.2)
EMERSON
BRANSON
11.71
(297.5)
1.38
(34.9)
8.12
(206.2)
OPTIONAL UPPER
MOUNTING SCREW -
HIGH FORCE APPLICATION
ONLY (>1500N)
4X M10 ↧ .59
FOR MOUNTING OF
ACTUATOR USE
M10X1.5 FASTENERS
DO NOT ALLOW BOLT
TO PENETRATE
ACTUATOR MORE
THAN 10mm(.4")
.12
(3.1)
OPTIONAL SLOT FOR
ENSURING VERTICAL
ALIGNMENT
(FOR 12MM DOWEL PIN)
ASSEMBLY ACCESS
HOLE ONLY - DO NOT
USE FOR MOUNTING
17.18
(436.2)
14.30
(363.2)
11.25
(285.8)
8.50
(215.9)
4.25
(108)
(FOR 12MM DOWEL PIN)
1.10
(28)

4.4 Power Supply

4.4.1 Rear Mounting

Attach the mounting brackets to the power supply using four M6 bolts and washers.

Figure 4.7

Mount the power supply to an electrical cabinet using four M6 bolts, with flat washers against its metal plate (customer provided hardware).

Figure 4.8

4.4.2 Side Mounting

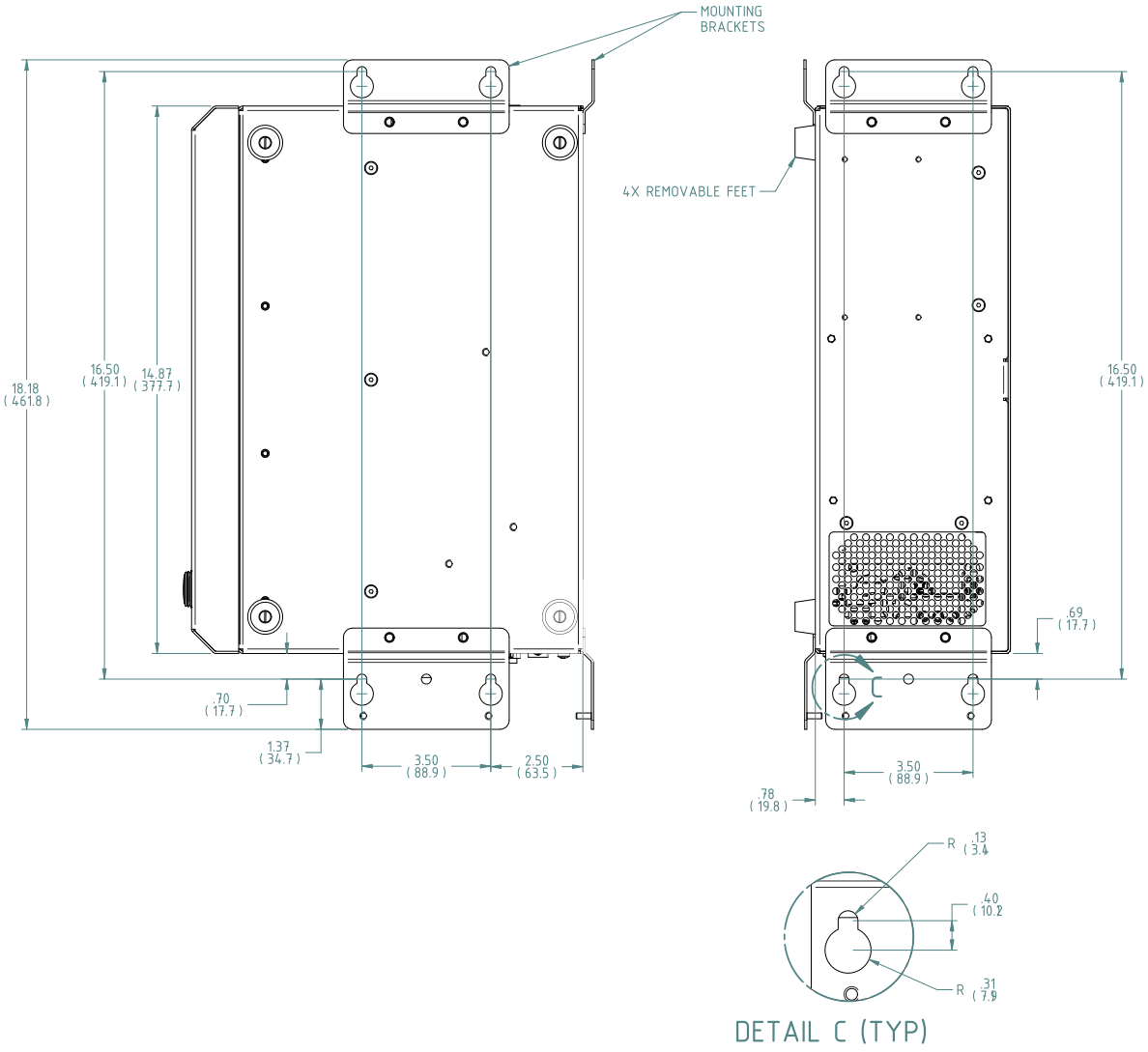
Attach the mounting brackets to the power supply using four M6 bolts and washers.

