

## TS Series

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### TS... Touchscreen Kits

for use with LMV3, LMV5 and RWF... Controls



Touchscreen

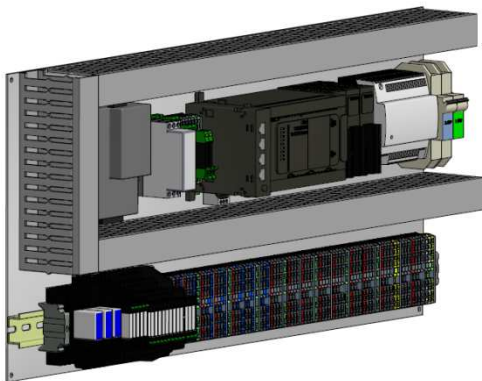
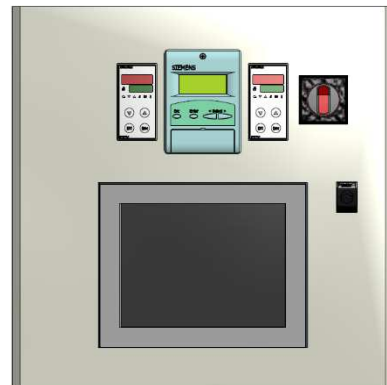


Plate Kit



Enclosure

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### Description

TS... series touchscreen kits provide a human machine interface (HMI) with a Siemens LMV3 or LMV5 linkageless control. Each kit provides data collection and trending for a hot water or steam boiler. An optional RWF55 control for load or water level modulation easily interfaces with a TS... series touchscreen kit.

Each TS... touchscreen kit includes a 6" or 10" touchscreen along with a plate kit in an enclosure or to be mounted by others inside a control panel.

A PLC first-out annunciator provides additional analog, digital, temperature, and/or draft controls inputs and outputs.

Flexible communication interface options to the building management system (BMS) provide streamlined data collection, monitoring and control.

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## Features

- Local touchscreen interface with Siemens LMV.../RWF controllers
- Schneider touchscreens available in 6", 10"
- Boiler graphics and field tag information are field-configured
- LMV... static, fuel and internal lockout and error history displayed
- Fuel-air ratio control curve displayed
- Alarm history stored for most recent 250 faults/alarms
- Detailed annunciation of LMV... digital inputs and outputs
- Remote setpoint, firing rate and/or enable of the LMV... or RWF... via BMS
- Water level control option and status via RWF55
- Metric or Standard units displayed
- English or Spanish languages
- Clear English or Spanish text for alarms
- Circulating pump/isolation valve control outputs for hydronic boilers (option with expanded annunciator)
- Expanded annunciator options include:
  - Four (4) analog inputs with field configurable label, span and type (0-10V, 2-10V, 0-20mA or 4-20mA), each with low and high alarm setpoints with auto or manual reset. Totalization available per minute or per hour. (option with expanded annunciator)
  - Four (4) Pt1000 (or Pt100) RTD temperature inputs with field configurable label. Each with low and high alarm setpoints with auto or manual reset. (option with expanded annunciator)
  - Two (2) analog outputs with field configurable span and type (0-10V, 2-10V, 0-20mA or 4-20mA), each with low and high alarm setpoints with auto or manual reset. Totalization available per minute or per hour. (option with expanded annunciator)
  - Two (2) digital outputs with field configurable logic, including on and off delays. Manual or automatic reset. (option with expanded annunciator)
  - First-out annunciation option including thirteen (13) 120 VAC inputs with field labeling capability
  - Eight (8) selectable data logging variables stored in CSV format on USB drive
  - Four (4) selectable variables for trending up to 7 days
  - Economizer temperature monitoring (additional 4 input RTD card)
  - Draft control using SCC, Inc. SQM actuator
  - Connection of two additional RWF55 controllers

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- Variable Speed Drive information and setup when preprogrammed VFD (Yaskawa) provided by SCC Inc.
  - Screen saver with PV, setpoint, demand and status
  - Standard Modbus TCP/IP to BMS communications
  - Additional BMS communication options available
  - Email communications and text messaging up to six (6) recipients including alarms, faults and screen shots (screen shot viewer via USB)
  - Remote monitoring via mobile device (Smart Phone, tablet, etc.)
  - Compatible with SCC Master Panel Lead Lag system and others
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## Application

TS... touchscreen kits are suited for hydronic boiler, steam boiler, and other applications utilizing an LMV3 or LMV5 linkageless control system.

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## Components

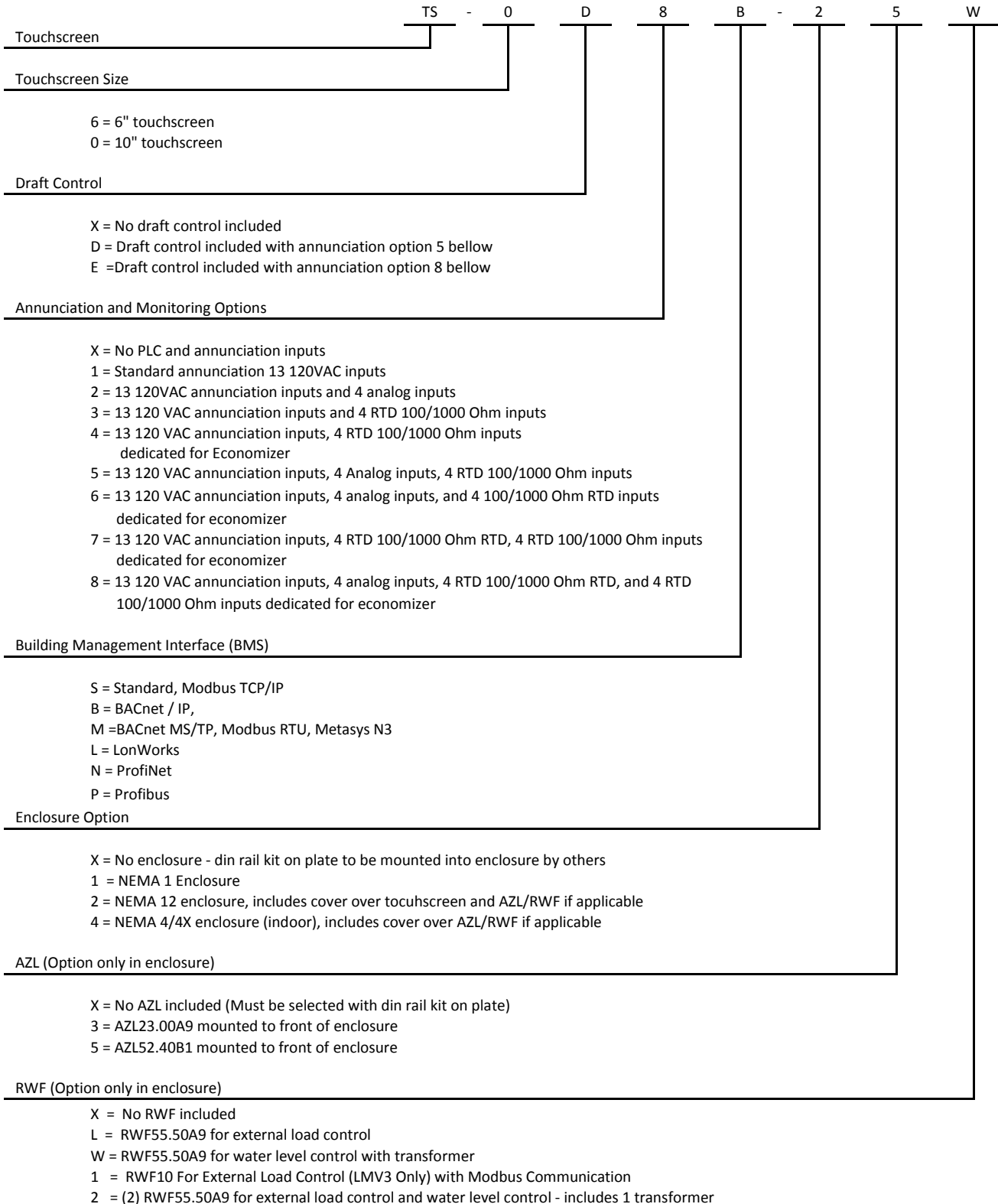
All TS... touchscreen kits include the following components:

- 6" or 10" touchscreen
- Plate kit including power supply and branch circuit protection
- Cables for quick connections between the plate kit, touchscreen, and LMV... system
- Interconnect terminals for field wiring

The following optional features are available:

- Draft Control
  - Annunciation Options Including:
    - 13 digital 120 VAC alarms annunciation inputs.
    - 4 analog inputs (0-20mA - 4-20ma - 0-10V - or 2-10V)
    - 2 analog outputs (0-20mA - 4-20ma - 0-10V - or 2-10V)
    - 4 Pt100/Pt1000 RTD inputs general purpose
    - 4 Pt100/Pt1000 RTD inputs economizer temperatures
    - 5 output Relays for:
      - Circulating pump starts Hot water boilers
      - 2 for monitoring a digital value
      - Annunciation alarm
      - PLC normal operation indication
  - BMS communication other than standard Modbus
  - Open plate kit, or in enclosure
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## Product Part Numbers

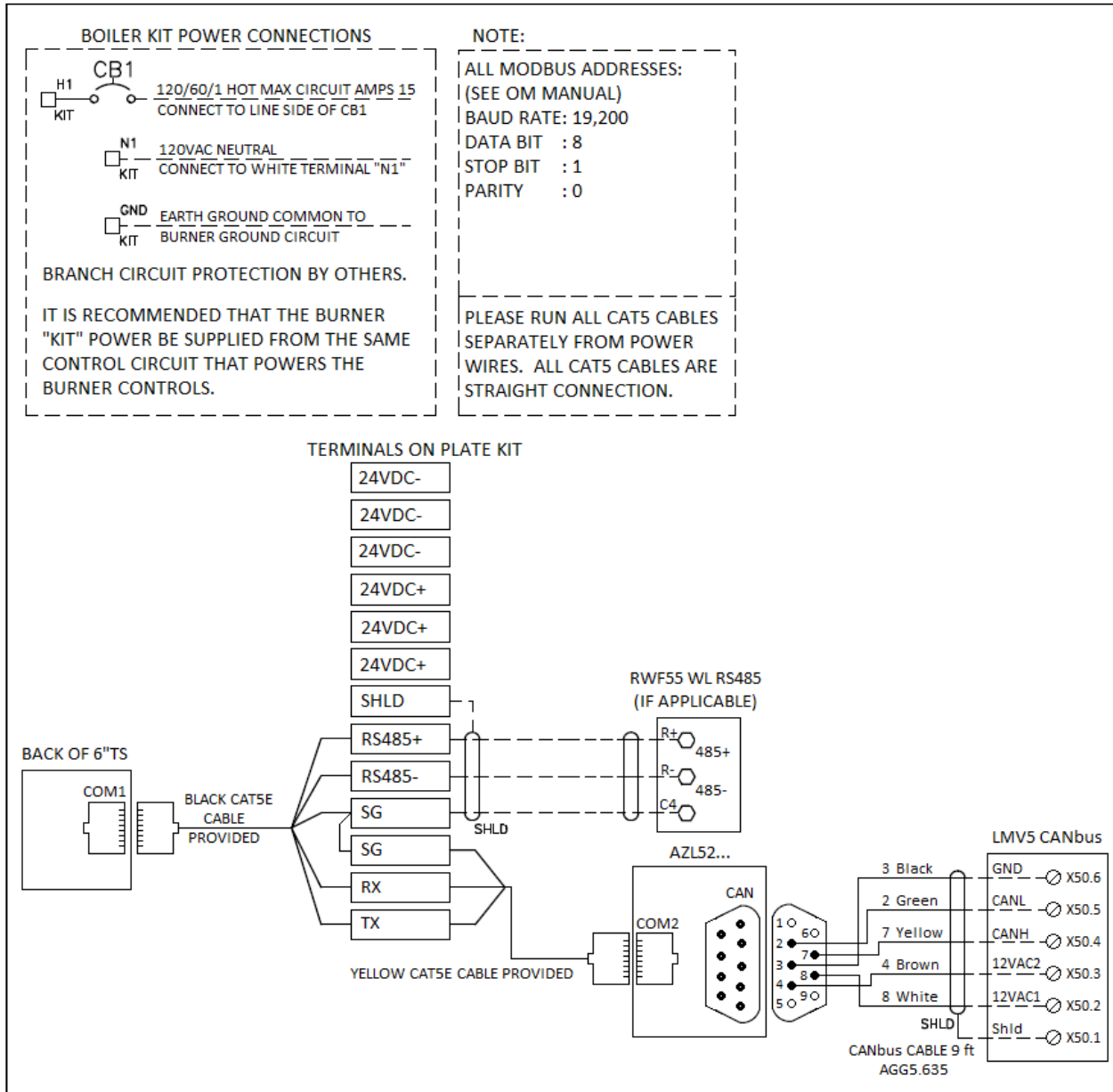


## Specifications

		<b>6" Touchscreen</b>	<b>10" Touchscreen</b>
Physical characteristics	Main power	120 VAC	120 VAC
	Touchscreen power	24 VDC	24 VDC
	Power consumption	≤ 6.8 W	≤ 17 W
	Dry contacts	2 Amps	2 Amps
Operating environment	Operating temperature	32 to 122 °F [0 to 50 °C]	32 to 131 °F [0 to 55 °C]
	Humidity	Max. 80% with no condensation	Max. 85% with no condensation
	NEMA rating	4X (indoor use)	4X (indoor use)
	Kit in enclosure	4X (indoor use)	4X (indoor use)
	NEMA rating	NEMA 12 (Optional)	NEMA 12 (Optional)

