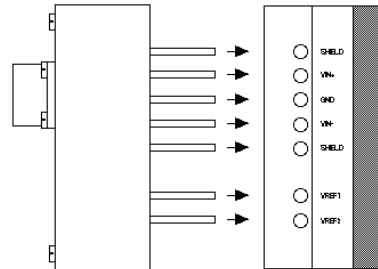
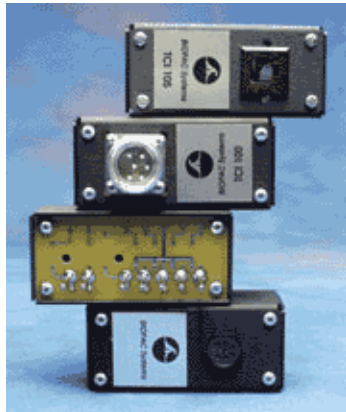


TCI SERIES TRANSDUCER CONNECTOR INTERFACES



TCI interface options

TCI to DA100C Connection

TCI Series transducer connector interfaces (TCIs) adapt a variety of transducer types to the DA100C module (TCIPPG Series connect directly to the PPG100C amplifier). Probes and transducers normally used with Grass, Beckman, World Precision Instruments and Lafayette Instrument’s equipment can be used directly with the DA100C when used with the appropriate transducer connector interface. The front of the TCI contains the appropriate connector while the rear has seven 2 mm pin jacks which plug directly into the DA100C.

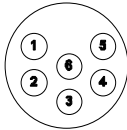
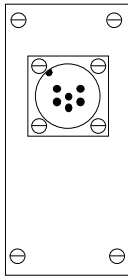
TCIs are available for the transducer brands listed below. If no existing connector matches the required equipment, BIOPAC will build a special TCI for users, or users can use the TCIKITC to build their own. Please call or write BIOPAC with specific needs.

- TCI100** Grass/Astromed transducers – 6 pin
- TCI101** Beckman transducers – 5 pin
- TCI102** World Precision Instrument transducers – 8 pin
- TCI103** Lafayette Instrument transducers – 9 pin
- TCI104** Honeywell transducers – 6 pin
- TCI105** Modular phone jack connector – 4 pin (*also used to interface NIBP100A and NIBP100D*)
- TCI106** Beckman transducers – 12 pin
- TCI107** Nihon Koden transducers – 5 pin
- TCI108** Narco transducers – 7 pin
- TCI109** Fukuda transducers – 8 pin
- TCI110** Gould transducers – 12 pin: *Discontinued → use Fogg Cable and an available BIOPAC TCI*
- TCI111A** Liquid metal transducers – 1.5 mm Touchproof male plugs (two)
- TCI112** Hokanson transducers – 4 pin
- TCI113** Hugo-Sachs/Harvard Apparatus – 6 pin
- TCI114** BIOPAC SS Series Transducers – 9 pin
- TCI115** Interface XLR Microphone

- TCIPPG1** PPG100C amplifier to Geer Photo-electric (IR) plethysmogram transducer – 7 pin
- TCIPPG2** PPG100C amplifier to TSD204 VPG vaginal plethysmogram transducer
- TCIPPG3** PPG100C amplifier to Nonin DSUB9 – 9 pin

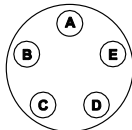
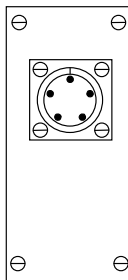
TCIKIT/C Build a customized adapter

TCI100 GRASS TRANSDUCER INTERFACE



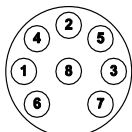
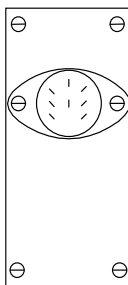
| <i>Pin</i> | <i>Signal</i> |
|--------------|---------------------|
| 1 | VREF2 (Set to -1 V) |
| 2 | VIN- |
| 3 | VIN+ |
| 4 | VREF1 (Set to +1 V) |
| 6 | GND |
| Connector | ITT Cannon WK-F-32S |
| Typical VREF | ±1 V |

