



04-014B
7 October 2004

INFORMATION ON NEW E-SERIES RELAY BOARDS

I. PURPOSE:

To give information on the recent upgrade to the relay card installed in the M100E, M200E and M400E model analyzers.

II. TOOLS:

None

III. PARTS:

None

This service note is an information only type of service note. This document informs you of a recent upgrade to the relay card installed in the M100E, M200E, and M400E model analyzers. Specifically, a new relay PCA design, P/N 04523 replaces P/N 03955 and all of its revisions in the following instruments M100E, M200E and M400E. This service note will affect those analyzers purchased before 7/11/2004. Analyzers purchased after this date will already have the new relay board installed and will not be affected by this service note. Please refer to Table 1-1 for relay board configurations.

Relay board similarities.

- Both are used by the instrument's CPU to control the various AC and DC heaters used in the E-Series analyzers to control the temperature of key components such as sensor modules, reaction cells and converters as well as certain optional components such as IZS permeation tubes.

In both cases a set of configuration jumpers located on the relay card was used to configure the heaters for 110VAC, 60Hz vs. 230VAC, 50Hz operation.

- Both relay cards, based on commands from the CPU received over the I²C bus, energize/de-energize the various solenoid valves used to control the sample gas path of the analyzers (e.g. reference/measure valves; zero-span-cal valve options; IZS options; etc.)

- Both distribute the AC and DC power to the various electrically powered components and assemblies for the instrument.
- Both include a special watchdog circuit watches that will automatically shut of all valves as well as turn off the UV Source(s) and all heaters should either the CPU either the CPU cease issuing commands or the I²C buss fail. In both cases the sample pump will continue to run.

Relay Board Differences

- On instruments with internal pumps, the pump is now configured for use with 110 VAC, 60Hz vs. 230 VAC, 50 Hz operation by a set of configuration jumpers on the relay PCA. Previously a set of inline connectors and wiring harnesses performed this function.
- The configurability of the two thermocouple inputs has been expanded to allow for both grounded and ungrounded thermocouples.
- A retainer plate has been added to the 045230200 version to keep the solid state AC power relays securely inserted in their sockets.
- Because the board has been physically changed, locations of the components such as jumper blocks, connectors and status LED's have changed as well.
- For the M100E/M200E model analyzers the instruments will require different power cables in order to install the new relay board.

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Figure 1 below shows the layout of the new relay board (P/N 045230000) and the four (4) configuration plugs that are used.

FIGURE 1 NEW RELAY BOARD LAYOUT

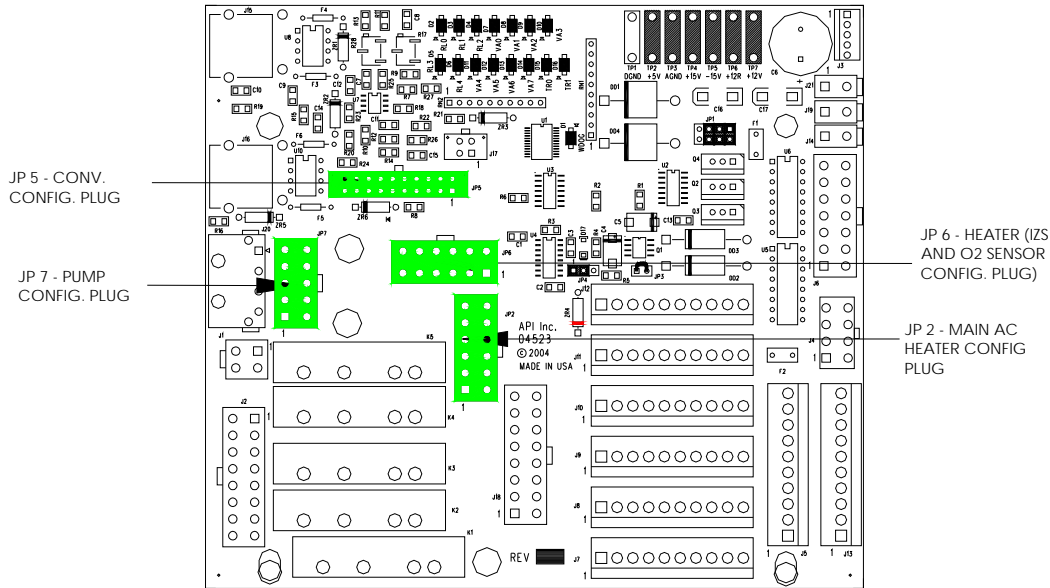


TABLE 1-1: CONFIGURATION PLUGS

Model	Version	VOLT/FREQ	AC PLUG	CONV PLUG	HEATER PLUG	PUMP PLUG	CABLES
SO2	045320200	115VAC/60HZ	040300100	N/A	040300300	042890100	050570000 AND 050580000
		115VAC/50HZ				042890200	
		230VAC/60HZ	040300200			042890300	
		230VAC/50HZ				042890400	
		100VAC/60HZ	040300100			042890100	
		100VAC/50HZ				042890200	
NOX	045320200	115VAC/60HZ	040300100	SEE TABLE 1- 3	040300300	N/A	050570000
		115VAC/50HZ		SEE TABLE 1- 3			
		230VAC/60HZ	040300200	SEE TABLE 1- 3			
		230VAC/50HZ		SEE TABLE 1- 3			
		100VAC/60HZ	040300100	SEE TABLE 1- 3			
		100VAC/50HZ		SEE TABLE 1- 3			
OZONE	045320100	115VAC/60HZ	N/A	N/A	N/A	042890100	N/A
		115VAC/50HZ				042890200	
		230VAC/60HZ				042890300	
		230VAC/50HZ				042890400	

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TABLE 1-2: CONVERTER CONFIGURATION PLUGS

CONVERTER TYPE	CONFIGURATION PLUG P/N
MINI HICON TYPE K TC (GROUNDED)	049760100
MINI HICON TYPE K TC (ISOLATED)	049760900
MOLY TYPE K TC (ISOLATED)	049760300
MOLY TYPE J TC (ISOLATED)	049760500
MOLY TYPE J TC (GROUNDED)	049760700

In order to get the correct retrofit for your analyzer you must know the following;

1. Voltage and Frequency of instrument
2. Model and serial number of the instrument.
3. If the instrument has a converter installed, what type of converter is installed?

CHANGING FROM OLD RELAY BOARD TO NEW RELAY BOARD

1. Look at Model number and the relay board version number that is located in the center of the relay board.
2. Look at the table 1-3 to determine what KIT you need to install in your instrument.

TABLE: 1-3

Model	RELAY BOARD VERSION	CONV P/N	DESCRIPTION	USE
M100E	039550100	N/A	N/A	KIT000207
M200E	039550100	044440000	(Mini hicon assy, E-series, grd, type "K" TC)	KIT000208
		044440100	(Mini hicon assy, early E-series, isolated, type "K" TC)	KIT000240
		041020000	(Moly assy, E-series, isolated, type "K" TC)	KIT000218
M400E	039550200	N/A	N/A	KIT000209

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