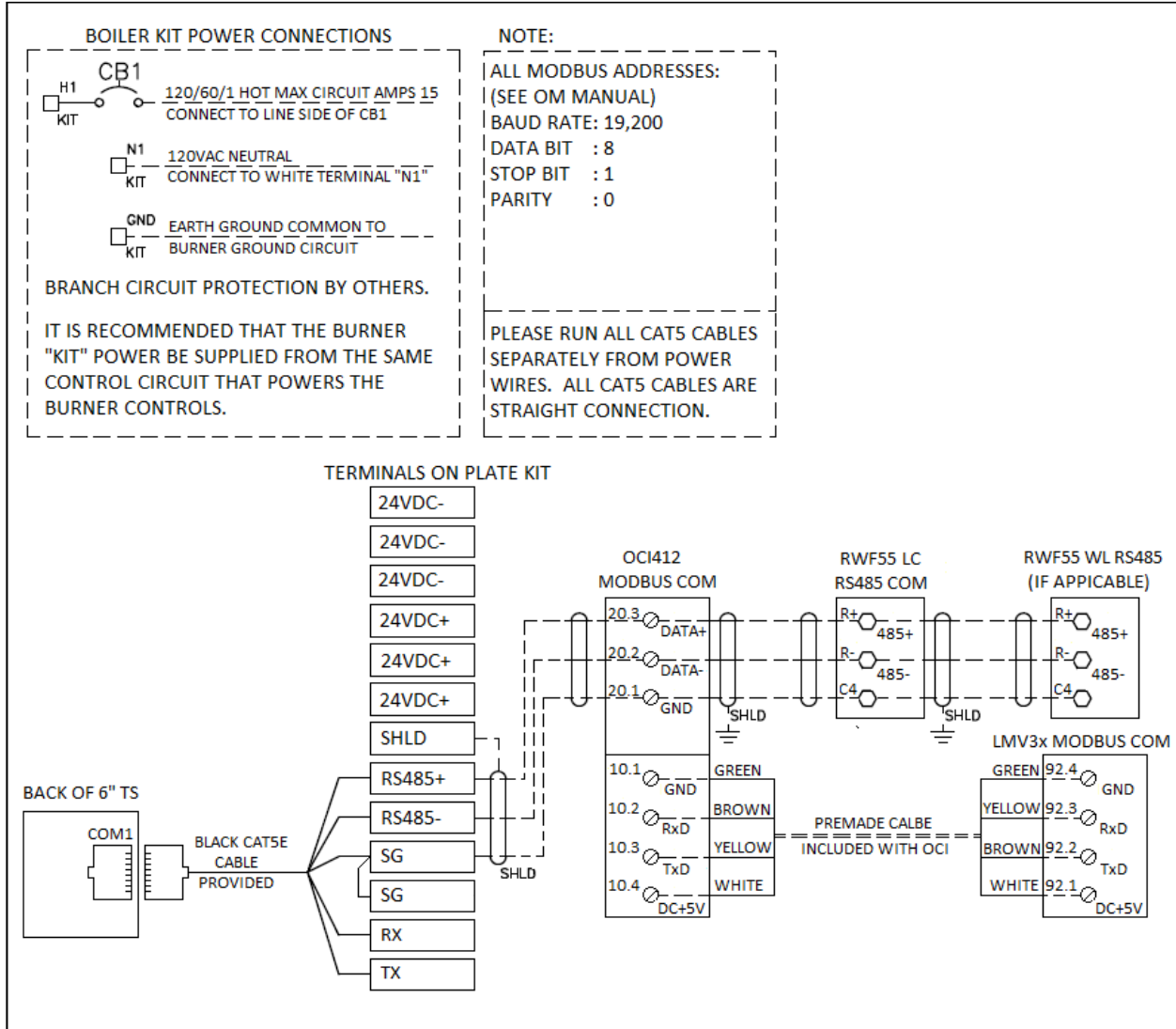
## Connections

6" Touchscreen kit with LMV5 and optional RWF55 for water level control



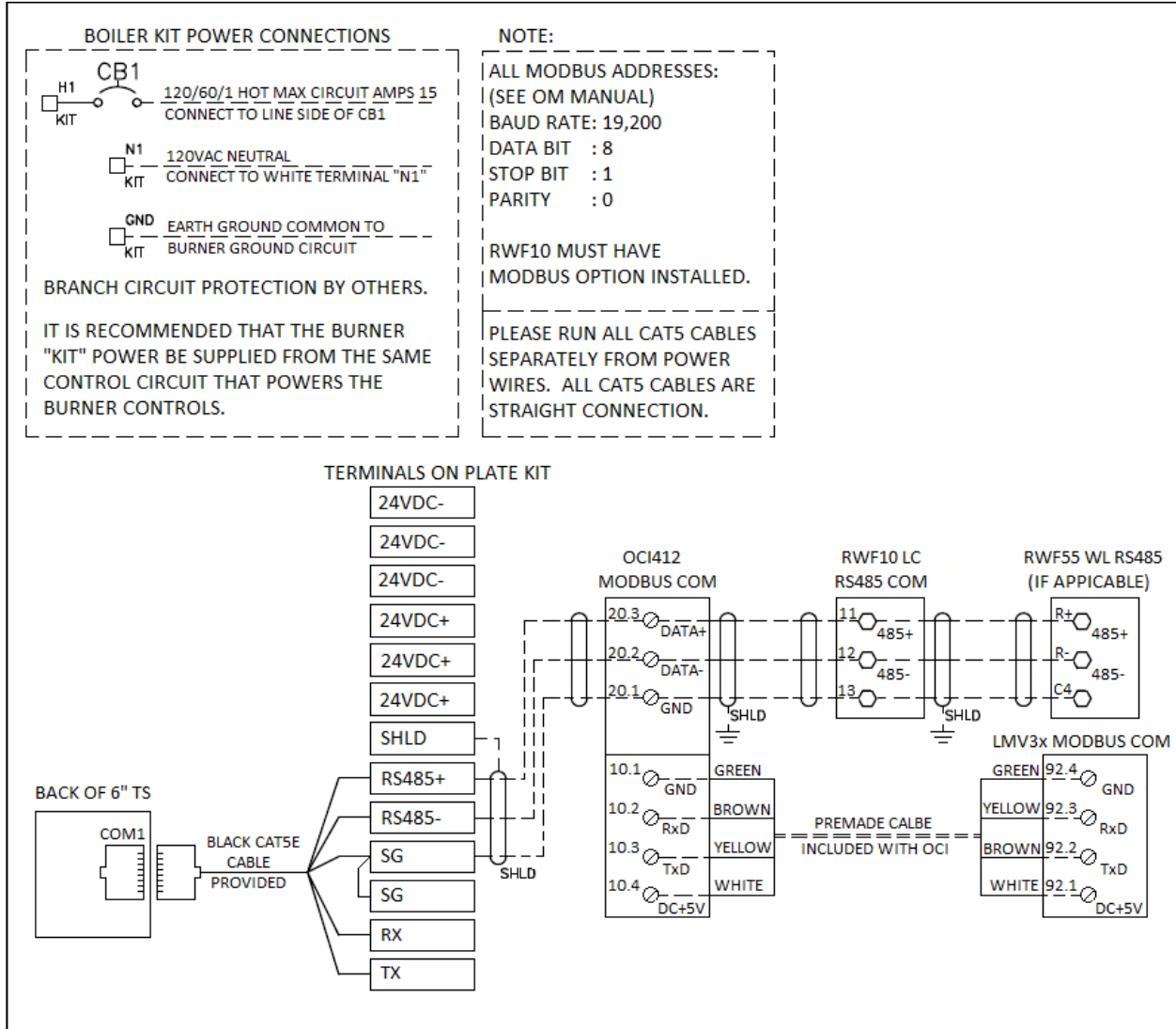
## Connections (Continued)

6" Touchscreen kit with LMV3, RWF55 for load control and optional RWF55 for water level control



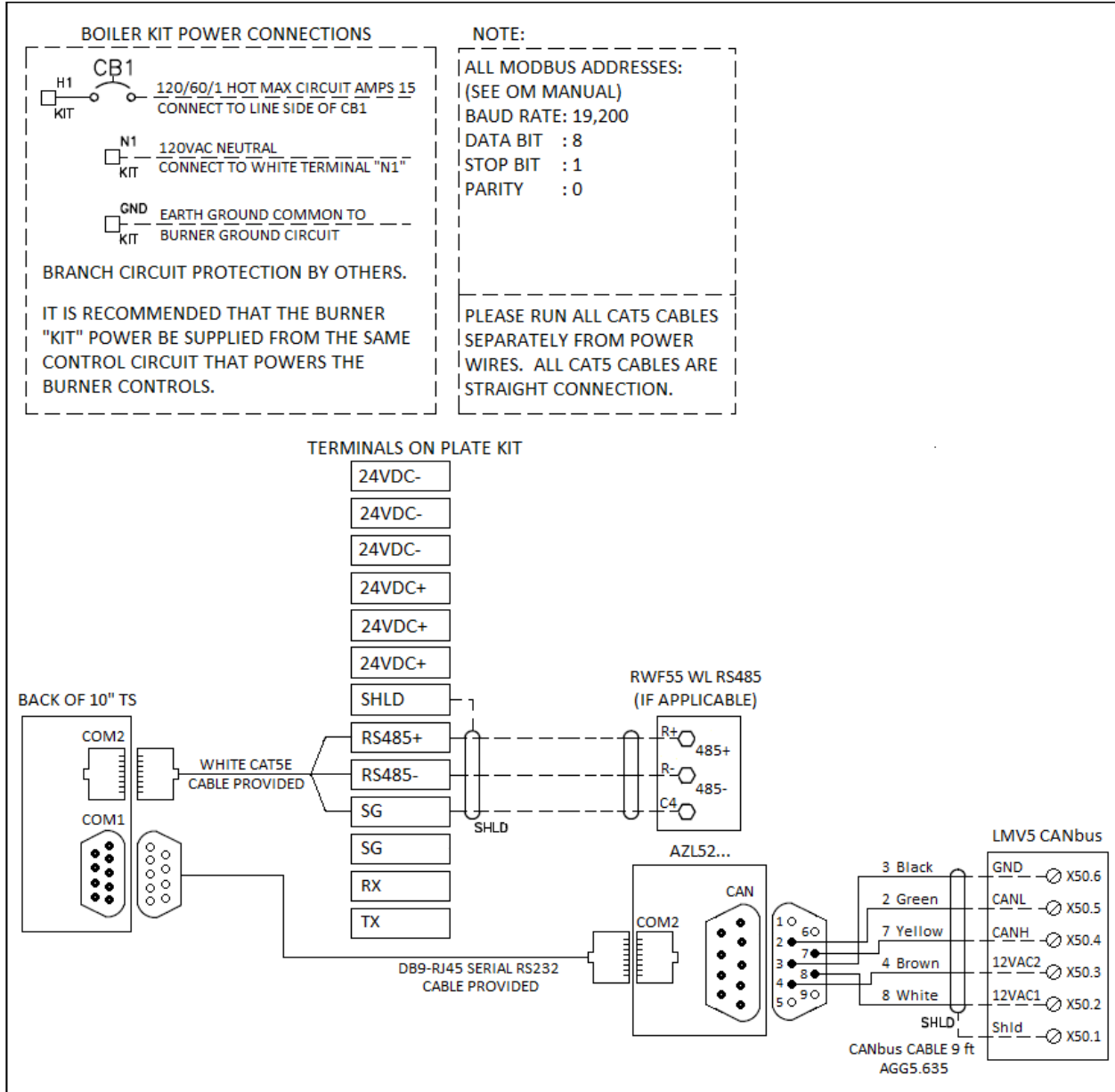
## Connections (Continued)

6" Touchscreen kit with LMV3, RWF10 for load control and optional RWF55 for water level control



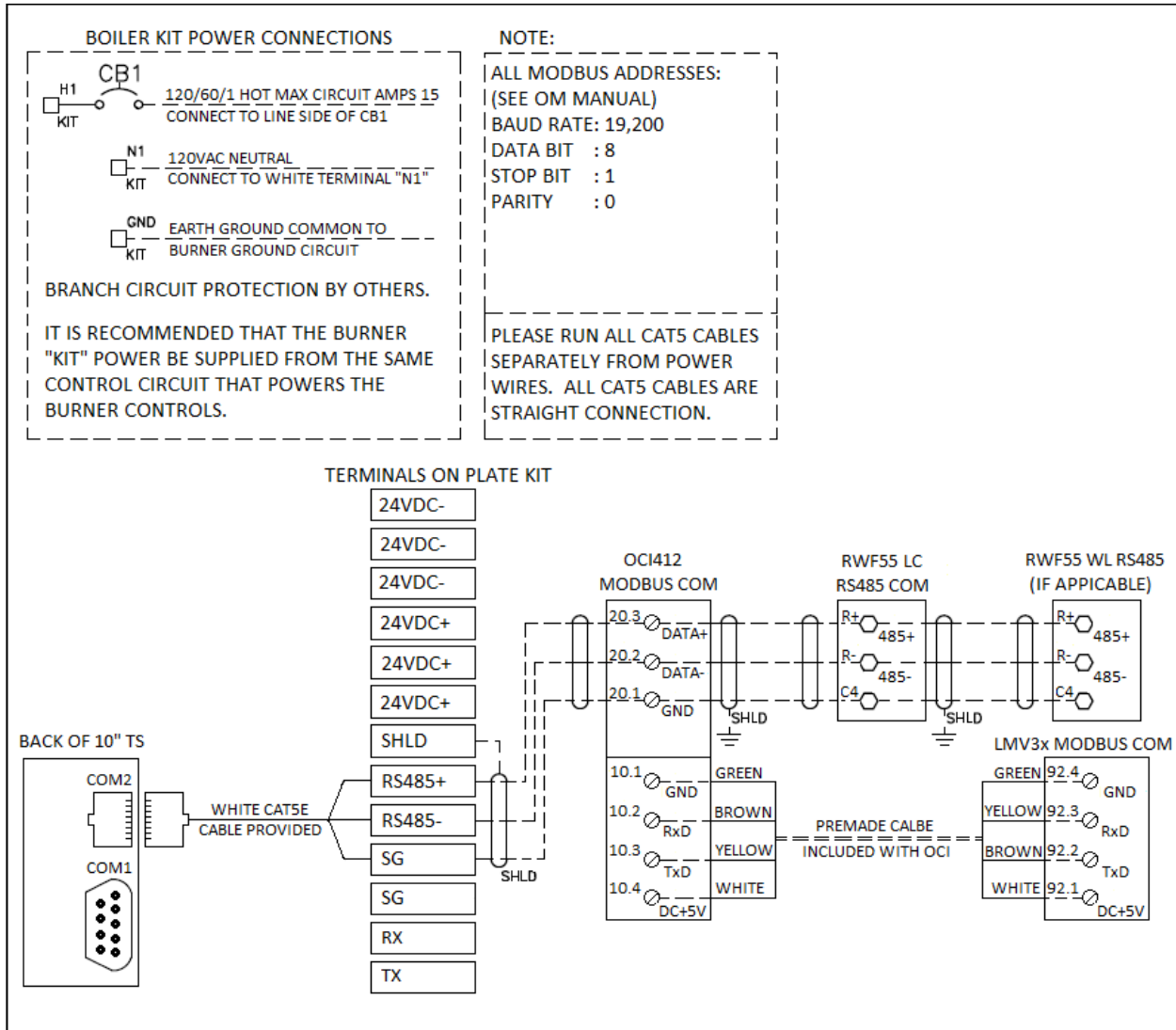
## Connections (Continued)