Figure 4.9

Mount the power supply to an electrical cabinet using four M6 bolts, with flat washers against its metal plate (customer provided hardware).

Figure 4.10

Figure 4.11

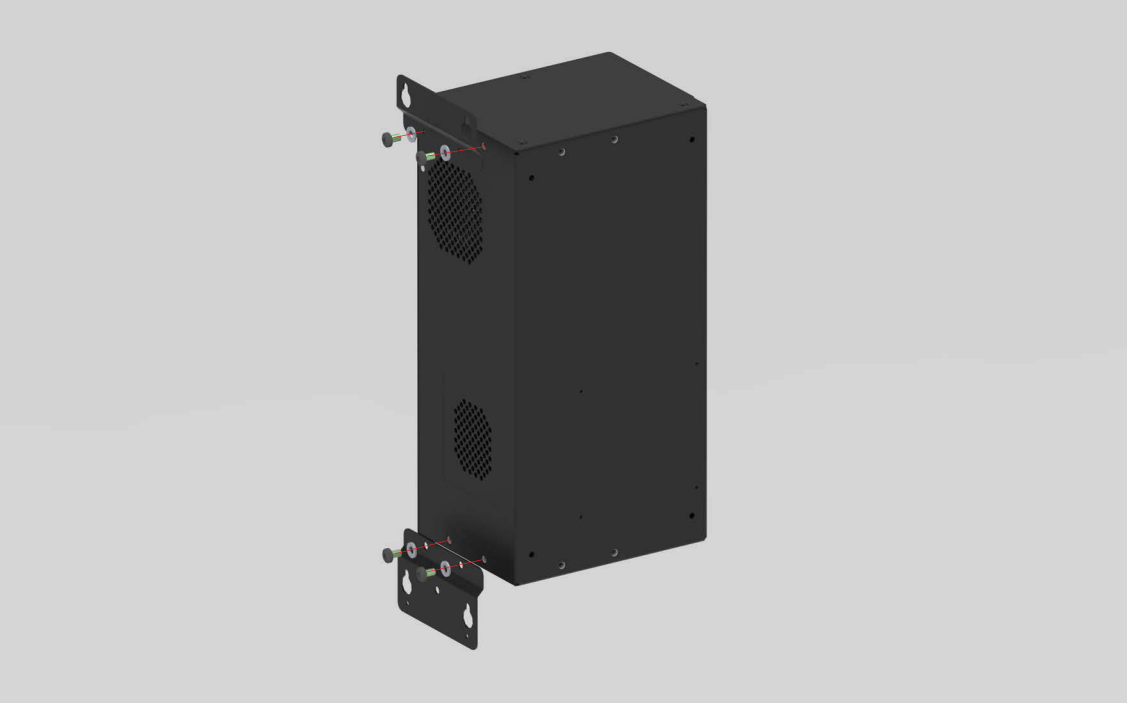

MOUNTING BRACKETS
4X REMOVABLE FEET
18.18 (461.8)
16.50 (419.1)
14.87 (377.7)
.70 (17.7)
1.37 (34.7)
3.50 (88.9)
2.50 (63.5)
16.50 (419.1)
.69 (17.7)
3.50 (88.9)
.78 (19.8)
R .13 (3.4)
.40 (10.2)
R .31 (7.9)
DETAIL C (TYP)

