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Service Note

95-033 Rev B
2 May, 2007

V/F CARD NEW/OLD

Subject: API has redesigned the V-F board in the following models: M100A, M200A, 300, 400, 401, 700. The new V/F board has been relayed out for ease of changing output voltages. Also, some new test points are added to help troubleshoot and calibrate the V/F assembly. The following Service Note covers the changes to provide the necessary information on how to use the new V/F card successfully.

Note: 1) How to use the dip switches

Now, to change the analog output ranges, the customer needs to reconfigure the DIP switch settings. Please use the following table as a guide.

CAUTION: DO NOT CHANGE DACs 2 AND 3 ON M400, M401.
DO NOT CHANGE DACs 0, 1, 2 ON M700.

OUTPUT RANGE	OLD V/F CARD (0051400 & 0051401) Jumper setting "ON"	NEW V/F CARD (0051402) Dip Switch settings
100 mv	2, 4, 6, 7	6="ON" 3,4,5="OFF"
1 v	1, 4, 6, 7	5="ON" 3,4,6="OFF"
5 v	3, 5, 7	4="ON" 3,5,6="OFF"
10 v	3, 6, 7	3="ON" 4,5,6="OFF"

Note: Do not change the positions of the switches 1, 2, and 7. If the switches are accidentally changed, use the table at the drawing attached to configure the card back.

2) How to use the test points

There are several test points on the V/F card.

TP1	+15 vdc ± .7	This test point provides the + 15 vdc reading. If the voltage is different from + 15 vdc, the problem can be either with the V/F card or somewhere else.

TP2	- 15 vdc ± .7	This test point provides -15 vdc reading. If the voltage is different from -15 vdc, the problem can be either with the V/F card or somewhere else.

TP3	AGND	Analog ground.
TP4	+5 vdc ± .3	This test point provides +5 vdc reading. If the voltage is different from +5 vdc, the problem can be either with the V/F card or somewhere else.
TP5	DGND	Digital ground
TP6	CLOCK OUT	This test point provides the V/F clock reading. There is a square wave signal on this test point. You can look at it with scope or digital meter. The scope will show the series of pulses. The digital meter should be around 2.5 vdc. If the test point reading is not correct, the problem is with the V/F card.
TP9		This is the analog output DAC 0. You can use this test point to calibrate the V/F card instead of "REC" output.
TP10		This is the analog output DAC1.
TP11		This is the analog output DAC2.
TP12		This is the analog output DAC3.
TP13	AMP OUT	This test point is the output of the multiplexer. The frequently changing DC voltages are present there. If the meter reads a constant DC voltage from this test point, the V/F card has a problem.
TP14	V/F OUT	This test point carries the signal from the output of the V/F chip.

3) How to interchange the V/F cards between units.

API has three different types of configurations for the V/F card. The first type is used in M100A and M200A. The second one is used in M300, M400, and M401. The third is used in M700 only. It is not possible to interchange the V/F cards without reconfiguration between the groups of machines. The following procedure provides the necessary information on how to move the V/F card from one group to another.

1. Turn the power off.
2. Remove the V/F card from the unit.
3. Use the table at the drawing attached to reconfigure the appropriate jumpers and switches.
4. Install the board into the unit and perform A/D - D/A calibration.

For example: To move the V/F card from M100A (M200A) model to M300 (M400, M401), please use the following procedure:

1. Turn the power off.
2. Remove the V/F card from the unit.
3. Move switches #7 on DACs 2 and 3 to ON position.
4. Move the jumper JP1 to 1 & 2 position.
5. Reconfigure jumper B12 from the 1 & 2 position and 4 & 5 position to 3 & 4 position only.
6. Install the board into the unit.
7. Perform A/D - D/A calibration.

If you need any further assistance, please do not hesitate to contact customer service at 1-800-324-5190.

MODEL	A/D INPUT JUMPER (B12)	AGND-DGND JUMPER (JP1)	DAC 0	DAC 1	DAC 2	DAC 3
M300	PINS 3-4	PINS 1-2	1,4=ON	1,4=ON	1,4,7=ON	1,4,7=ON
M400	PINS 3-4	PINS 1-2	1,4=ON	1,4=ON	1,4,7=ON	1,4,7=ON
M100A	PINS 1-2,4-5	PINS 2-3	1,4=ON	1,4=ON	1,4=ON	1,4=ON
M200A	PINS 1-2,4-5	PINS 2-3	1,4=ON	1,4=ON	1,4=ON	1,4=ON
M700	PINS 1-2,4-5	PINS 2-3	1,4,7=ON	1,4,7=ON	1,4,7=ON	1,4,7=ON

THIS JUMPER CONFIGURATION IS FOR 0-5 V ANALOG OUTPUT.

API — ADVANCED POLLUTION INSTRUMENTATION INC. SAN DIEGO, CA

REFERENCE DWG.
V/F PC BOARD

SIZE B | DRAWING NO. 00514 | REVISION J | SHEET 3 OF 3

DO NOT SCALE DRAWING