10" Touchscreen kit with LMV5 and optional RWF55 for water level control



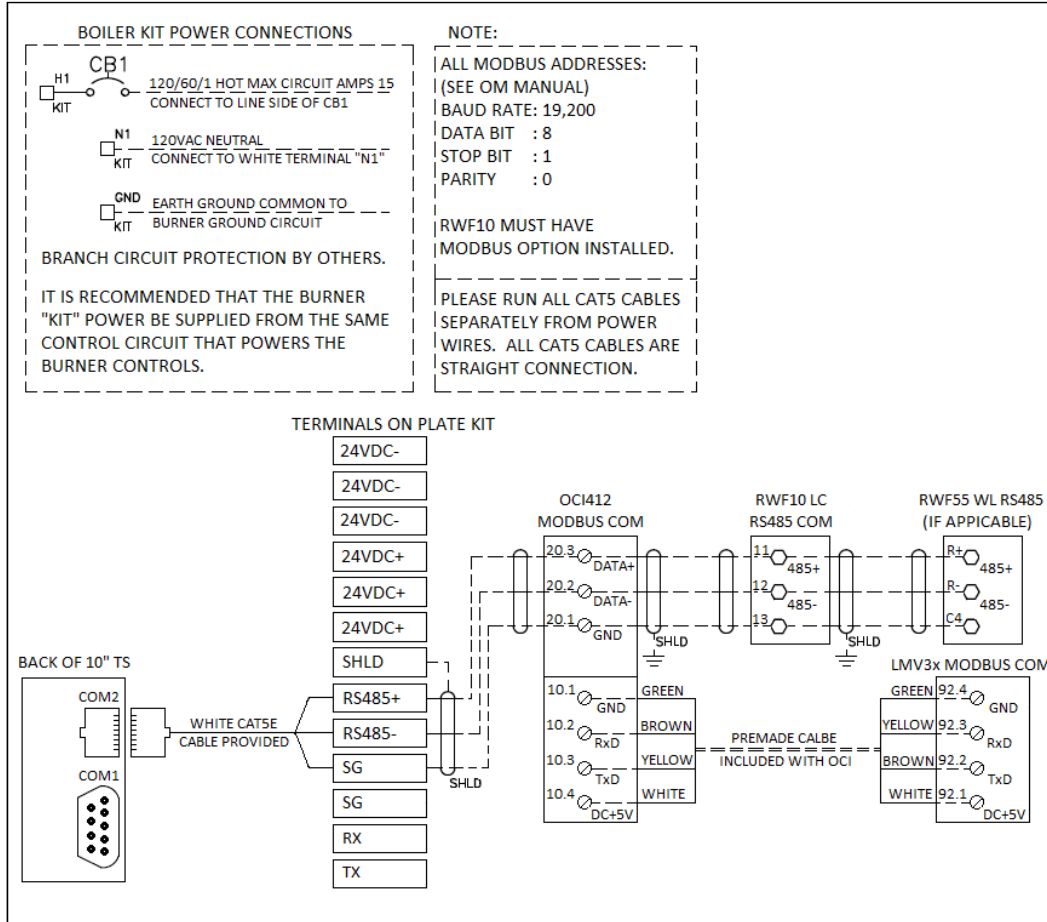
## Connections (Continued)

10" Touchscreen kit with LMV3, RWF55 for load control and optional RWF55 for water level control

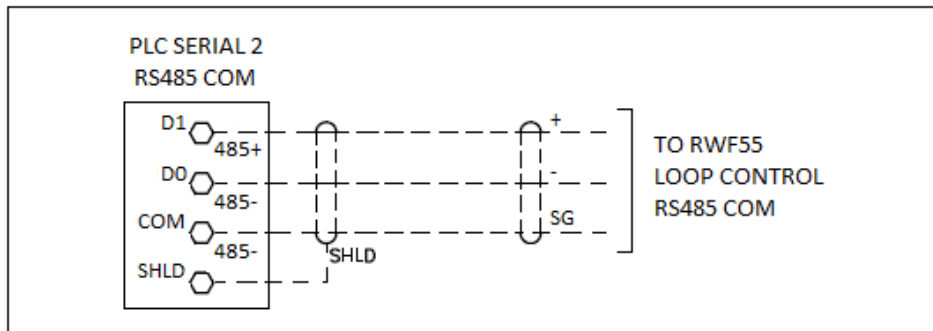


## Connections (Continued)

10" Touchscreen kit with LMV3, RWF10 for load control and optional RWF55 for water level control

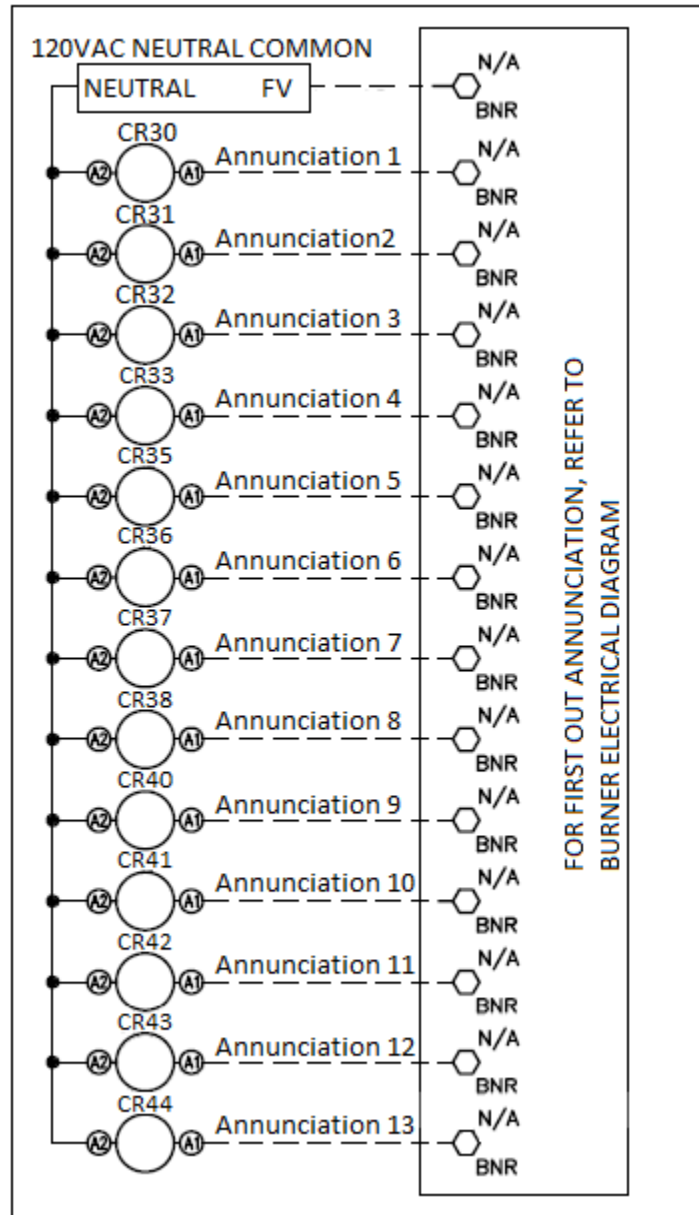


RS485 connection for additional RWF55 for loop control (If applicable)



## Connections (Continued)

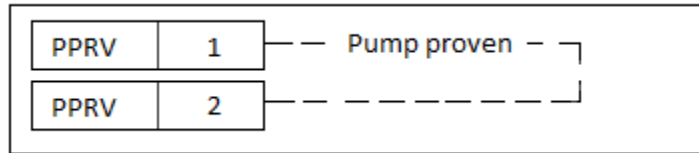
Standard annunciation 13 120VAC inputs



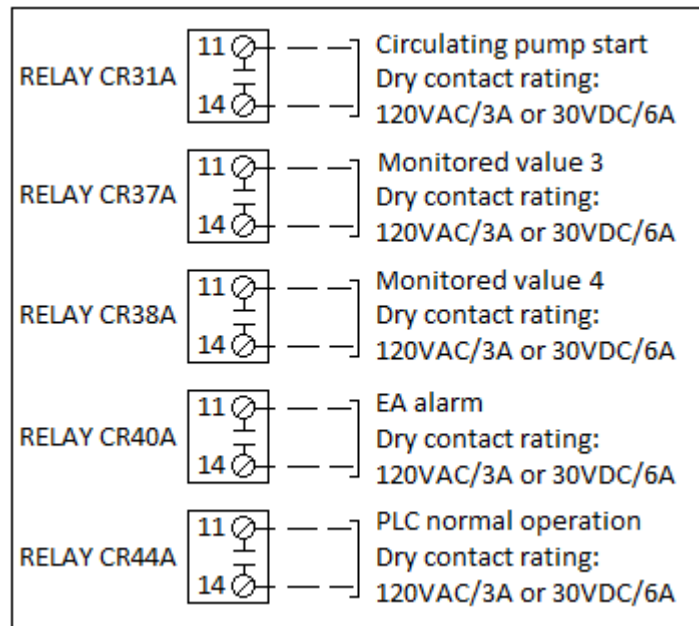
## Connections (Continued)

Output terminals

Pump proven input terminals

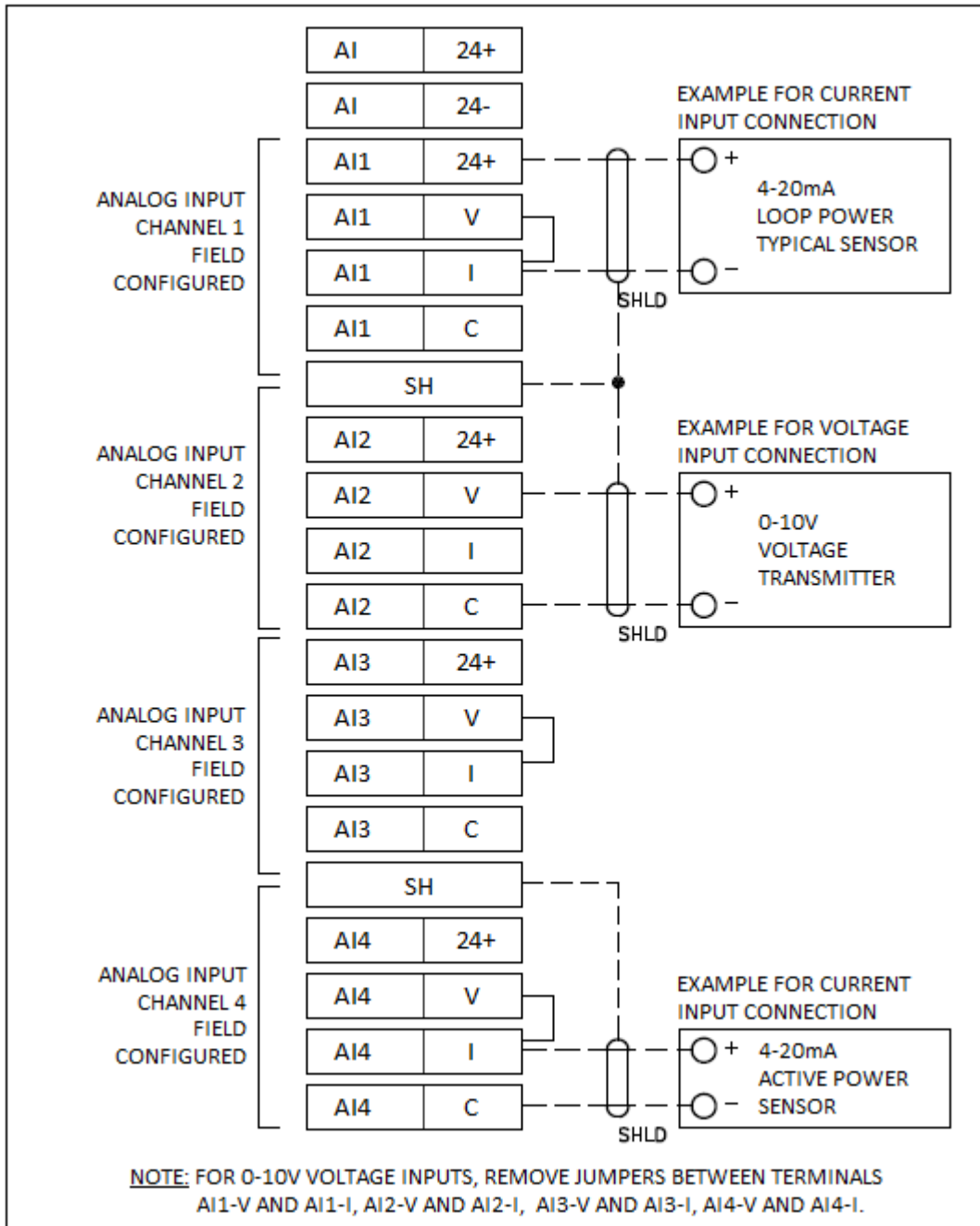


Outputs relay terminals



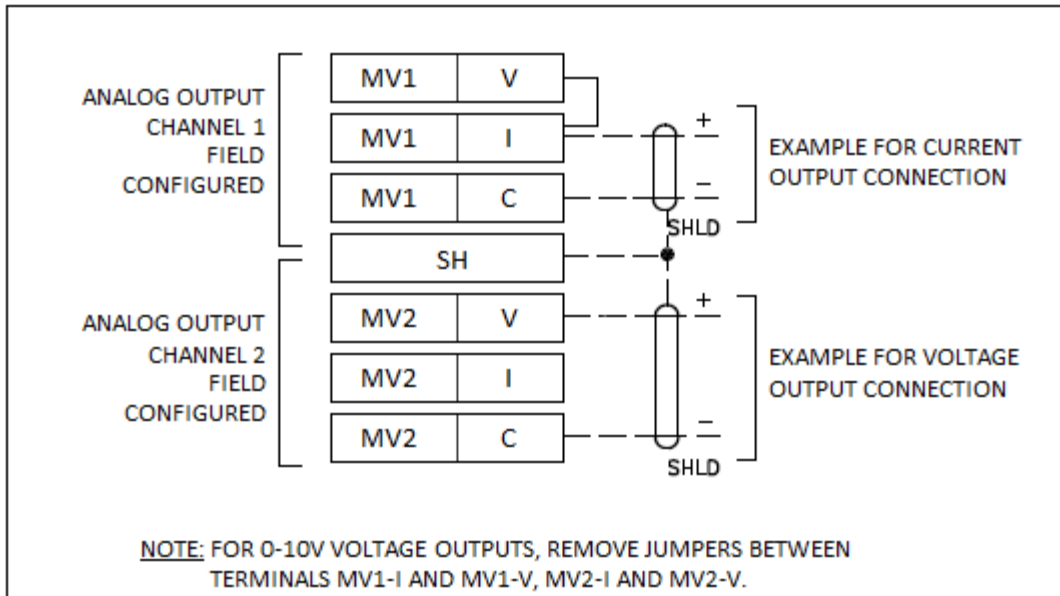
## Connections (Continued)

Analog input terminals (no draft control)