4.5 Auxiliary Box

4.5.1 Rear Mounting

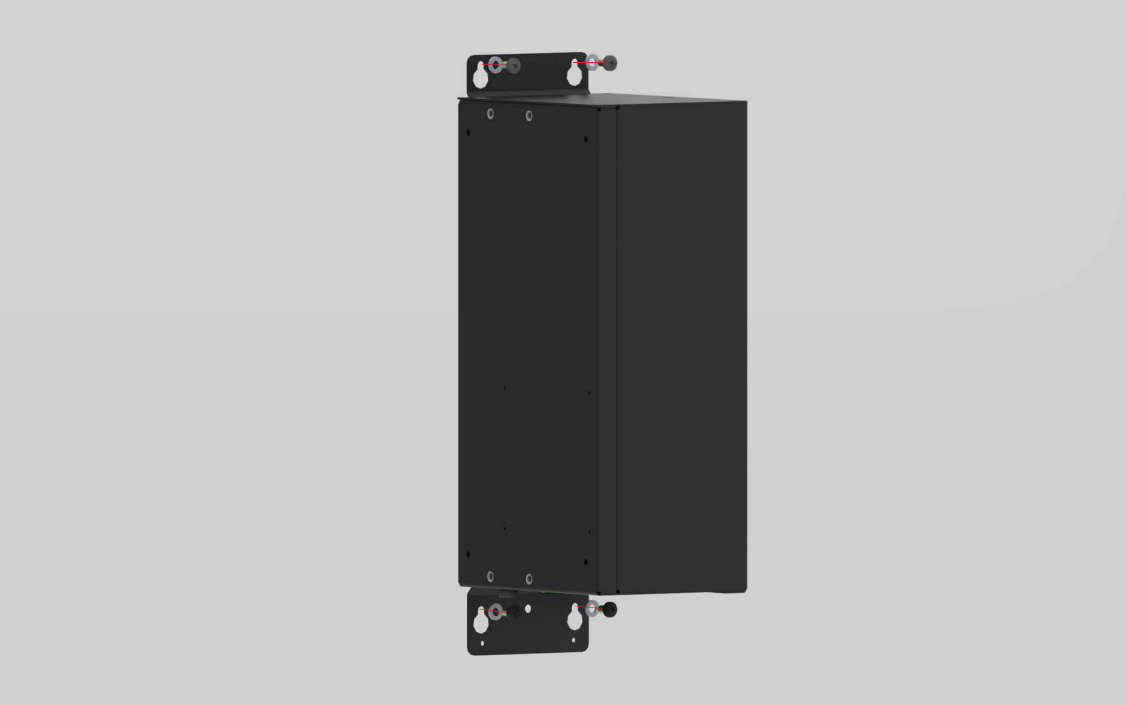
Attach the mounting bracket to the auxiliary box using four M6 bolts and washers.

Figure 4.12



Mount the auxiliary to an electrical cabinet using four M6 bolts, with flat washers against its metal plate (customer provided hardware).

