

**DESCRIPTION:**

PMI MODEL NUMBER PTRAN-100M18G-70-MAH IS A TRANSCEIVER COVERING THE FREQUENCY RANGE OF 100 MHz TO 18 GHz. THIS UNIT UP-CONVERTS A 100 MHz TO 4 GHz TRANSMIT SIGNAL TO THE 2 TO 18 GHz RANGE. IT ALSO DOWN-CONVERTS A 100 MHz TO 18 GHz RECEIVED SIGNAL TO THE 100 MHz TO 4 GHz INTERMEDIATE FREQUENCY RANGE FOR ANALOG TO DIGITAL CONVERSION. A RECEIVE FILTER BANK INCORPORATES A 2-WAY ABSORBITIVE SWITCH TO SELECT AN INPUT, ALONG WITH TWO 6-WAY SWITCHES ALLOWING ONE OF SIX FILTER PATHS TO BE CHOSEN. A FILTER BANK IS USED ALSO ON THE TRANSMIT PATH, WITH TWO 6-WAY SWITCHES ALLOWING ONE OF SIX FILTER PATHS TO BE CHOSEN.

**SPECIFICATIONS:**

- INPUTS: J1, J5, J7, J8
- J1 INPUT: INPUT FROM BACKPLANE  
FREQUENCY: 100 MHz TO 18.0 GHz  
POWER LEVEL: -80 dBm TO -10 dBm
- J5 INPUT: IF INPUT FROM BACKPLANE  
FREQUENCY: 100 MHz TO 4 GHz  
POWER LEVEL: 0 dBm TYPICAL
- J7 INPUT: LO1 FROM BACKPLANE  
FREQUENCY: 4 GHz TO 20 GHz  
POWER LEVEL: +15 dBm TYPICAL
- J8 INPUT: LO2 FROM BACKPLANE  
FREQUENCY: 4 GHz TO 20 GHz  
POWER LEVEL: +15 dBm TYPICAL
- OUTPUTS: J4, J10
- J4 OUTPUT: IF OUTPUT TO BACKPLANE  
FREQUENCY: 100 MHz TO 4 GHz  
POWER LEVEL: 0 dBm TYPICAL FOR NON-LINEAR SDLVA CHANNELS
- J10 OUTPUT: OUTPUT TO BACKPLANE  
FREQUENCY: 100 MHz TO 18.0 GHz  
POWER LEVEL: 0 dBm TO +10 dBm TYPICAL (WHEN INPUT IS -28 dBm)

**SDLVA 1**

- V0 (VIDEO COMPARATOR SIGNAL AMPLITUDE): 3.3V TYP.
- VIDEO COMPARATOR DELAY: 50ns TYP.
- VIDEO COMPARATOR THRESHOLD LEVEL: -64dBm ±3.0 dB MAX.
- V1 (LOG VIDEO SIGNAL AMPLITUDE): 1 VOLT MAX.
- LOG SLOPE: 10mV/dB INTO A 50-OHM LOAD (±1mV) MAX.
- LOG RANGE: -65 TO +5 dBm MIN.
- LOG LINEARITY: ±1.50dB (-40°C TO +85°C) MAX.
- PULSE RANGE: 100ns TO CW
- RISE TIME: 35ns TYP.
- SETTling TIME TO ±1dB: 50ns TYP.
- RECOVERY TIME: 200ns MAX. (150ns TYP.)
- SPST ISOLATION: 70 dB TYP.
- SPST SWITCH SPEED: 20ns TYP.

**SDLVA 2**

- V0 (VIDEO COMPARATOR SIGNAL AMPLITUDE): 3.3V TYP.
- VIDEO COMPARATOR DELAY: 50ns TYP.
- VIDEO COMPARATOR THRESHOLD LEVEL: -64dBm ±3.0 dB MAX.
- V1 (LOG VIDEO SIGNAL AMPLITUDE): 1 VOLT MAX.
- LOG SLOPE: 10mV/dB INTO A 50-OHM LOAD (±1mV) MAX.
- LOG RANGE: -65 TO +5 dBm MIN.
- LOG LINEARITY: ±1.75dB (-40°C TO +85°C) MAX.
- PULSE RANGE: 100ns TO 250 us
- RISE TIME: 35ns MAX.
- SETTling TIME TO ±1dB: 50ns TYP.
- RECOVERY TIME: 200ns MAX. (150ns TYP.)
- CW IMMUNITY RANGE: TSS TO -45 dBm (1dB DEGRADATION)
- PULSE CONSIDERED "CW": 1 ms TYP.
- REJECTION TIME: 1 ms TYP.
- DROOP: 1dB MAX.
- SPST ISOLATION: 70 dB TYP.
- SPST SWITCH SPEED: 20ns TYP.

