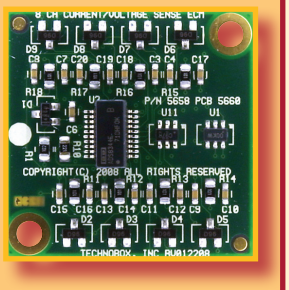
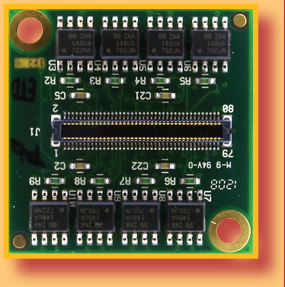
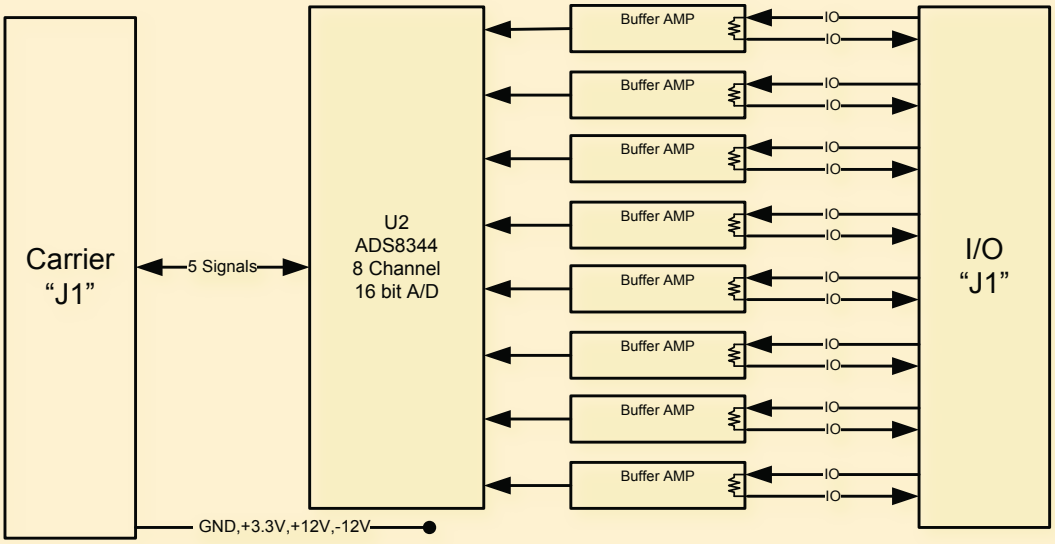
# Conversion Module

## 8-channel Current Comparator





**5658**




- **Analog input ECM**
- **Eight-channel 4-20 milliamp current measurement**
- **Precision 0.1% 100-ohm current sense resistor**
- **12-bit analog to digital conversion**
- **Eight-channel scan rate 12.5 KHz**
- **Wide common mode range +/- 100 volts**
- **On-board serial identification circuit**
- **Industrial temperature**
- **RoHS compliant**
- **Patented**

### Specifications

Temperature (Operating):
-40 to +85 degrees C

Temperature (Storage):
-55 to +100 degrees C

Altitude: Not Specified or Characterized. Typical similar equipment is at 15,000 ft.

Humidity (Operating/Storage):
5% to 90% non-condensing

Vibration: Not specified or Characterized

Shock: Not specified or Characterized

MTBF: Available on request

Weight: 3 grams

Power: TBD

### Ordering Information

5658: 8 Channel Current Comparator 200 volt CMR, 16-bit A/D converter, 100-ohm current sense, 4 to 20 ma loop sense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The Technobox P/N 5658 ECM module provides eight channels of 12 bit current measurement in the 0 to 25 milliamp range.

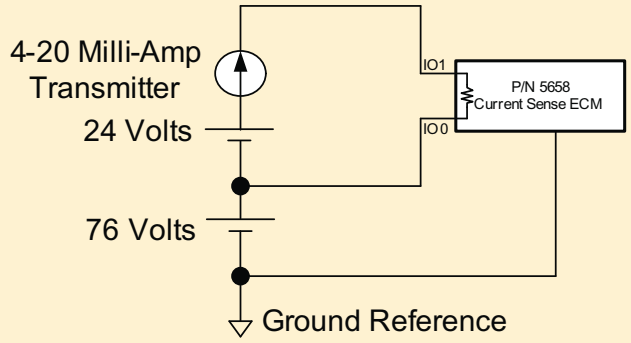
For each channel the common mode voltage range is -100 volts to +100 volts.