Figure 4.13



4.5.2 Side Mounting

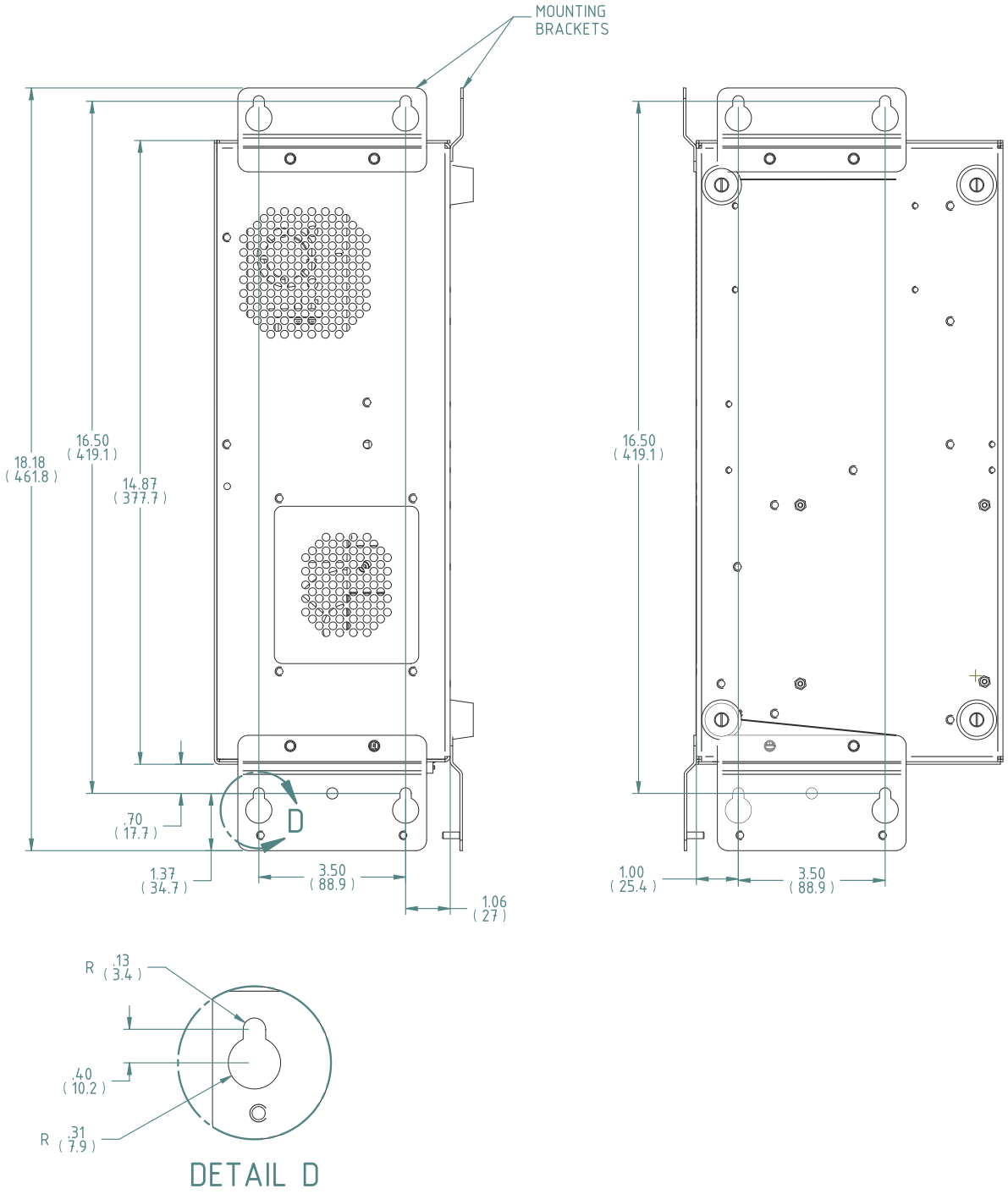
Attach the mounting bracket to the auxiliary box using four M6 bolts and washers.

Figure 4.14

Mount the auxiliary to an electrical cabinet using four M6 bolts, with flat washers against its metal plate (customer provided hardware).

Figure 4.15

Figure 4.16


MOUNTING
BRACKETS
18.18
(461.8)
16.50
(419.1)
14.87
(377.7)
.70
(17.7)
1.37
(34.7)
3.50
(88.9)
1.06
(27)
D
16.50
(419.1)
1.00
(25.4)
3.50
(88.9)
R .13
(3.4)
.40
(10.2)
R .31
(7.9)
DETAIL D

4.6 HMI Monitor

4.6.1 VESA Mounting

To install the monitor to a flat surface, attach a VESA 75 mounting bracket to the back of the monitor using four M4x10mm screws (customer provided hardware).