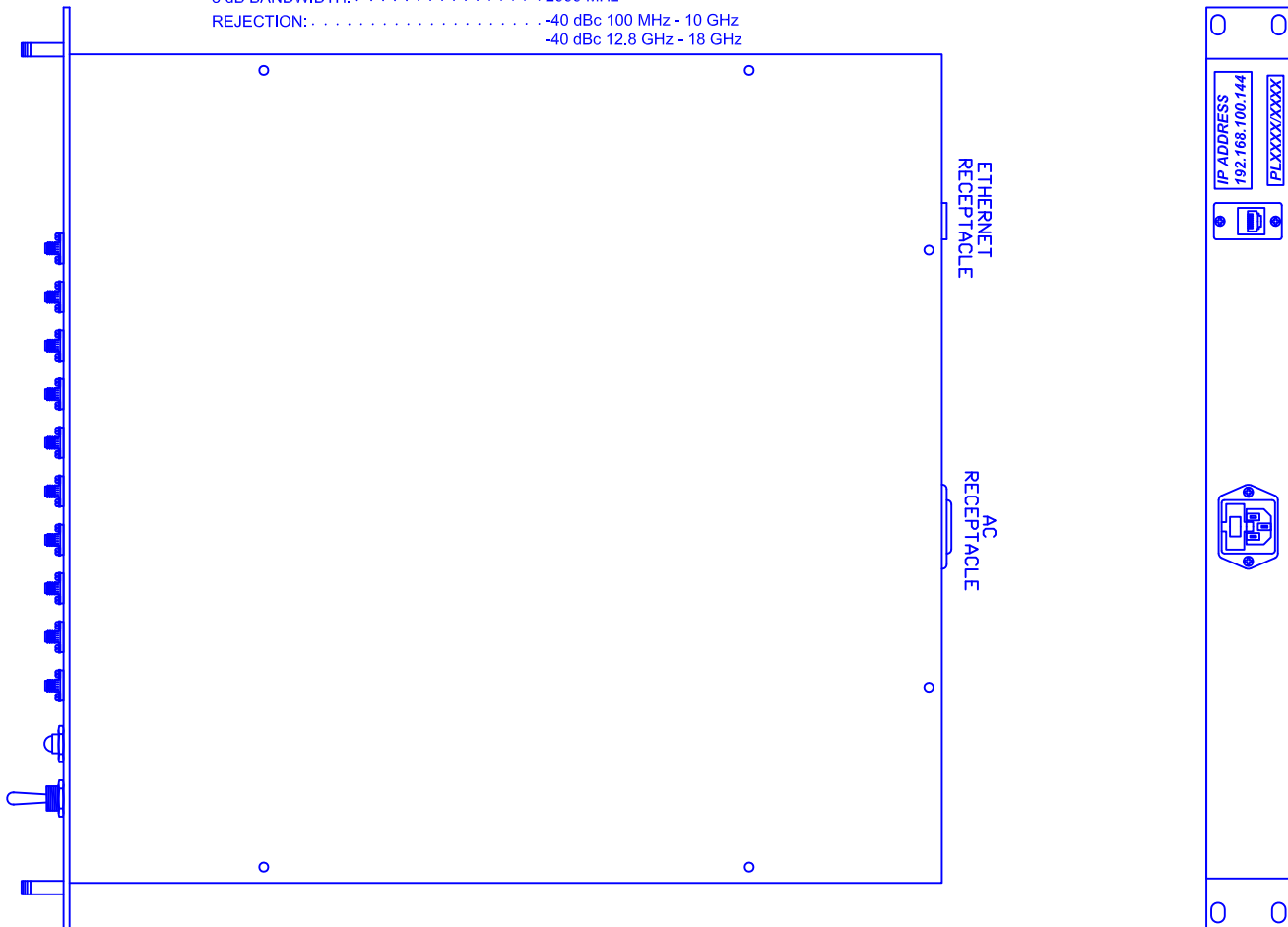
- CONTROL LOGIC: 3.3 V TTL
- TTL 1: SW5 CONTROL - HIGH FREQUENCY OR BASEBAND CHANNEL SELECT  
0 BASEBAND CHANNEL (100 MHz TO 3 GHz)  
1 HIGH FREQUENCY CHANNEL (3 GHz TO 18 GHz)
- TTL 2: SW7 CONTROL - LINEAR OR NON-LINEAR SDLVA 2 CHANNEL SELECT  
0 NON-LINEAR CHANNEL  
1 LINEAR CHANNEL
- TTL 3: SW12 CONTROL - LINEAR OR NON-LINEAR SDLVA 1 CHANNEL SELECT  
0 NON-LINEAR CHANNEL  
1 LINEAR CHANNEL
- TTL 4: 5 BIT ATTENUATION CONTROL (1 dB STEPS)  
0000 0 dB ATTENUATION  
1111 31 dB ATTENUATION
- TTL 5: SW11 CONTROL - TRANSMIT PATH OUTPUT SELECT, RECEIVE FILTER BANK INPUT SELECT  
0 OUTPUT TO TX FILTER BANK, RX-BACKPLANE/INPUT (J1)  
1 OUTPUT TO RX FILTER BANK, RX - TRANSCEIVER INPUT
- TTL 6: FILTER SELECT  
000 THRU CHANNEL  
001 CHANNEL 1  
010 CHANNEL 2  
011 CHANNEL 3  
100 CHANNEL 4  
101 CHANNEL 5  
110 NOT DEFINED  
111 NOT DEFINED
- TTL 7: SW9 AND SW10 CONTROL - BASEBAND OR UP-CONVERTED CHANNEL SELECT  
0 BASEBAND CHANNEL (100 MHz TO 4 GHz)  
1 HIGH FREQUENCY CHANNEL (2 GHz TO 18 GHz)
- TTL 8: FILTER SELECT  
000 THRU CHANNEL  
001 CHANNEL 1  
010 CHANNEL 2  
011 CHANNEL 3  
100 CHANNEL 4  
101 CHANNEL 5  
110 NOT DEFINED  
111 NOT DEFINED
- TTL X: LO SELECT  
00 M1-LO1 M2-LO1  
01 M1-LO1 M2-LO2  
10 M1-LO2 M2-LO1  
11 M1-LO2 M2-LO2