TCI101 BECKMAN TRANSDUCER INTERFACE



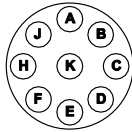
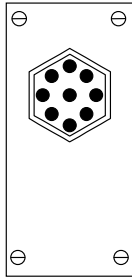
| <i>Pin</i> | <i>Signal</i> |
|--------------|-----------------------------|
| A | VIN- |
| B | VIN+ |
| C | VREF1 (Set to +1 V) |
| D | VREF2 (Set to -1 V) |
| E | GND |
| Connector | ITT Cannon CA-3102-E-14S-5S |
| Typical VREF | ±1 V |

TCI102 WPI TRANSDUCER INTERFACE



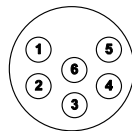
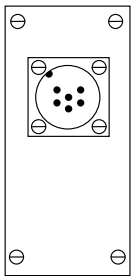
| <i>Pin</i> | <i>Signal</i> |
|--------------|---------------------|
| 1 | VREF1 (Set to +5 V) |
| 2 | VIN+ |
| 3 | VIN- |
| 4 | VREF2 (Set to -5 V) |
| Connector | CUI Stack SDS-80J |
| Typical VREF | ±5 V |

**TCI103 LAFAYETTE
 TRANSDUCER INTERFACE**



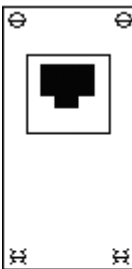
| <i>Pin</i> | <i>Signal</i> |
|--------------|---------------------|
| C | VREF2 (Set to -5 V) |
| E | GROUND |
| H | VIN+ |
| K | VREF1 (Set to +5 V) |
| Connector | Amphenol 12F-013 |
| Typical VREF | ± 5 V |

**TCI104 HONEYWELL
 TRANSDUCER INTERFACE**



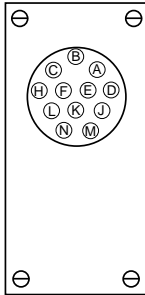
| <i>Pin</i> | <i>Signal</i> |
|--------------|---------------------|
| 1 | VREF2 (Set to -1 V) |
| 2 | VIN- |
| 3 | VIN+ |
| 4 | VREF1 (Set to +1 V) |
| 5 | GND |
| Connector | ITT Cannon WK-F-32S |
| Typical VREF | ±1 V |

**TCI105 PHONE PLUG (RJ-11)
 TRANSDUCER INTERFACE**



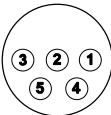
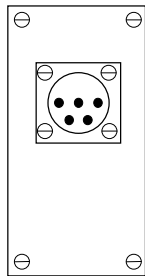
| <i>Pin</i> | <i>Signal</i> |
|--------------|---------------------|
| 1 | VREF1 (Set to +3 V) |
| 2 | VIN + |
| 3 | VIN - |
| 4 | VREF2 (Set to -3 V) |
| Connector | RJ-11 Phone plug |
| Typical VREF | ±2 V DC |

**TCI106 BECKMAN (12-PIN)
 TRANSDUCER INTERFACE**



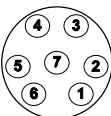
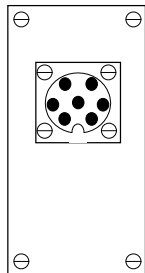
| <i>Pin</i> | <i>Signal</i> |
|--------------|-----------------|
| A | VIN + |
| B | VIN - |
| C | VREF2 (-1 V) |
| D | VREF1 (+1 V) |
| E | Ground |
| Connector | Amphenol 165-12 |
| Typical VREF | ±1 V |

**TCI107 NIHON KOHDEN
 TRANSDUCER INTERFACE**



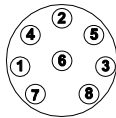
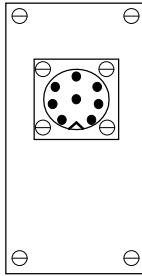
| <i>Pin</i> | <i>Signal</i> |
|--------------|------------------|
| 2 | VIN+ |
| 3 | VREF1 (+1 V) |
| 4 | VREF2 (-1 V) |
| 5 | VIN - |
| Connector | JAE SRC-02A13-5S |
| Typical VREF | ±1 V |