Figure 4.17 HMI Monitor Dimensions

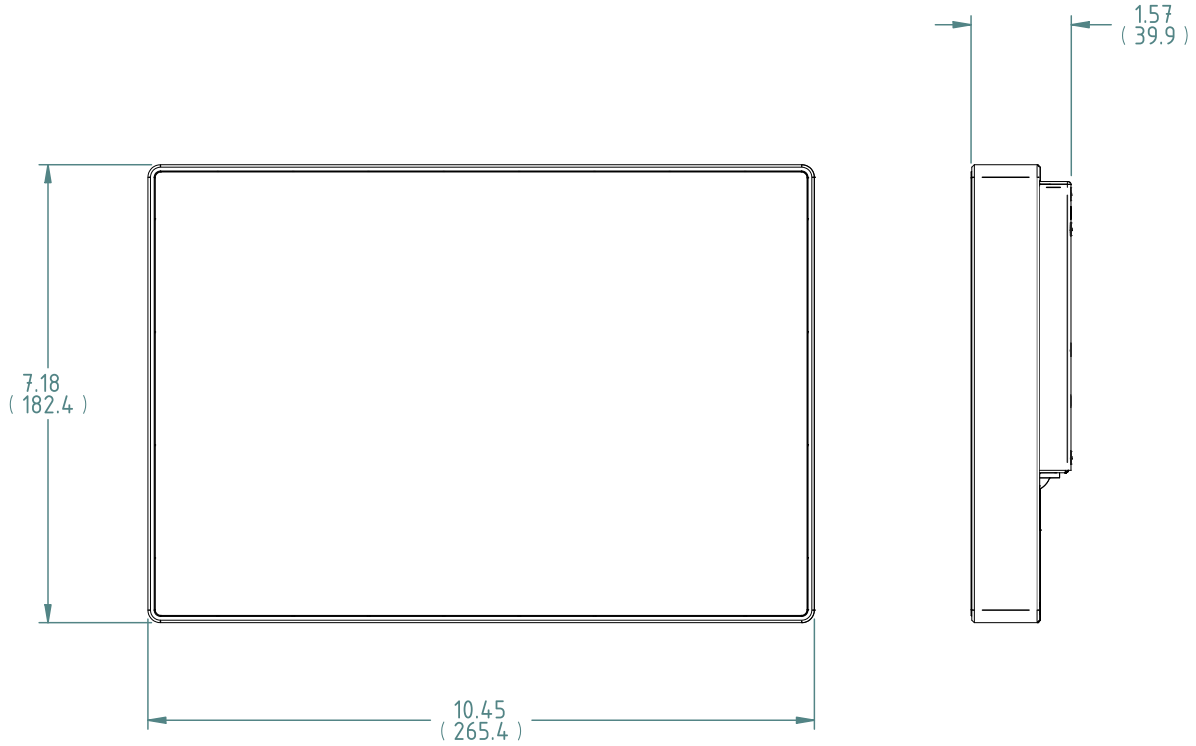
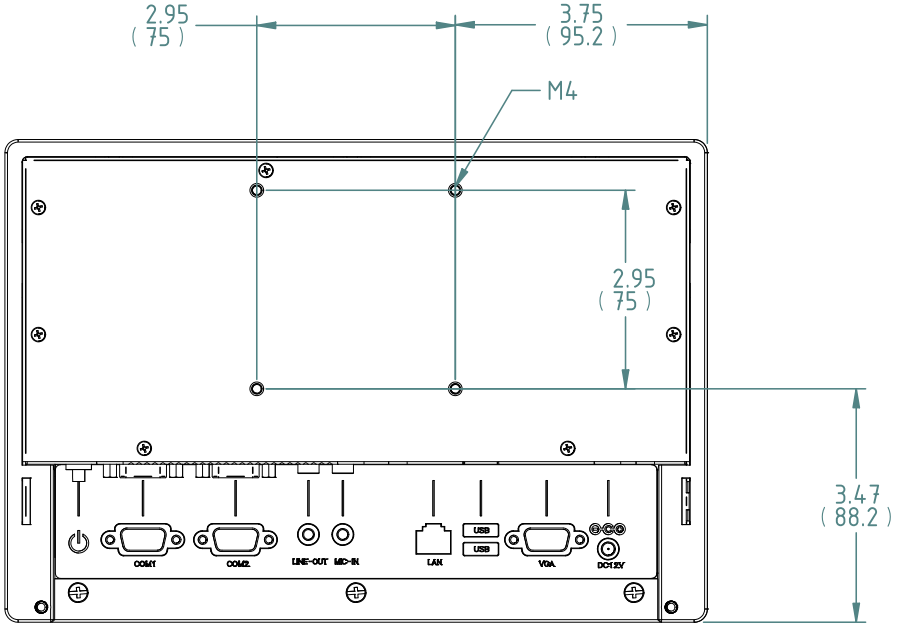