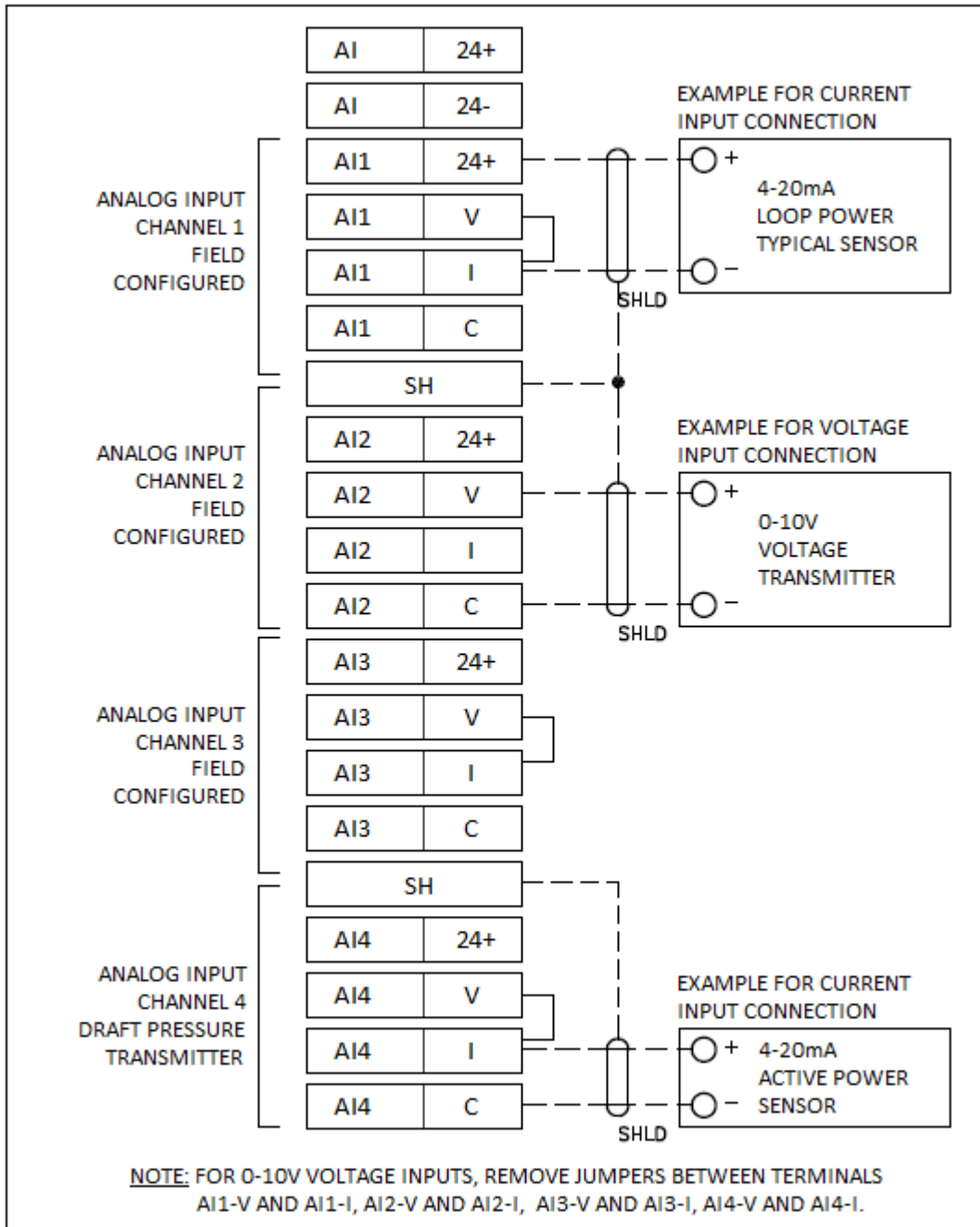
## Connections (Continued)

Analog output terminals



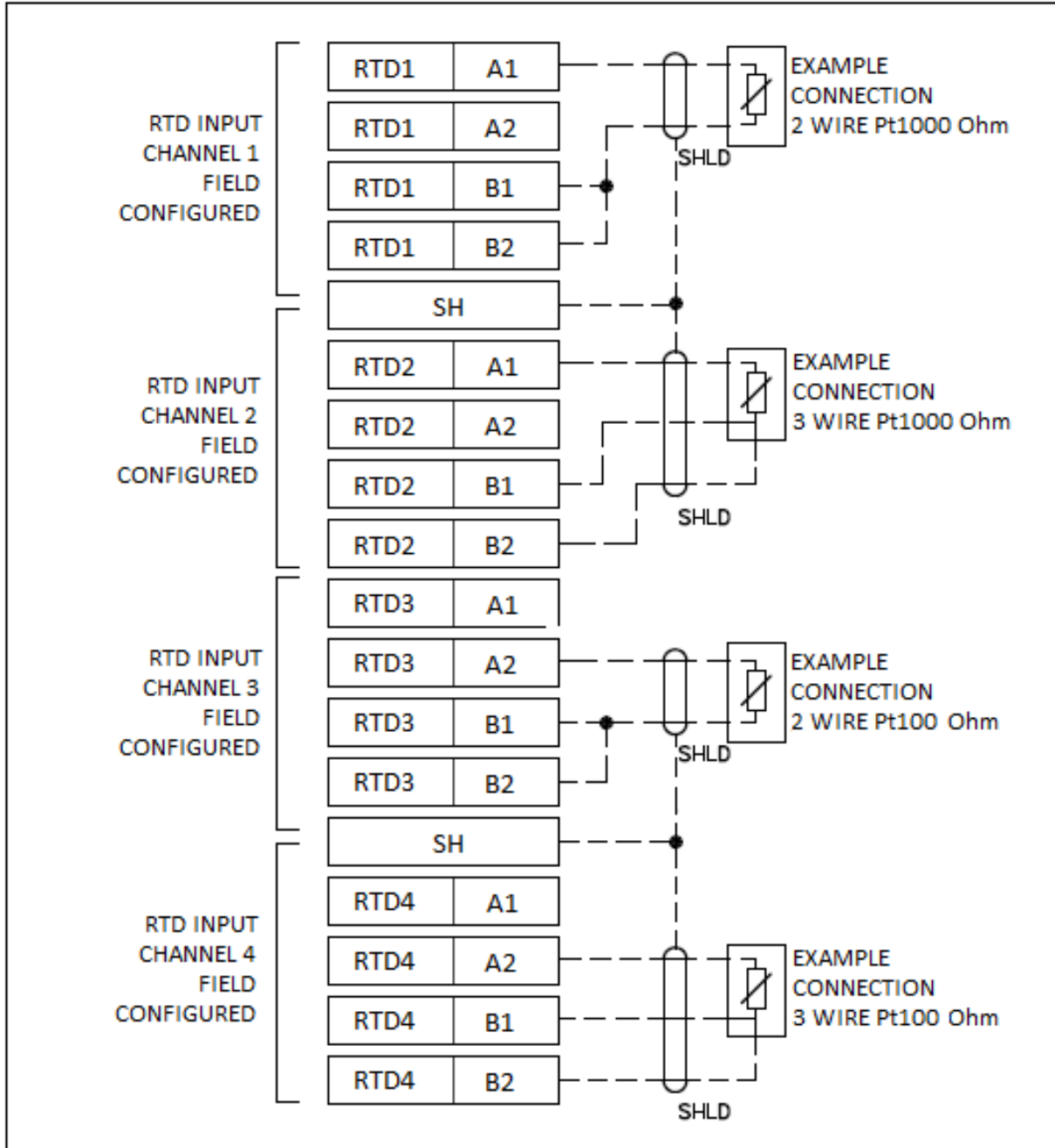
## Connections (Continued)

Analog input terminals (with draft control)



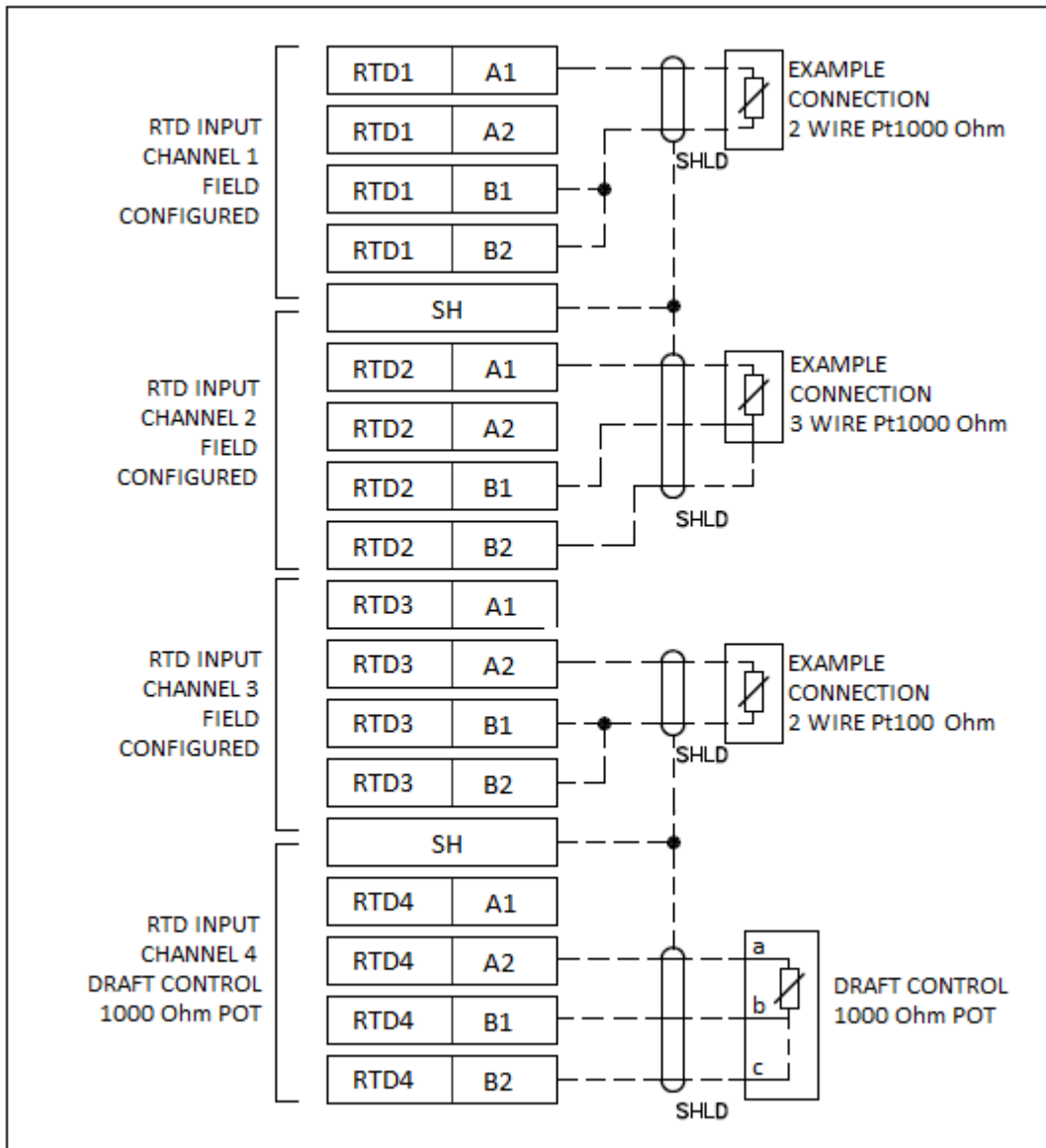
## Connections (Continued)

RTD 100/1000 Ohm input terminals (no draft control)



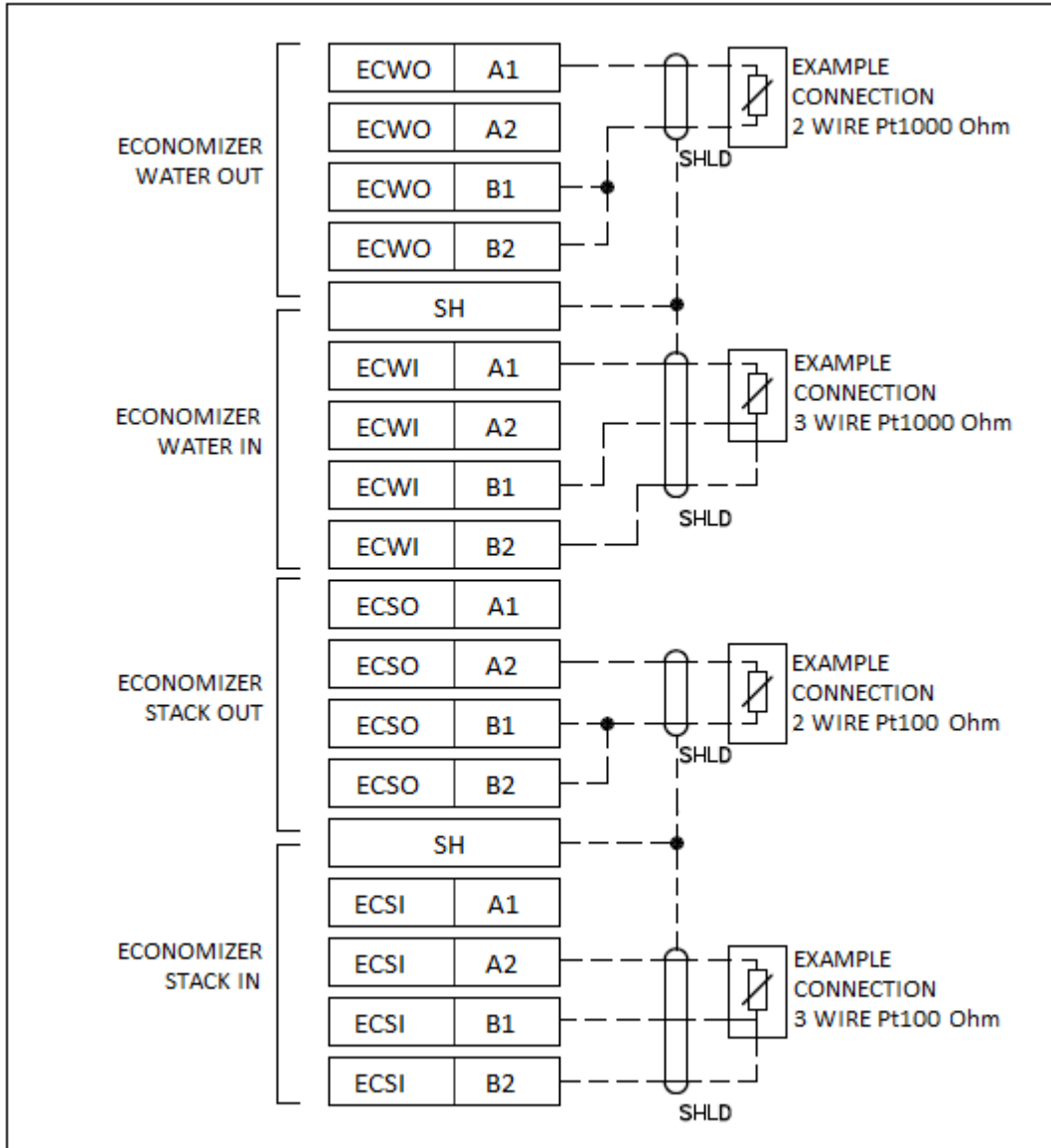
## Connections (Continued)