**TCI108 NARCO (7-PIN)
 TRANSDUCER INTERFACE**



| <i>Pin</i> | <i>Signal</i> |
|--------------|---|
| 1 | VIN+ |
| 2 | VIN - |
| 4 | GND |
| 5 | (connect 1,600-ohm resistor between pins 5 and 7) |
| 6 | VREF1 (+1 V) |
| 7 | VREF2 (-1 V) |
| Connector | Amphenol 703-91T-3478-009 |
| Typical VREF | ±1 V |

TCI109 FUKUDA TRANSDUCER INTERFACE

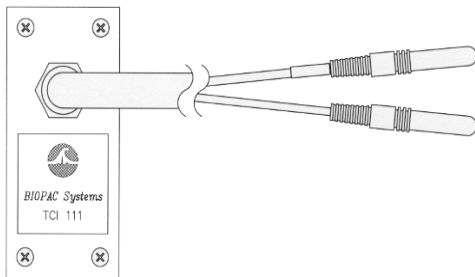


| <i>Pin</i> | <i>Signal</i> |
|--------------|--------------------|
| 1 | VIN+ |
| 3 | VIN- |
| 6 | VREF2 (-1 V) |
| 7 | VREF1 (+1 V) |
| Connector | Hirshmann MAS 8100 |
| Typical VREF | ±1 V |

TCI110 GOULD TRANSDUCER INTERFACE

Discontinued – [see options online](#)

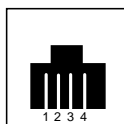
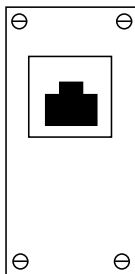
TCI111A LIQUID METAL TRANSDUCER INTERFACE



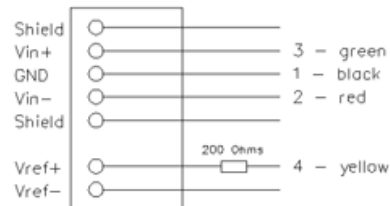
| <i>Connector:</i> | <i>Signal</i> |
|-------------------|--|
| A (top) | XDCR |
| B (bottom) | XDCR |
| Connector Type: | 1.5 mm Touchproof male plugs (accepts 1.5 mm Touchproof female socket XDCRs) |

The TCI111A comes with an attached 3 meter cable that terminates in two Touchproof 1.5 mm male plugs for connecting to two 1.5 mm Touchproof 1.5 mm female sockets for Mercury (old style) or Indium Gallium liquid metal strain gauges.

TCI112 HOKANSON TRANSDUCER INTERFACE



four pin jack

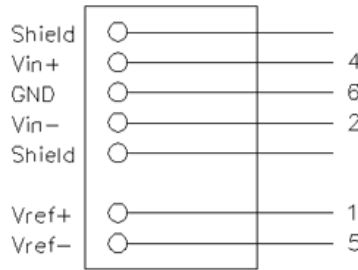


| <i>Pin</i> | <i>Signal</i> |
|--------------|------------------|
| 1 | Iex ⁺ |
| 2 | VIN ⁺ |
| 3 | VIN ⁻ |
| 4 | Iex ⁻ |
| Connector | RJ-11 Phone plug |
| Typical Iex: | 5 mA |

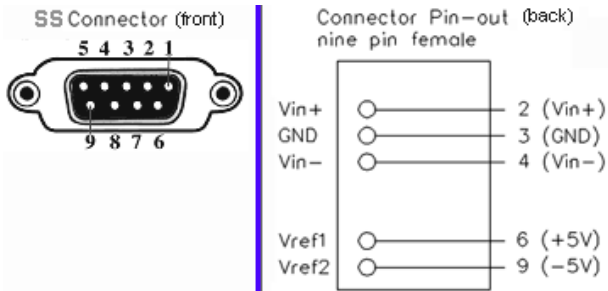
TCI113 HUGO SACHS/HARVARD APPARATUS INTERFACE



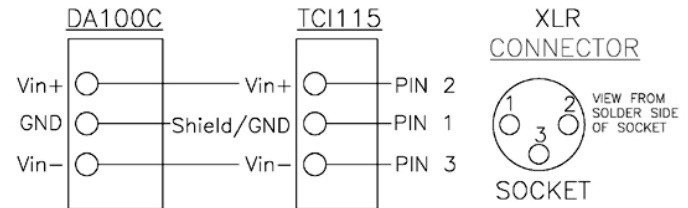
Six-pin female:



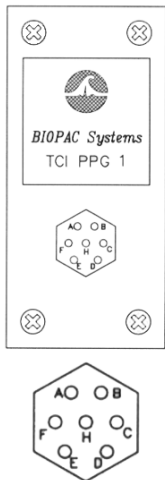
TCI114 BIOPAC SS SERIES INTERFACE



TCI115 INTERFACE XLR MICROPHONE



TCIPPG1 PPG—GEER TRANSDUCER INTERFACE



| <i>Pin</i> | <i>Signal</i> |
|------------|----------------|
| A | not used |
| B | not used |
| C | not used |
| D | Ground |
| E | VIN + |
| F | +5 Vex |
| G | not used |
| Connector | Amphenol 7-pin |

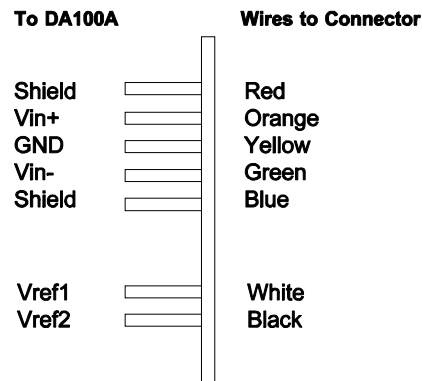
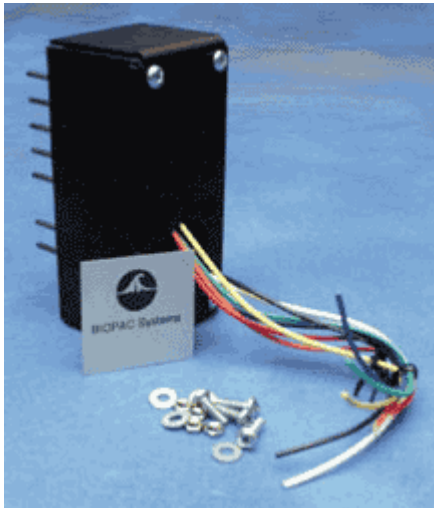
TCIPPG2—VPG

Interface for TSD204—see [VPG Hardware](#) for specs

TCIPPG3—NONIN 9-PIN INTERFACE

Interface: All Nonin 9-pin DSUB sensors
Connector: 9 pin DSUB female
Operational LED Current: 20 mA
Bandwidth: 0.05 Hz to 160 Hz
(PPG100C performs upper band-limiting)

TCIKIT AND TCIKITC CUSTOM INTERFACE KITS



Build custom transducer connector interfaces for DA100C amplifier modules.

- **TCIKIT** do-it-yourself kit includes housing, PC board with 7 attached PIN plugs (2 mm) and instructions. The kit comes partially assembled. Mount a connector to the housing and solder wires to the pins.
- **TCIKITC** is used to connect non-BIOPAC electrodes and transducers directly to BIOPAC biopotential or transducer amplifier modules.

The TCI case has two connector holes on the front, 0.44” and 0.75” in diameter. These sizes should accommodate most connectors. The aluminum label is intended to cover up the unused hole. Color-coded wires have been soldered to each of the seven DA100C input pins. They are connected as shown above.

ADAPTING THE TCI

The following instructions are for adapting the TCI for any particular connection. A “Bulkhead Mount” connector is the best type of connector to use.

1. Remove four screws from back of TCI so that the TCI PC board and case are separate.
2. Remove four connector-mounting screws from TCI case and set aside.
3. Check to see that the connector fits the TCI case. If not, the smaller (0.44”) hole can be enlarged using a hole enlarging drill bit.
4. Clip off unused wires from the TCI PC board. Be very careful not to clip the ones that will be used.
5. Note that most connectors must be mounted from the outside of the case. This means that the wires should first be routed through the appropriate hole, and then soldered to the connector.
6. Solder the appropriate wires to the connector.

CAUTION! When soldering wires or components on the TCI PC board, be very careful not to desolder the pre-aligned pin plugs—albeit might not be possible to get them straight if they are inadvertently desoldered.

7. Bolt the connector to the case using the supplied 4-40 screws and nuts.
8. Bolt the TCI PC board to the TCI case.
9. Cover unused hole with supplied label.