Each channel uses a precision 100 ohm current sense resistor, creating a voltage drop of 2 V in the current loop at 20 milliamps. The current should be unidirectional however as shown in the application section.

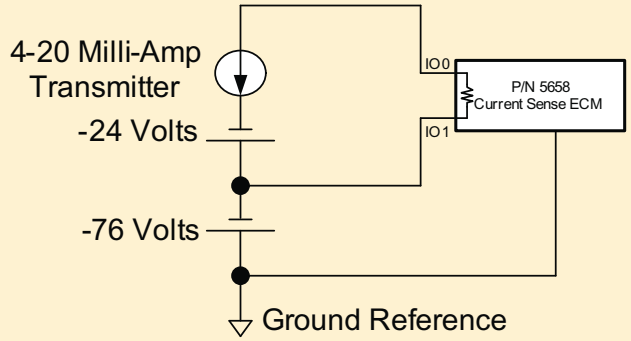
Maximum data rates are 100KHz, but samples per channel will depend on the number of channels scanned, if all eight channels are scanned the rate per channel would be 100KHz / 8 = 12.5 KHz.

Each of the current sense resistors can carry a maximum of 25 milliamps. Also the current flow should always be from the odd numbered IO signal to the even numbered IO signal.

**Positive Voltage application**, Apply up to +100 volts to the odd numbered IO signal in the case of a positive voltage current loop.




**Negative Voltage application**, Apply up to -100 volts to the even numbered IO signal in the case of a negative voltage current loop.



| User IO | J1 Pin number | Direction J1 | Description* |
|---|---|---|---|
| IO0 | 16 | OUTPUT | U2 CH0 Current Output Negative |
| IO1 | 18 | INPUT | U2 CH0 Current Input Positive |
| IO2 | 28 | OUTPUT | U2 CH1 Current Output Negative |
| IO3 | 30 | INPUT | U2 CH1 Current Input Positive |
| IO4 | 52 | OUTPUT | U2 CH2 Current Output Negative |
| IO5 | 54 | INPUT | U2 CH2 Current Input Positive |
| IO6 | 64 | OUTPUT | U2 CH3 Current Output Negative |
| IO7 | 66 | INPUT | U2 CH3 Current Input Positive |
| IO8 | 65 | OUTPUT | U2 CH4 Current Output Negative |
| IO9 | 63 | INPUT | U2 CH4 Current Input Positive |
| IO10 | 53 | OUTPUT | U2 CH5 Current Output Negative |
| IO11 | 51 | INPUT | U2 CH5 Current Input Positive |
| IO12 | 29 | OUTPUT | U2 CH6 Current Output Negative |
| IO13 | 27 | INPUT | U2 CH6 Current Input Positive |
| IO14 | 17 | OUTPUT | U2 CH7 Current Output Negative |
| IO15 | 15 | INPUT | U2 CH7 Current Input Positive |

**Table 1 User IO signal connections**
*Description presumes conventional current flow from positive to negative.

| Carrier Data | J1 Pin number | J1 Direction | Description |
|---|---|---|---|
| DA0 | 10 | INPUT | U2, Chip Select when Low |
| DA1 | 12 | INPUT | U2, Data clock, clocks data in/out of A/D converter |
| DA2 | 22 | INPUT | U2, Data Input, clocked by rising edge of data clock |
| DA3 | 24 | OUTPUT | U2, Data output, clocked by falling edge of data clock |
| DA4 | 34 | OUTPUT | U2, Busy, A/D conversion done when signal goes High |
| DA5 | 36 | N/C | No connection |
| DA6 | 46 | N/C | No connection |
| DA7 | 48 | N/C | No connection |
| DA8 | 58 | N/C | No connection |
| DA9 | 60 | N/C | No connection |
| DA10 | 70 | N/C | No connection |
| DA11 | 72 | N/C | No connection |
| DA12 | 71 | N/C | No connection |
| DA13 | 69 | N/C | No connection |
| DA14 | 59 | N/C | No connection |
| DA15 | 57 | N/C | No connection |
| DA16 | 47 | N/C | No connection |
| DA17 | 45 | N/C | No connection |
| DA18 | 35 | N/C | No connection |
| DA19 | 33 | N/C | No connection |
| DA20 | 23 | N/C | No connection |
| DA21 | 21 | N/C | No connection |
| DA22 | 11 | N/C | No connection |
| DA23 | 9 | N/C | No connection |
| DA24 | 40 | N/C | No connection |
| DA25 | 41 | N/C | No connection |
| DA26 | 42 | N/C | No connection |
| DA27 | 39 | N/C | No connection |

**Table 2 Carrier DA signal connections**