RTD 100/1000 Ohm input terminals (with draft control)



## Connections (Continued)

RTD 100/1000 Ohm input terminals for economizer

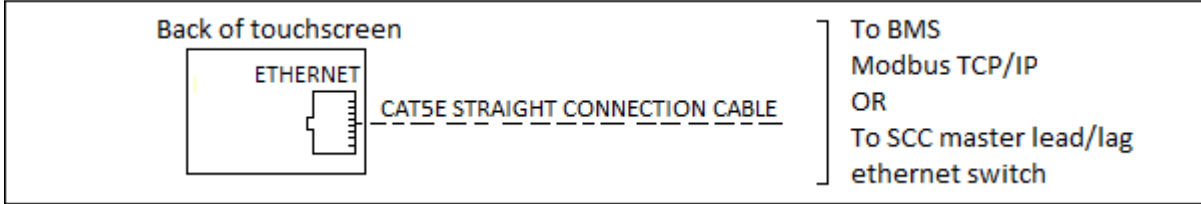




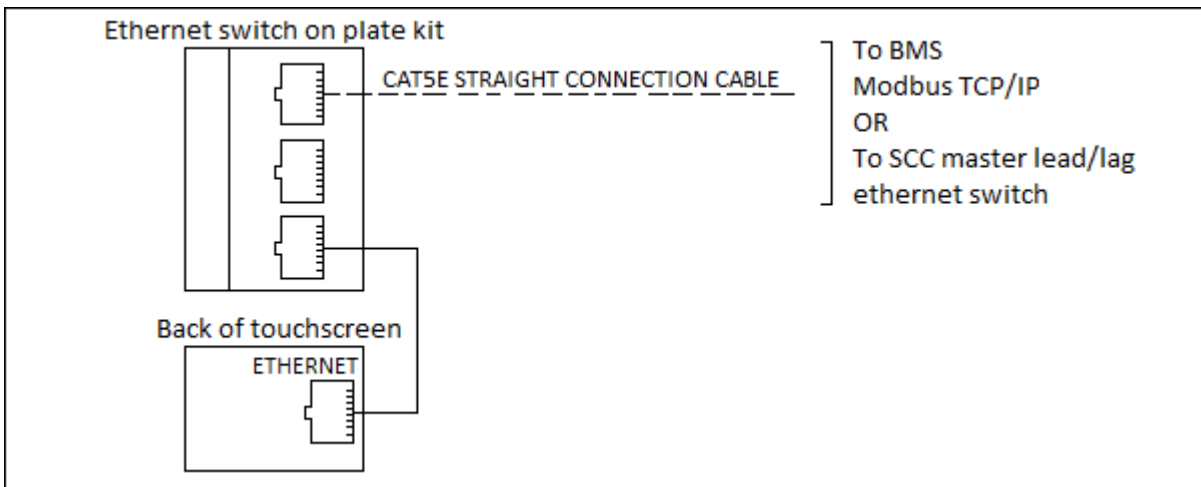
## Connections (Continued)

### BMS Connections

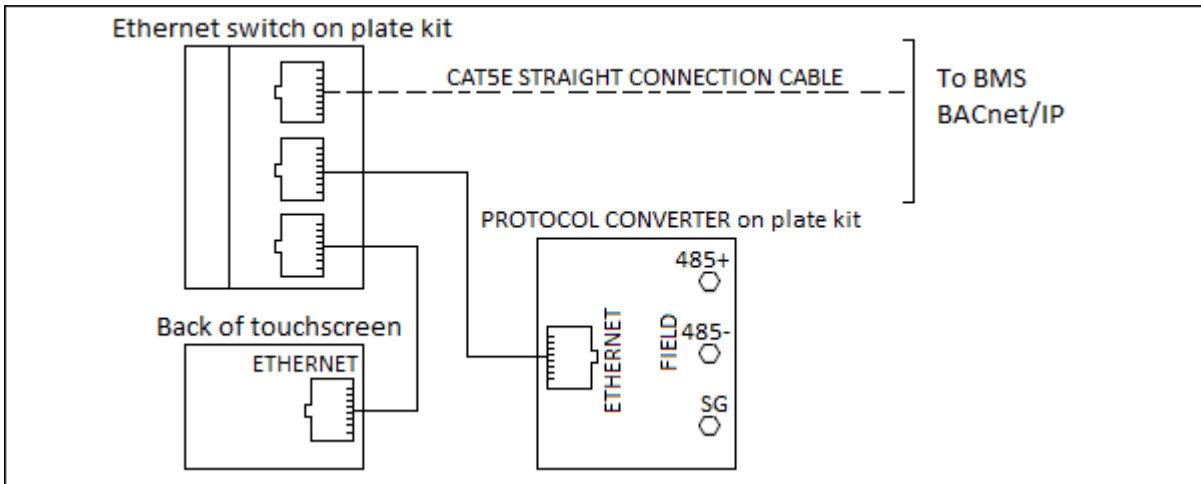
#### Standard Modbus TCP/IP



#### Standard Modbus TCP/IP with PLC annunciation

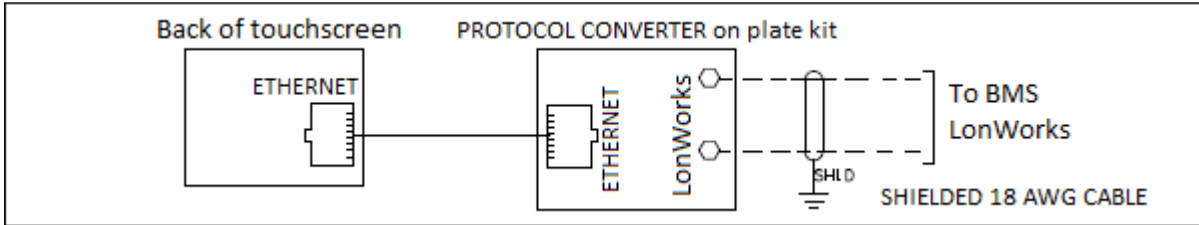


#### BACnet/IP

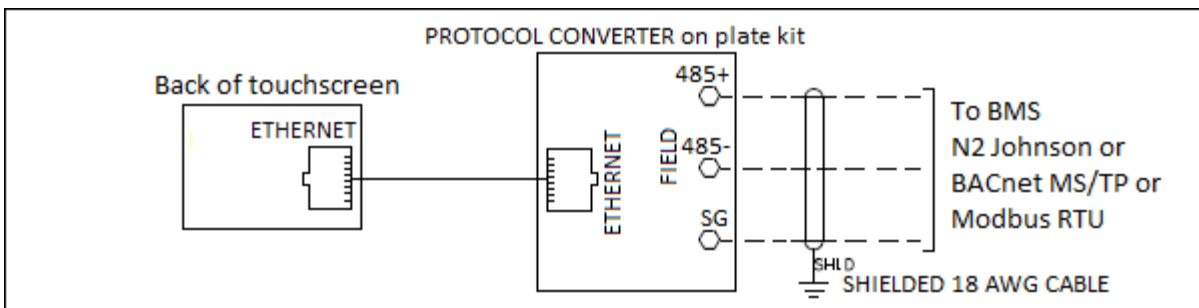


## Connections (Continued)

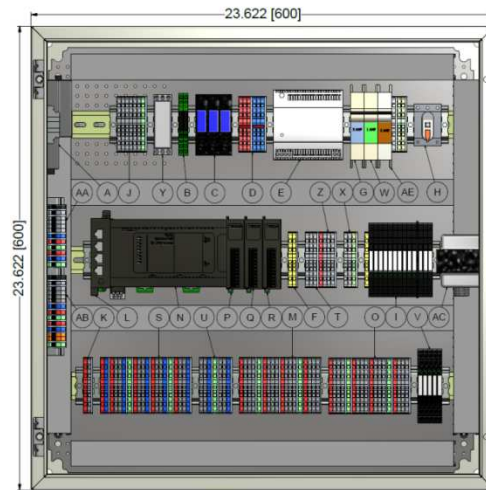
### LonWorks



### N2 Johnson Metasys, BACnet MS/TP or Modbus RTU



## Parts Descriptions and Dimensions



A	BMS Communication BACnet/LON/N2/RTU	BMS communication other than Modbus TCP/IP
B	Solid State Relays (Draft Control Option)	Draft damper open and close relays
C	DPDT Relays (Draft Control Option Only)	Draft control ignition permissive Draft control damper drive open on failure Draft control alarm
D	24 VDC Terminals	24 VDC connections
E	24 VDC Power Supply	24VDC source
F	Field Terminals (Yellow)	Field outputs and control terminals
G	3 Amps Circuit Breaker	120 VAC power isolation
H	16 Amp None Fused Disconnect	120 VAC disconnect, only when installed in SCC enclosure
I	120 VAC SPDT Relays	Burner / Boiler alarms annunciation relays, first in first out.
J	Modbus RS232 and RS485 Terminals	Field Modbus connections to LMV5/LMV3/RWF55/ RWF10
K	Circulating Pump Proven	Circulating pump proven field terminals
L	Ethernet Switch	Ethernet connection to touchscreen, and master panel, and/or BMS
M	RTD Inputs Terminals	Field Wiring General Purpose Temperature Monitoring
AA	RWF55 Load Controller Terminals	External Load Control for LMV5 or LMV3 Systems 4-20mA and 0-10V inputs and outputs
AC	24VAC TRANSFORMER	Control Power for SKB/C and D Feedwater Actuators

N	PLC	Logic controller microprocessor based
O	RTD Inputs Terminals	Economizer temperature monitoring field terminals
P	Analog Inputs Module	0-10V/4-20ma flow, pressure, temperature, DP pressure monitoring and high and low signal alarms
Q	RTD Input Module	Designated for general purpose temperature monitoring , high and low signal alarms
R	RTD Input Module	Economizer temperature monitoring water in, water out, stack in, out
S	Analog Inputs Terminals	Flow, pressure, temperature, DP pressure, etc.. 4-20ma, or 0-10 Volts inputs. field wiring terminals
T	Draft Mod Motor Field Terminals	Ignition permissive Damper drive open Alarm actuator interconnecting terminals
U	Analog Output Terminals	Monitored value via 4-20 ma signal
V	SPDT Relays	Hot water only circulating pump control General alarm Monitored status digital output 1 Monitored status digital output 2 PLC health always on
W	1 Amp Circuit Breaker	Draft control 120 VAC power isolation
X	120VAC Power Terminals	SQM5 actuator 120VAC power terminals
Y	Time Delay Timer	Draft control high pressure boiler shutoff delay timer
Z	Draft Control Terminals	LMV interconnect safety loop and high pressure switch terminals
AB	RWF55 Load Controller Feedwater Terminals	Feedwater Controller 4-20mA and 0-10V inputs and outputs
AE	2 Amps Circuit Breaker	120 VAC Power Isolation for Feedwater

## Kits Dimensions (Continued)

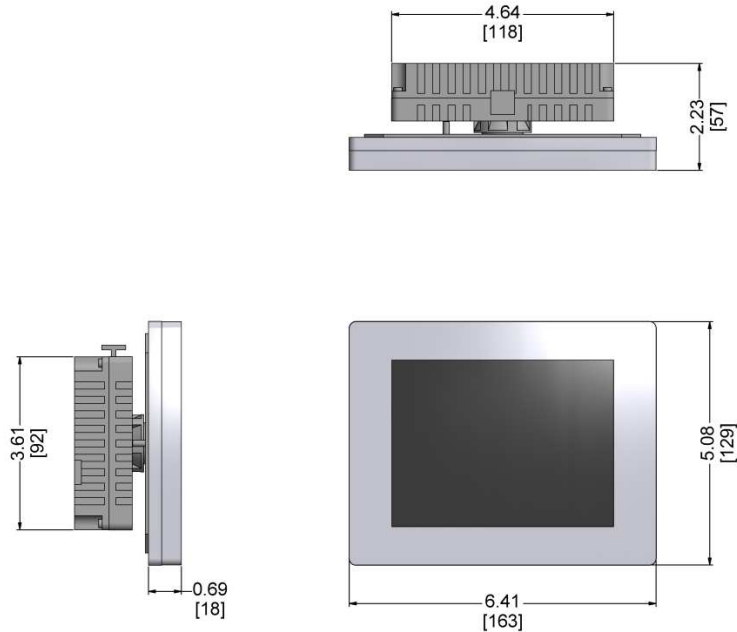
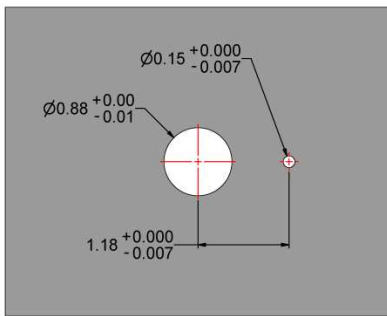
Dimensions in inches; millimeters in brackets

### 6" Touchscreen

#### TS-6xxx-xxx

Installation:

Cutout required as shown below

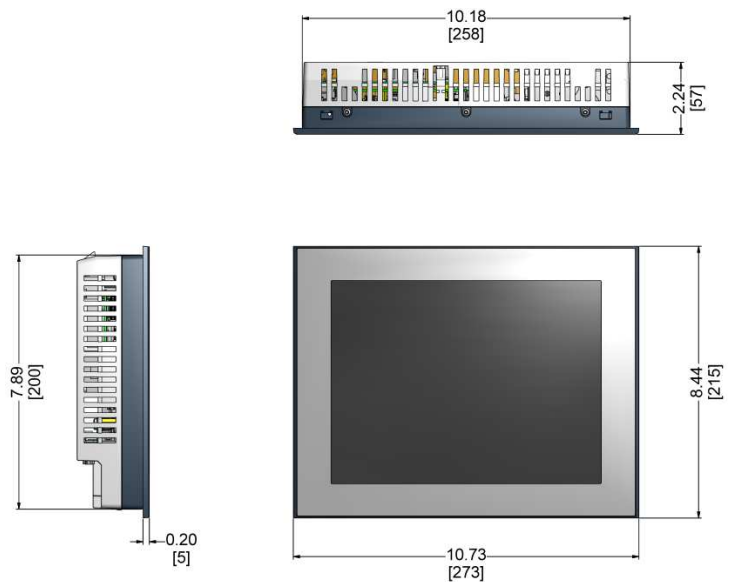
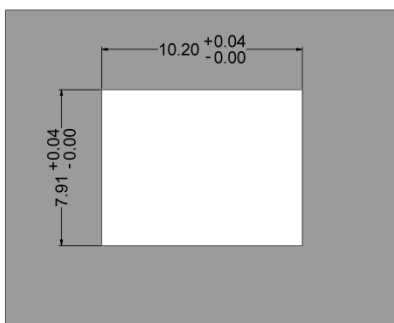