**TRANSMIT AND RECEIVE FILTER BANK CHANNELS:**

- ISOLATION: J1, J6 100 dB
- SWITCHING SPEED: 100 ns
- THRU CHANNEL PASSBAND: 100 MHz TO 18 GHz
- CHANNEL 1 CENTER FREQUENCY: 3400 MHz  
3 dB BANDWIDTH: 2000 MHz  
REJECTION: -40 dBc 100 MHz - 2 GHz  
-40 dBc 4.8 GHz - 8.5 GHz
- CHANNEL 2 CENTER FREQUENCY: 5400 MHz  
3 dB BANDWIDTH: 2000 MHz  
REJECTION: -40 dBc 100 MHz - 4 GHz  
-40 dBc 6.8 GHz - 13.5 GHz
- CHANNEL 3 CENTER FREQUENCY: 7400 MHz  
3 dB BANDWIDTH: 2000 MHz  
REJECTION: -40 dBc 100 MHz - 6 GHz  
-40 dBc 8.8 GHz - 18 GHz
- CHANNEL 4 CENTER FREQUENCY: 9400 MHz  
3 dB BANDWIDTH: 2000 MHz  
REJECTION: -40 dBc 100 MHz - 8 GHz  
-40 dBc 10.8 GHz - 18 GHz
- CHANNEL 5 CENTER FREQUENCY: 11400 MHz  
3 dB BANDWIDTH: 2000 MHz  
REJECTION: -40 dBc 100 MHz - 10 GHz  
-40 dBc 12.8 GHz - 18 GHz

| REVISIONS |      |                  |         |          |
|-----------|------|------------------|---------|----------|
| ZONE      | REV. | DESCRIPTION      | DATE    | APPROVED |
|           | 1    | ORIGINAL RELEASE | 5/22/13 |          |
|           |      |                  |         |          |
|           |      |                  |         |          |
|           |      |                  |         |          |



**NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE OR REVISION**

- POWER SUPPLY: 100-120 VAC/60 Hz
- SIZE: 18.09 X 17.06 X 1.73 (1U CHASSIS TO FIT IN A 19" RACK)
- RF CONNECTORS: SMA (F)
- DIGITAL CONTROL: ETHERNET, RJ45 CONNECTOR
- FINISH: POWDER COATED BLACK
- OPERATING TEMPERATURE: -40°C TO +85°C