Figure 4.18 VESA 75 Mounting Holes



4.6.2 Monitor Arm (optional)

Table 4.4 Monitor Arm

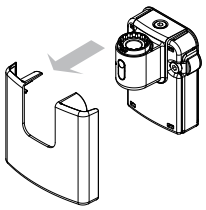
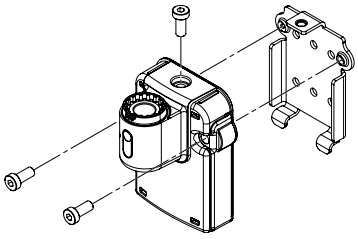
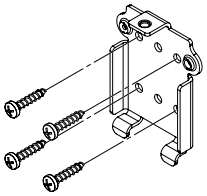
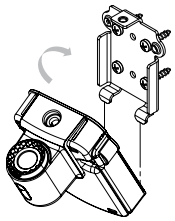
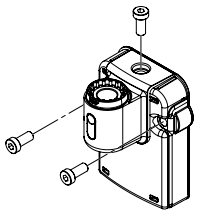
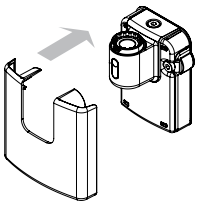
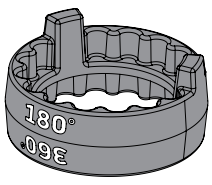
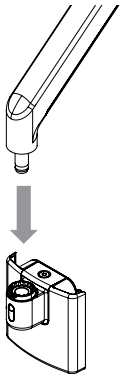
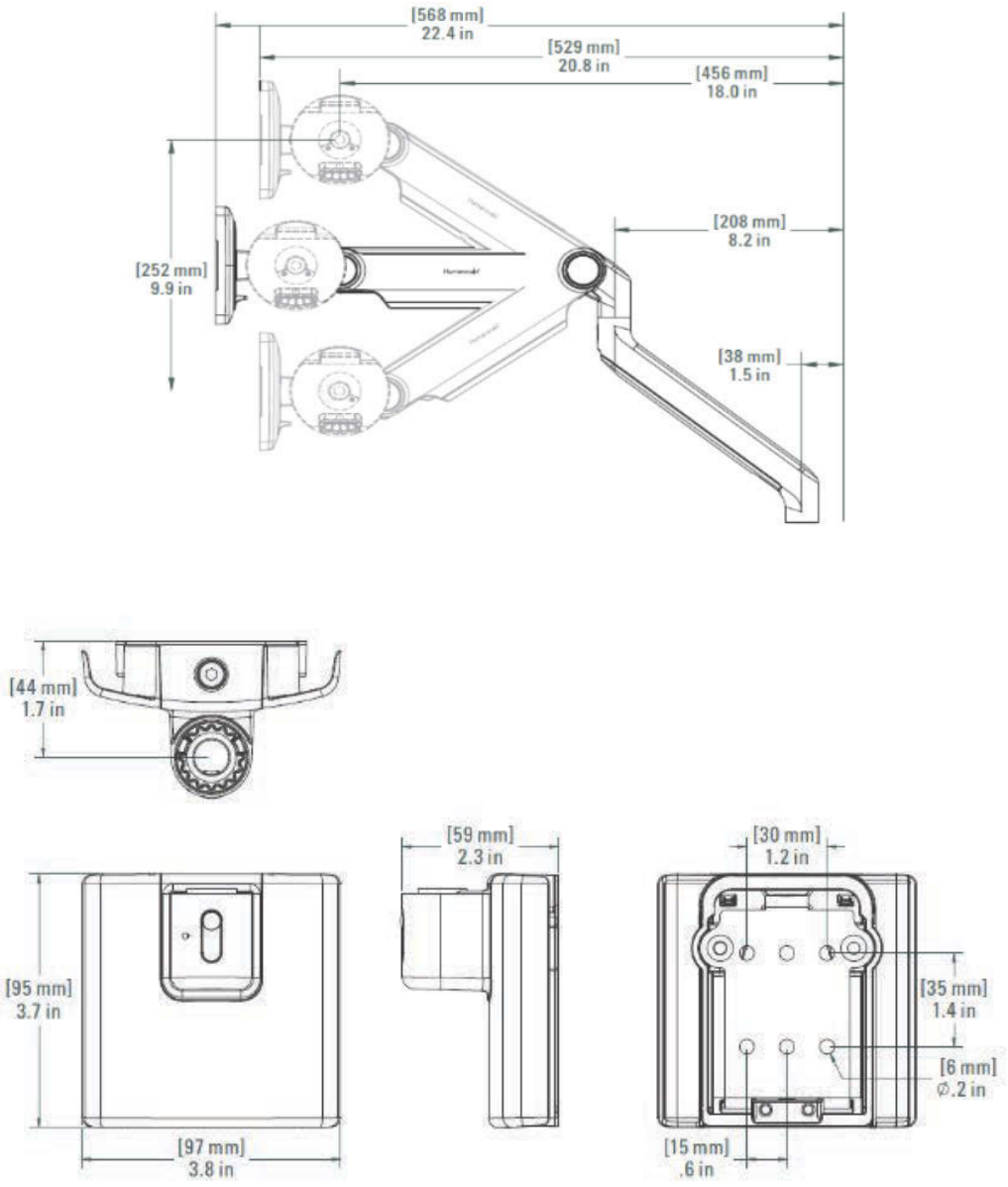
Step	Instructions	Step	Instructions
1	Remove the plastic front cover. 	2	Remove the two side screws and top screw from the mount and separate the mounting plate from the rest of the mount. 
3	Attach the mounting plate to a wall stud or other structural support using the screws provided. Mounting to drywall alone is not recommended. Use level to ensure that mounting plate is perfectly level. 	4	Align the mount with the mounting plate on the wall. 
5	Reinstall the two side screws and top screw into the mount and tighten. 	6	Reinstall the plastic cover. 
7	Position the stop ring to limit the arm's range of motion if desired. The marked angle will be in the center of the range of motion. 	8	Insert monitor arm into the mount until release button locks in place. To remove arm press release button and pull the arm up near the joint. 

Figure 4.19 Dimensions - Monitor Arm



4.6.2.1 Attaching Touchscreen to Arm

Table 4.5 Attaching Touchscreen to Arm

Step	Action
1	Tilt the monitor back and lower onto the arm, so that the hook fits into the corresponding hole on the VESA bracket. Then rotate the bottom of the monitor back towards the arm until the tab snaps in place.
2	To remove, lift the release tab and pull the bottom of the monitor away from the arm, then lift free of the hook.