### 10" Touchscreen

#### TS-0xxx-xxx

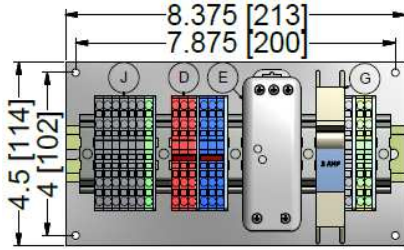
Installation:

Cutout required as shown below

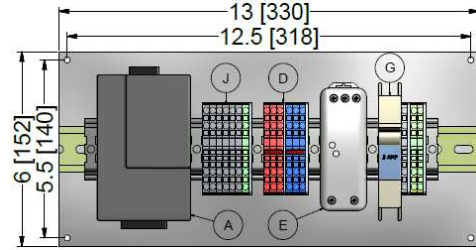


## Kits Dimensions (Continued)

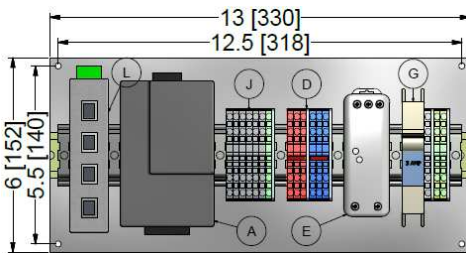
### TS-xXXS-XXX and TS-xXXS-xxx



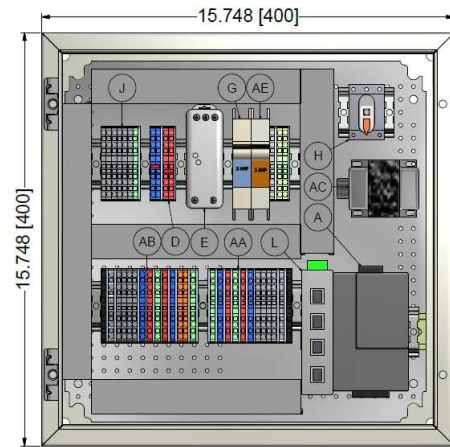
**TS-xXXS-XXX**



**TS-xXXM-XXX – TS-xXXL-XXX**



**TS-xXXB-xxx**



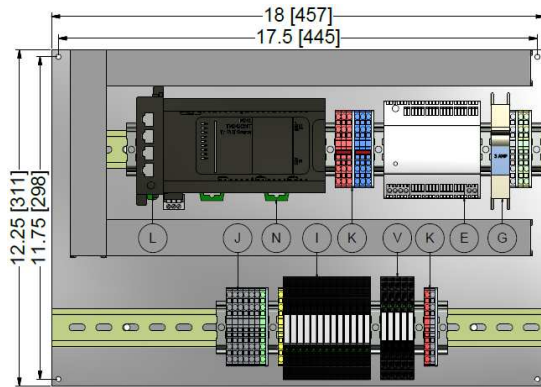
**TS-xXXB-1x2**

Kit	RWF55 Load Control Terminals (AA)	RWF55 Feed Water Terminals (AB)	24VAC Transformer for Feed Water (AC)	2 Amp Circuit Breaker (AE)
<b>TS-xXXX-1XX</b>				
<b>TS-xXXX-1XL</b>	<b>X</b>			<b>X</b>
<b>TS-xXXX-1XW</b>		<b>X</b>	<b>X</b>	<b>X</b>
<b>TS-xXXX-1X2</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>

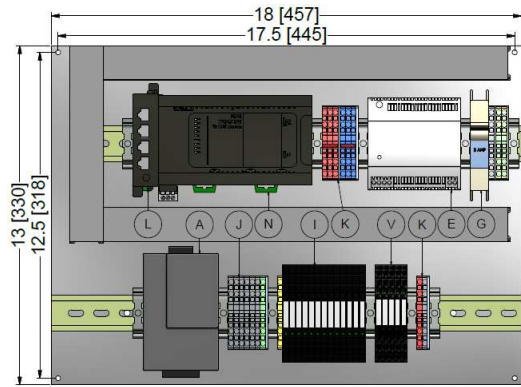
Note: Terminal Letters correspond with page 23 descriptions

## Kits Dimensions (Continued)

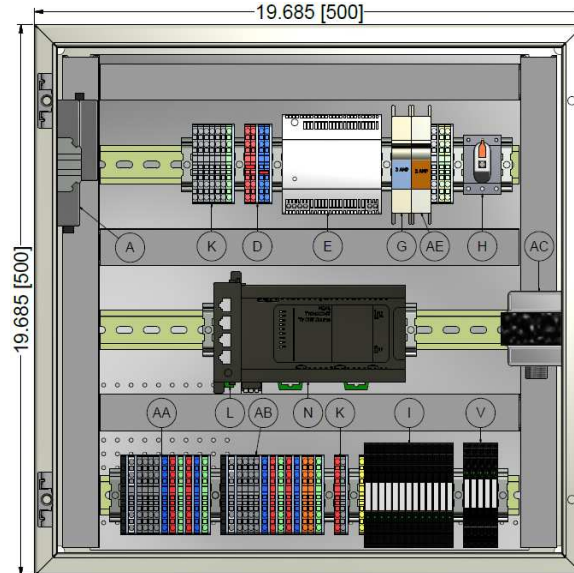
### TS-xX1x-xx



**TS-xX1S-XXX**



**TS-Xx1M-XXX – TS-xX1L-XXX**



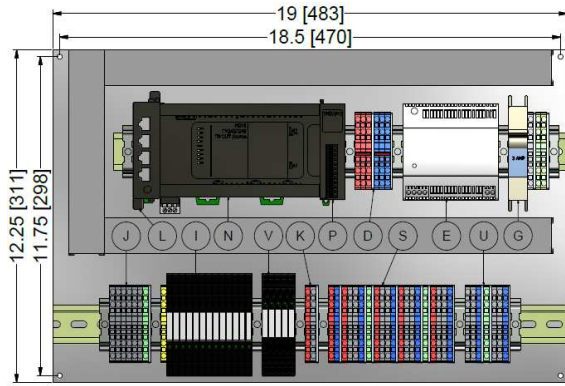
**TS-xX1B-1X2**

Kit	RWF55 Load Control Terminals (AA)	RWF55 Feed Water Terminals (AB)	24VAC Transformer for Feed Water (AC)	2 Amp Circuit Breaker (AE)
<b>TS-xX1X-1XX</b>				
<b>TS-xX1X-1XL</b>	<b>X</b>			<b>X</b>
<b>TS-xX1X-1XW</b>		<b>X</b>	<b>X</b>	<b>X</b>
<b>TS-xX1X-1X2</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>

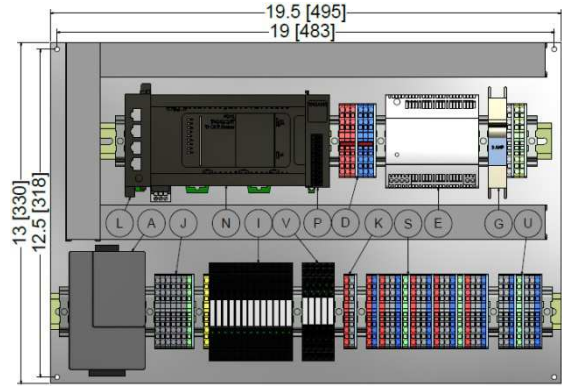
Note: Terminal Letters correspond with page 23 descriptions

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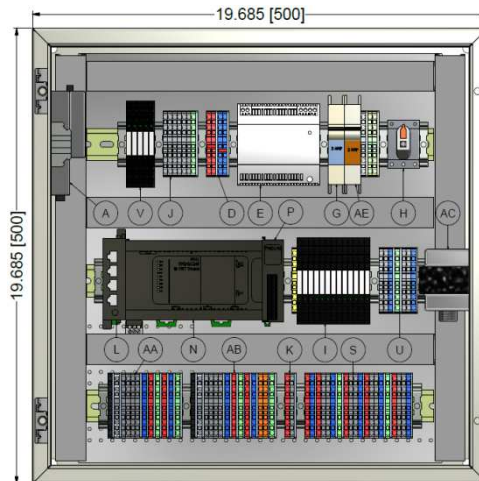
### TS-xX2x-xx



**TS-xX2S-XXX (BMS MB TCP/IP)**



**TS-xX2x-XxX (BMS Others))**



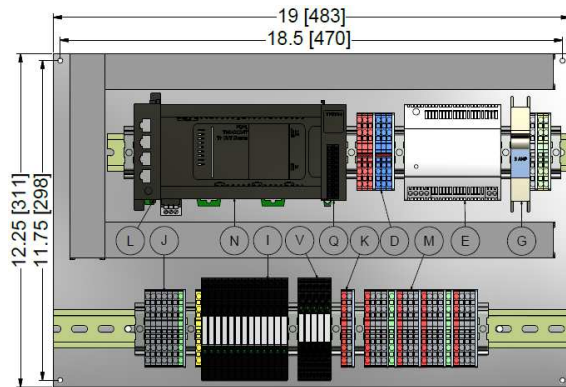
**TS-xX2B-1X2**

Kit	RWF55 Load Control Terminals (AA)	RWF55 Feed Water Terminals (AB)	24VAC Transformer for Feed Water (AC)	2 Amp Circuit Breaker (AE)
<b>TS-xX2X-1XX</b>				
<b>TS-xX2X-1XL</b>	<b>X</b>			<b>X</b>
<b>TS-xX2X-1XW</b>		<b>X</b>	<b>X</b>	<b>X</b>
<b>TS-xX2X-1X2</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>

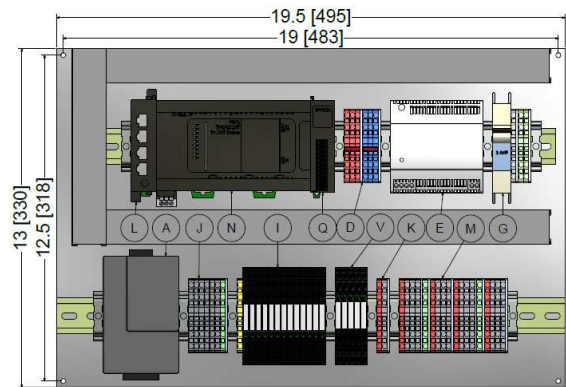
Note: Terminal Letters correspond with page 23 descriptions

## Kits Dimensions (Continued)

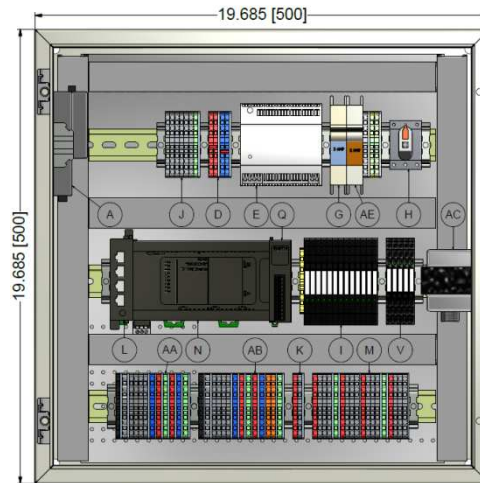
### TS-xX3x-xx



**TS-xX3S-XxX**



**TS-xX3x-XxX**



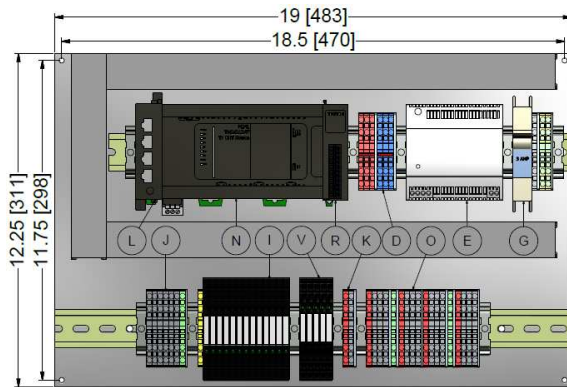
**TS-xX3B-1x2**

Kit	RWF55 Load Control Terminals (AA)	RWF55 Feed Water Terminals (AB)	24VAC Transformer for Feed Water (AC)	2 Amp Circuit Breaker (AE)
<b>TS-xX3X-1XX</b>				
<b>TS-xX3X-1XL</b>	<b>X</b>			<b>X</b>
<b>TS-xX3X-1XW</b>		<b>X</b>	<b>X</b>	<b>X</b>
<b>TS-xX3X-1X2</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>

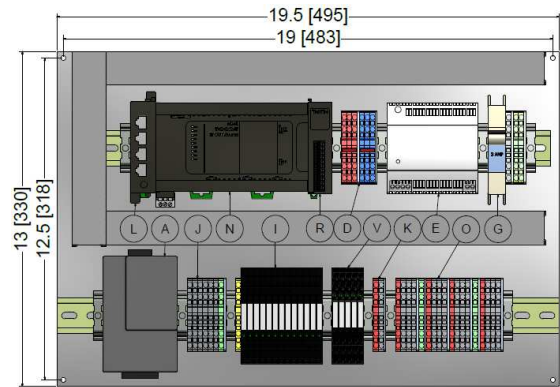
Note: Terminal Letters correspond with page 23 descriptions

## Kits Dimensions (Continued)

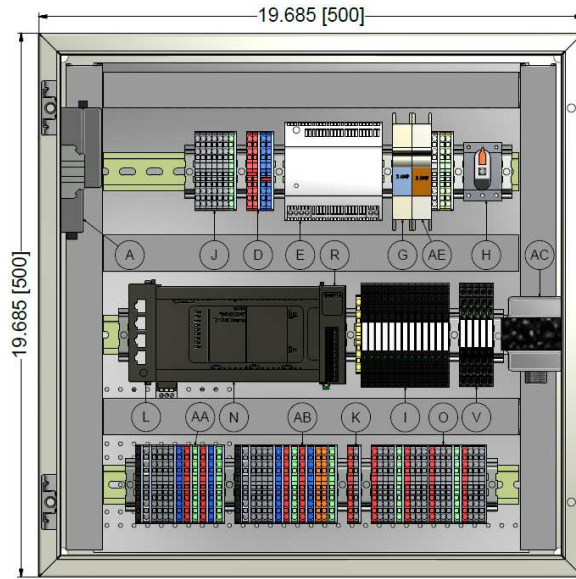
### TS-xX4x-xx



**TS-xX4S-XxX**



**TS-xX4x-XxX**



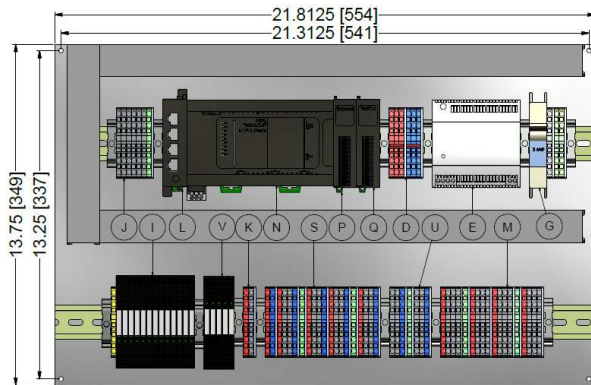
**TS-xX4B-1x2**

Kit	RWF55 Load Control Terminals (AA)	RWF55 Feed Water Terminals (AB)	24VAC Transformer for Feed Water (AC)	2 Amp Circuit Breaker (AE)
<b>TS-xX4X-1XX</b>				
<b>TS-xX4X-1XL</b>	<b>X</b>			<b>X</b>
<b>TS-xX4X-1XW</b>		<b>X</b>	<b>X</b>	<b>X</b>
<b>TS-xX4X-1X2</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>

