

## MSCBL072: 68-line to 40-/10-line Analog Cable Adapter

The Microstar Laboratories 68-line to 40-/10-line Analog Cable Adapter, part number MSCBL072, adapts the 68-line shielded D-style analog connector used on a-series and 16-bit e-series Data Acquisition Processors™ to the 40-line and 10-line unshielded header-style connectors found on the 12-bit e-series Data Acquisition Processors.

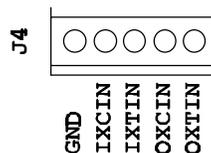
### Connectors

The 68-line, 40-line, and 10-line connectors on the MSCBL072 are pin-compatible with the corresponding connectors on a-series or e-series Data Acquisition Processors. All signals on the 68-line connector pass through to the 40-line or 10-line connector with the exception of the following signals:

- RESERVED
- /BOUTPUTCLK
- OXTIN
- OXCIN

This adapter can be used to connect an a-series Data Acquisition Processor to older analog expansion or termination boards, such as the MSXB011 or the MSTB003. Likewise, the MSCBL072 can also be used to connect an e-series Data Acquisition Processor to newer analog expansion boards, like the MSXB028, or to industrial or external enclosures.

A fourth connector, labeled J4, is also available on the MSCBL072, but is not normally installed.



**Figure 1: Pin out of connector J4**

This connector gives access to the following signals:

- GND - digital ground
- IXCIN - external input clock input
- IXTIN - external input trigger input
- OXCIN - external output clock input
- OXTIN - external output trigger input

If the MSCBL072 is connected to an a-series Data Acquisition Processor, all five signals on J4 are available for use. If the MSCBL072 is connected to an e-series Data Acquisition Processor, however, only GND, IXCIN, and IXTIN are available for use. The 10-line connector on e-series Data Acquisition Processors does not have the OXCIN or OXTIN input lines.

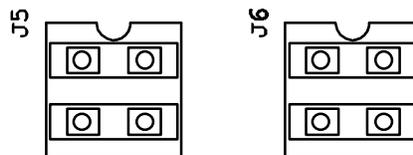
**Note: On the MSCBL072 circuit board, OXTIN (J4; pin 5) is incorrectly labeled “OXCIN.”**

## Power

Since a-series Data Acquisition Processors have +/-18V supplies available on the 68-line connector, but e-series Data Acquisition Processors have +/-15V supplies on the 40-line connector, the MSCBL072 comes with voltage regulation circuitry installed on all models. These regulators can be used when connecting to an a-series Data Acquisition Processor so that the +/-18V supply lines on the 68-line connector are regulated to +/-15V on the 40-line connector.

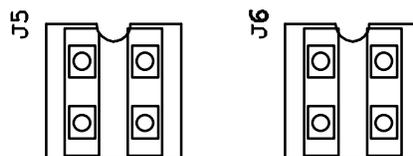
The voltage regulation circuitry can also be bypassed so that the +/-18V supply lines on the 68-line connector are directly connected to the +/-15V supply lines on the 40-line connector. This means that the 40-line connector will actually have +/-18V supplies, not +/-15V supplies, when the MSCBL072 is connected to an a-series Data Acquisition Processor. Alternately, the +/-18V lines will only be +/-15V when the adapter is connected to an e-series Data Acquisition Processor.

Including or bypassing the voltage regulators is selected with shunts placed on J5 and J6. In order to bypass the voltage regulation circuitry, J5 and J6 should be configured as shown in Figure 2. This is the recommended configuration when the MSCBL072 is connected to an e-series Data Acquisition Processor.



**Figure 2: J5 and J6 configured to bypass the voltage regulators.**

To include the voltage regulators on the supply lines, J5 and J6 should be configured as shown in Figure 3.



**Figure 3: J5 and J6 configured to include the voltage regulators.**

**Note: The MSCBL072 normally has the voltage regulation circuitry bypassed.**

Because of the difference in power supply voltages, the following connections should not be made with the MSCBL072:

- Connecting an a-series Data Acquisition Processor to an MSXB001 or MSXB002 without the voltage regulators included in the supply lines. The +/-18V supplies are too large and may damage the circuitry on the expansion board.
- Connecting an e-series Data Acquisition Processor to an MSXB018 or MSXB037. The supply voltages are too small to power the voltage regulators on the MSXB018 or MSXB037.

## Models

The MSCBL072 is available in two models: the MSCBL072-01 and the MSCBL072-02. Both models have a right-angle female 68-line shielded D-style connector installed for J1. This is identical to the connector found on a-series Data Acquisition Processors. This connector mates with either an MSCBL040 or MSCBL041.

The MSCBL072-01 model has female 40-line and 10-line unshielded connectors installed for J2 and J3. This model mates directly with the board-mount male 40-line and 10-line connectors found on older analog expansion and termination boards. The 40-line and 10-line female connectors are mounted on the back of the PCB, on the opposite side of connector J1.

The MSCBL072-02 model has male 40-line and 10-line unshielded connectors installed for J2 and J3. The 40-line connector will mate with any MSCBL006, MSCBL021, MSCBL022, MSCBL023, or MSCBL024. The 10-line connector will mate with the MSCBL014. The male 40-line and 10-line connectors are mounted on the front of the PCB.