Figure 4.20 Attaching Touchscreen to Arm

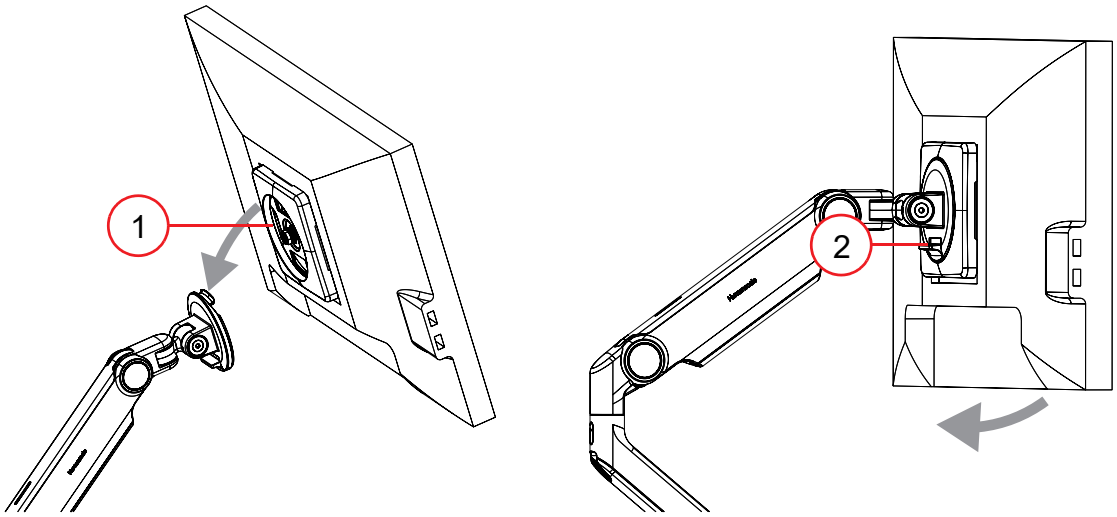


Table 4.6 Arm

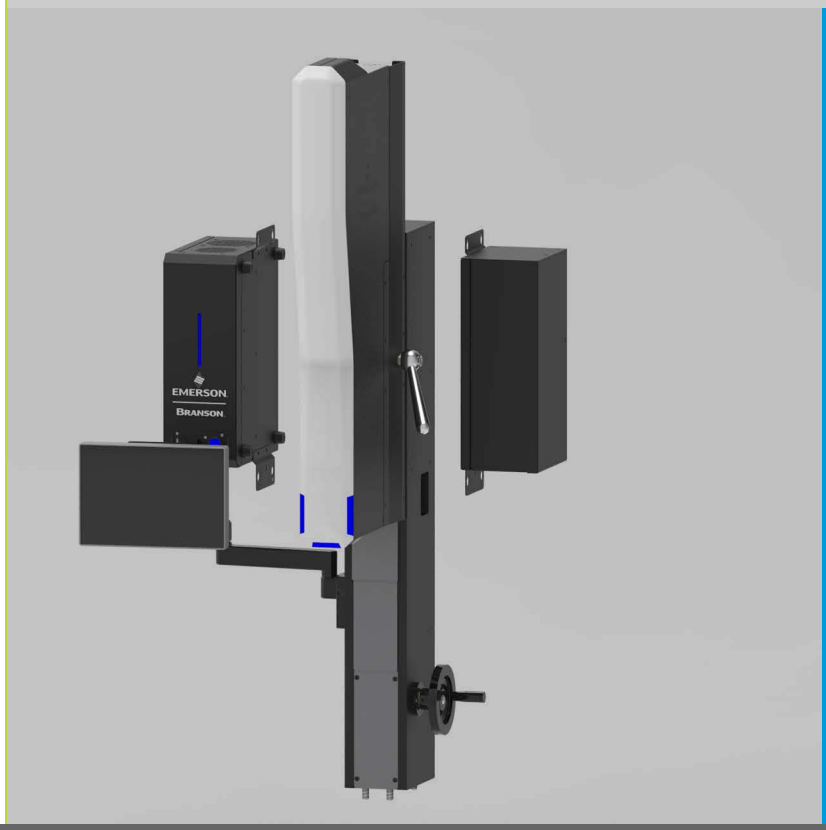
Item	Description
1	VESA bracket
2	Release tab

[This page intentionally left blank]

[This page intentionally left blank]

Original Instructions
1032610 - REV. 02

EMERSON



Branson Ultrasonics Corporation
120 Park Ridge Road
Brookfield, CT 06804
(203) 796-0400
http://www.bransonultrasonics.com

BRANSON