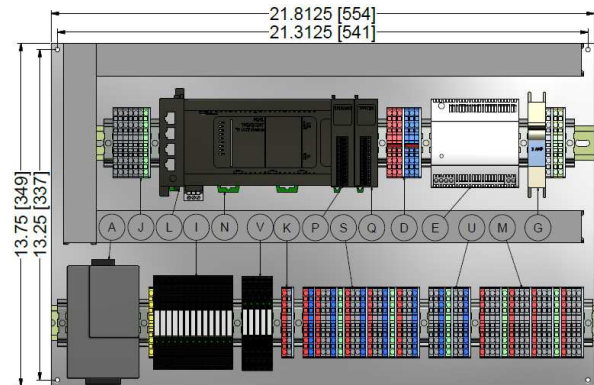
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## Kits Dimensions (Continued)

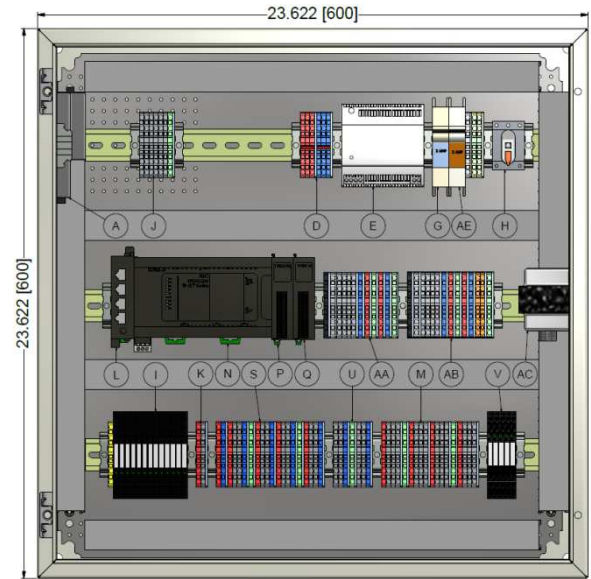
### TS-xX5x-xx



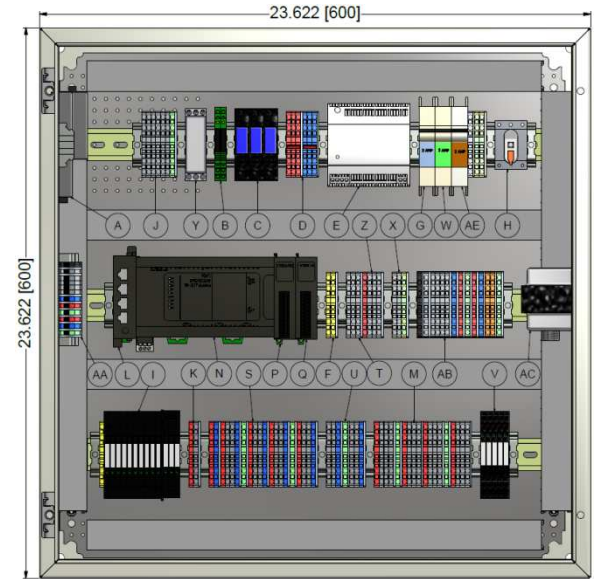
**TS-xX5S-XxX**



**TS-xX5x-XxX**



**TS-xX5B-1x2**



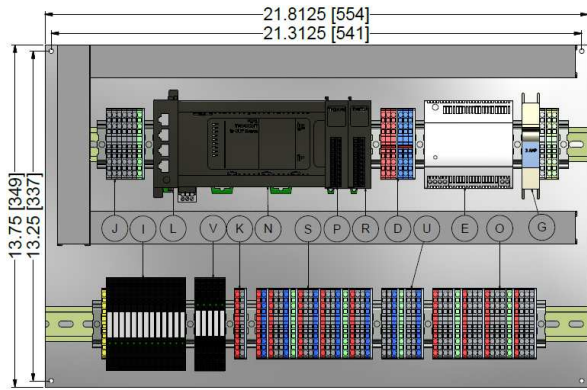
**TS-xD5B-1x2(with Draft Control)**

Kit	RWF55 Load Control Terminals (AA)	RWF55 Feed Water Terminals (AB)	24VAC Transformer for Feed Water (AC)	2 Amp Circuit Breaker (AE)
<b>TS-xX5X-1XX</b>				
<b>TS-xX5X-1XL</b>	<b>X</b>			<b>X</b>
<b>TS-xX5X-1XW</b>		<b>X</b>	<b>X</b>	<b>X</b>
<b>TS-xX5X-1X2</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>

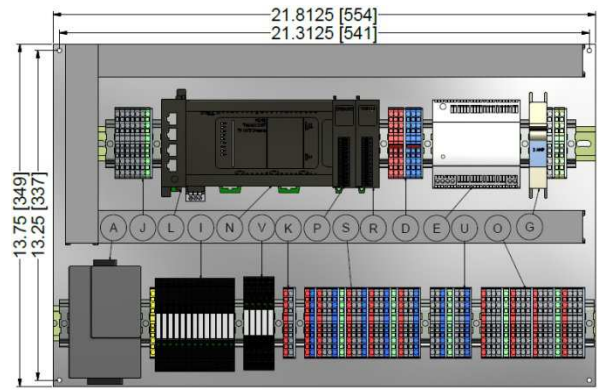
Note: Terminal Letters correspond with page 23 descriptions

## Kits Dimensions (Continued)

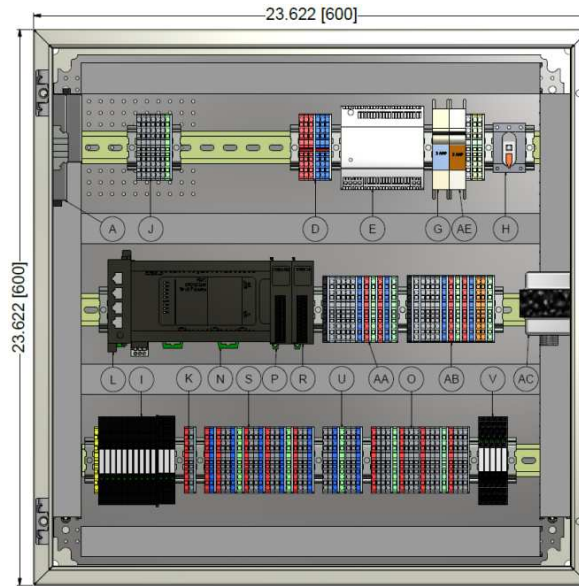
### TS-xX6x-xx



**TS-xX6S-XxX**



**TS-xX6x-XxX**



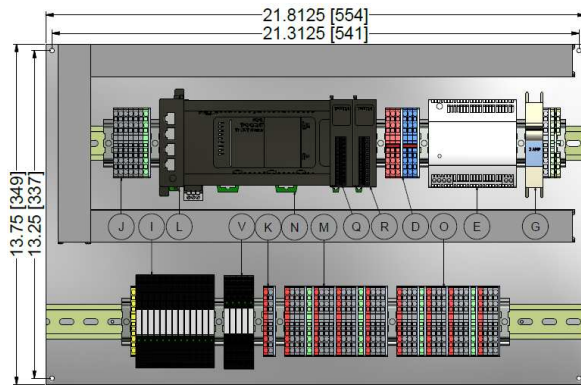
**TS-xX6x-1x2**

Kit	RWF55 Load Control Terminals (AA)	RWF55 Feed Water Terminals (AB)	24VAC Transformer for Feed Water (AC)	2 Amp Circuit Breaker (AE)
<b>TS-xX6X-1XX</b>				
<b>TS-xX6X-1XL</b>	<b>X</b>			<b>X</b>
<b>TS-xX6X-1XW</b>		<b>X</b>	<b>X</b>	<b>X</b>
<b>TS-xX6X-1X2</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>

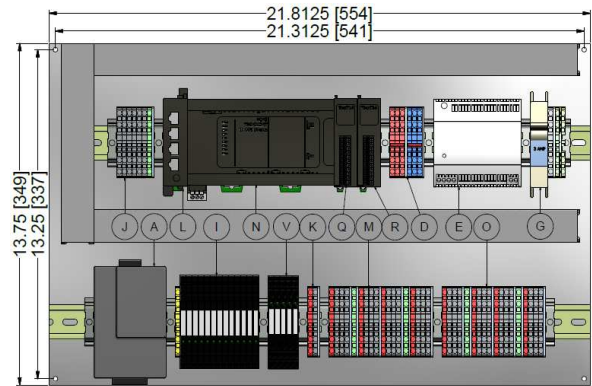
Note: Terminal Letters correspond with page 23 descriptions

## Kits Dimensions (Continued)

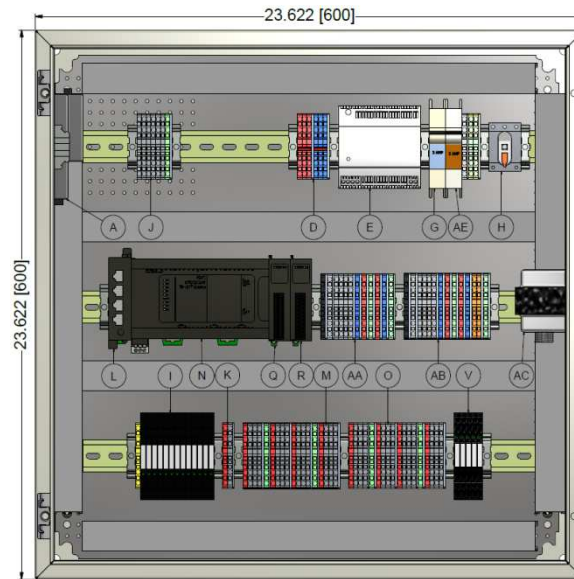
### TS-xX7x-xx



**TS-xX7S-XxX**



**TS-xX7X-XxX**



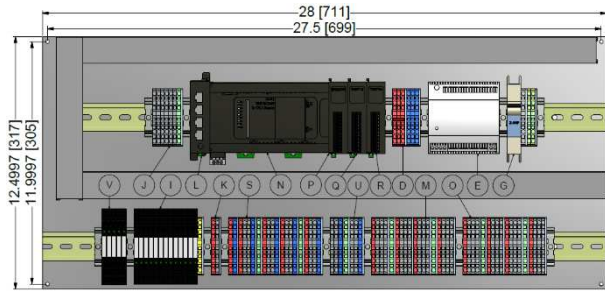
**TS-xX7x-1x2**

Kit	RWF55 Load Control Terminals (AA)	RWF55 Feed Water Terminals (AB)	24VAC Transformer for Feed Water (AC)	2 Amp Circuit Breaker (AE)
<b>TS-xX7X-1XX</b>				
<b>TS-xX7X-1XL</b>	<b>X</b>			<b>X</b>
<b>TS-xX7X-1XW</b>		<b>X</b>	<b>X</b>	<b>X</b>
<b>TS-xX7X-1X2</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>

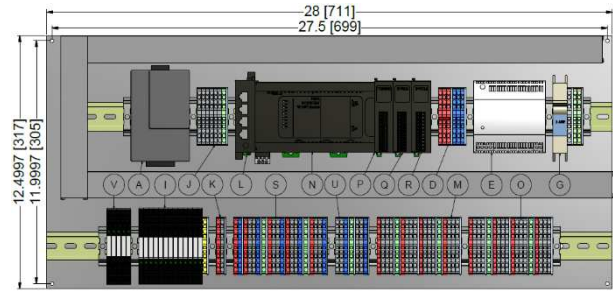
Note: Terminal Letters correspond with page 23 descriptions

## Kits Dimensions (Continued)

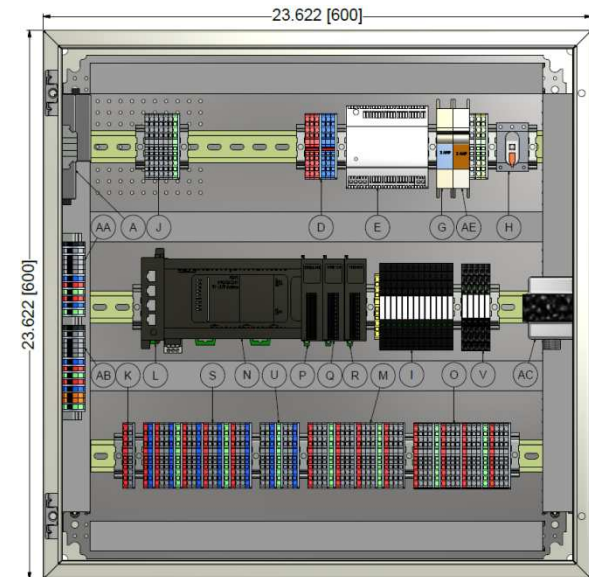
### TS-xX8x-xx



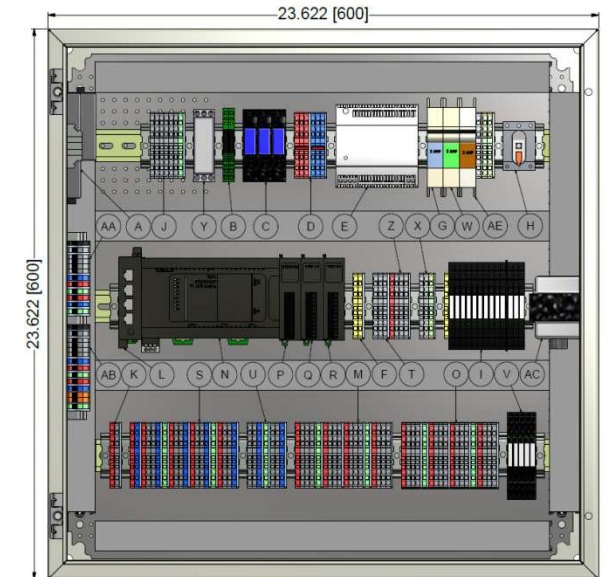
**TS-xX8S-XxX**



**TS-xX8x-XxX**



**TS-xX8B-1x2**



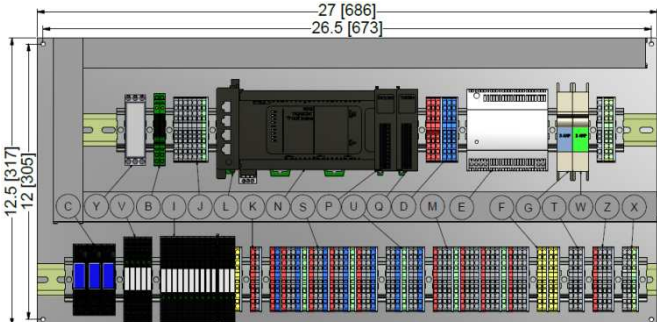
**TS-xD8B-1x2**

Kit	RWF55 Load Control Terminals (AA)	RWF55 Feed Water Terminals (AB)	24VAC Transformer for Feed Water (AC)	2 Amp Circuit Breaker (AE)
<b>TS-xX8X-1XX</b>				
<b>TS-xX8X-1XL</b>	<b>X</b>			<b>X</b>
<b>TS-xX8X-1XW</b>		<b>X</b>	<b>X</b>	<b>X</b>
<b>TS-xX8X-1X2</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>