**PMI CONFIDENTIAL AND PROPRIETARY**

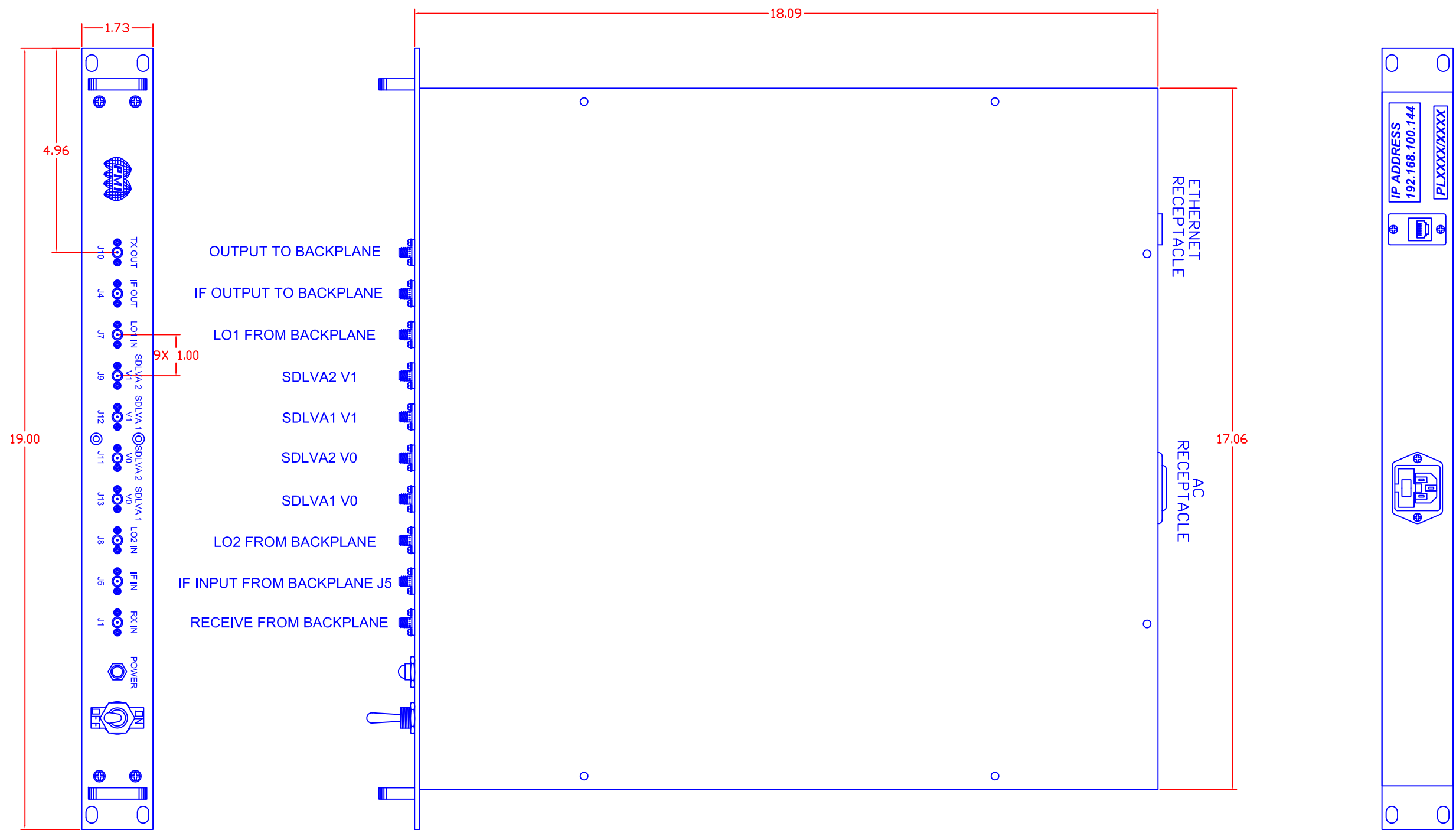
ALL DIMENSIONS ARE IN INCHES  
TOLERANCES:  
X.XX ±0.020  
X.XXX ±0.005

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ISO 9001:2008 CERTIFIED



| APPROVALS |  | DATE    | TITLE                                       |          |          |        |
|-----------|--|---------|---|----------|----------|--------|
| DRAWN NJA |  | 5/22/13 | PRODUCT FEATURE<br>5730 TRANSCEIVER PHASE 1 |          |          |        |
| CHECKED   |  |         | SIZE  | FSCM NO. | DWG NO.  | REV.   |
| ISSUED    |  |         | B   | 05XQ0    | 27017621 | 1      |
|           |  |         | SCALE                                       | N: S     | SHEET    | 1 OF 3 |

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|           |     |         | SCALE                                       | N: S     | SHEET 2 OF 3 |
|           |     |         | REV.  | 1        |              |