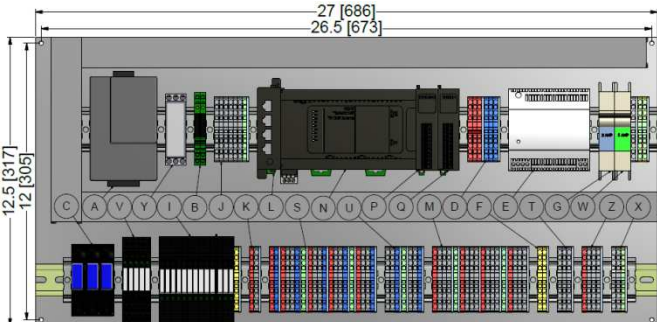
Note: Terminal Letters correspond with page 23 descriptions

# Kits Dimensions (Continued)

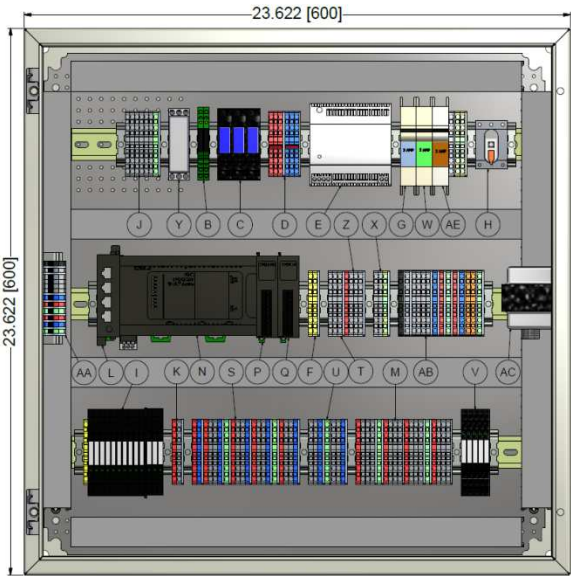
## TS-xX5x-xx



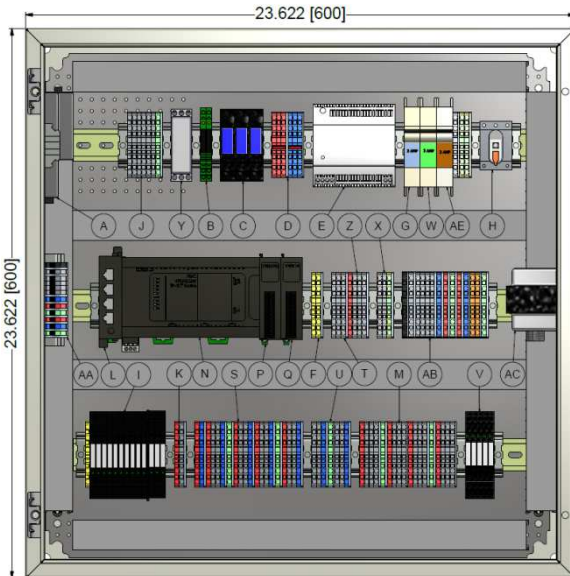
TS-xD5S-XxX



TS-xD5x-XxX



TS-xD5S-xxX

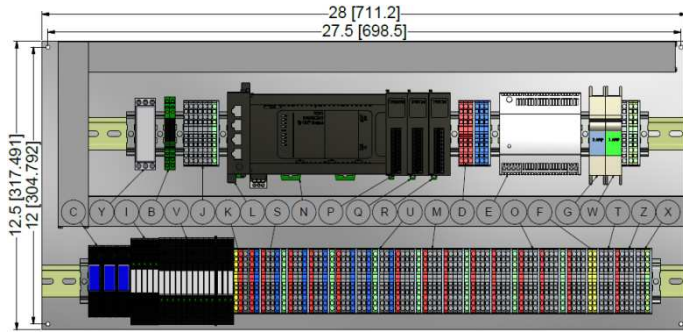


TS-xD5x-xxX

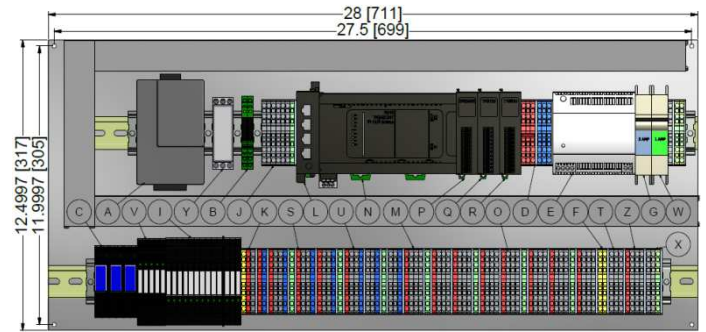
Note: Terminal Letters correspond with page 23 descriptions

## Kits Dimensions (Continued)

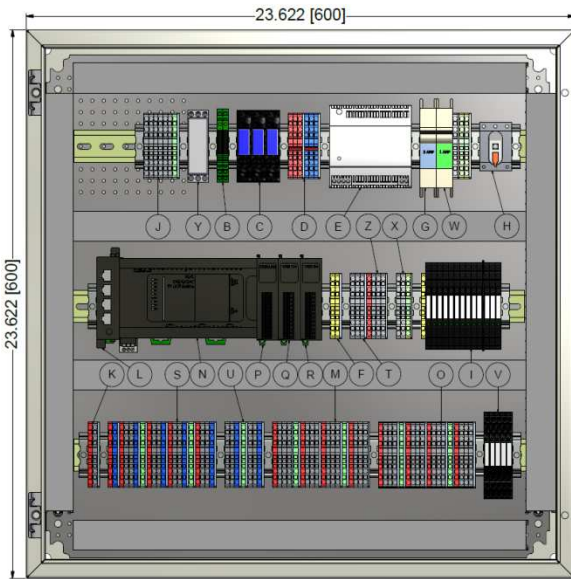
### TS-xD8x-xxX



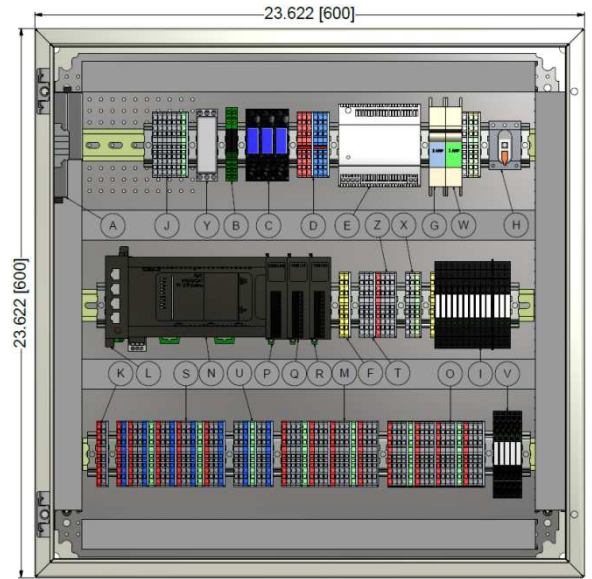
**TS-xD8S-XxX**



**TS-xD8B-KT – TS-xD8L-XxX**



**TS-xD8S-1xX**



**TS-xD8x-1xX**

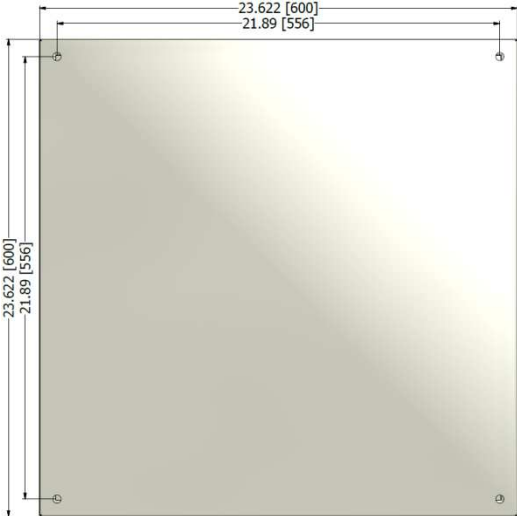
Note: Terminal Letters correspond with page 23 descriptions

## 24"X24"X10" Enclosure Dimensions

Dimensions in inches; millimeters in brackets



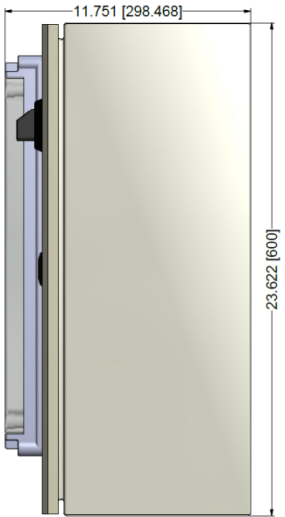
**TS-0D8X-252 - TS-0D8X-452**  
**TS-0D5x-252 - TS-0D8X-452**



**TS-xx8x-xxx**  
**TS-xx5x-xxx**



**TS-xD8X-232 – TS-xD8X-432**  
**TS-xD5x-232 - TS-xD5x-432**

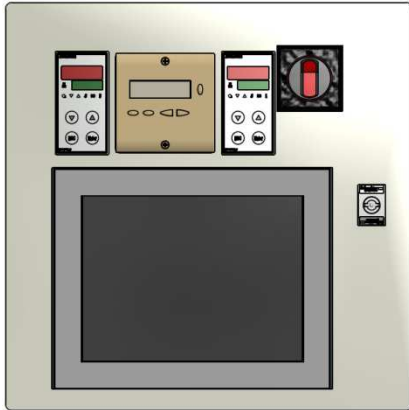


**TS-0D8X-2X2 - TS-0D8X-4X2**  
**TS-0D5x-2X2 - TS-0D8X-4X2**

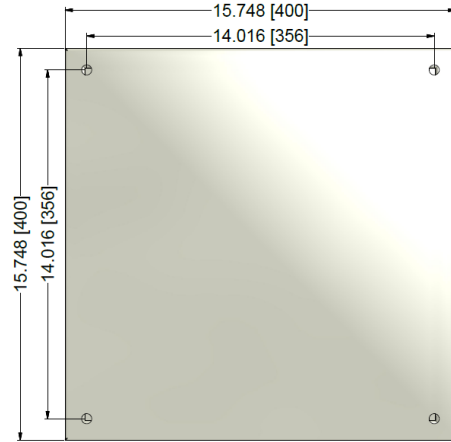
## 16"X16"X8" Enclosure Dimensions

### For TS-xXXX-1xx and for xXXB-1xx

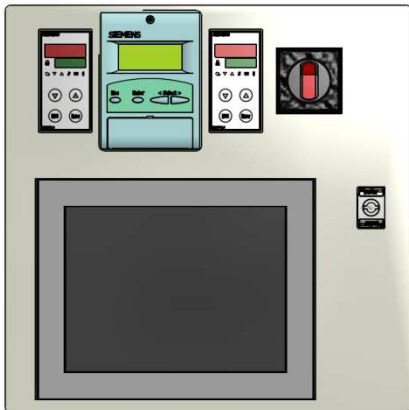
Dimensions in inches; millimeters in brackets



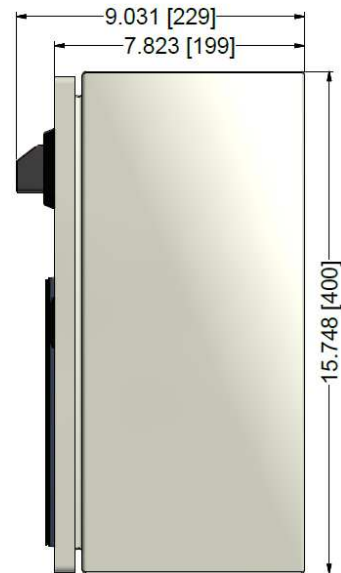
**TS-0XXx-132**



**TS-xXXX-CE**



**TS-0XXx-152**



**TS-xXXX-C2**  
**24"X24"X10" Enclosure only**

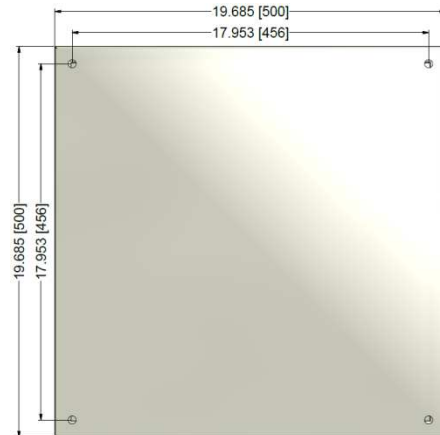
## 20"X20"X10" Enclosure Dimensions

### For TS-xXXX-1xx and for xXXB-1xx

Dimensions in inches; millimeters in brackets



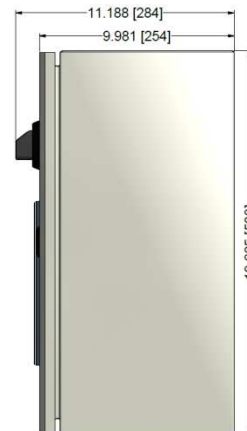
TS-xX2x-CE \_ TS-xX3x-CE  
TS-xX4x-CE \_ TS-xX5x-CE  
TS-xX6x-CE \_ TS-xX7x-CE



TS-xX2x-CE \_ TS-xX3x-CE  
TS-xX4x-CE \_ TS-xX5x-CE  
TS-xX6x-CE \_ TS-xX7x-CE



TS-xX2x-CE \_ TS-xX3x-CE  
TS-xX4x-CE \_ TS-xX5x-CE  
TS-xX6x-CE \_ TS-xX7x-CE



TS-xX2x-CE \_ TS-xX3x-CE  
TS-xX4x-CE \_ TS-xX5x-CE  
TS-xX6x-CE \_ TS-xX7x-CE  
TS-xX7x-CE  
24"X24"X10" Enclosure only

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