Monitoring motor current on DC motors
## APPLICATION A144

A steel mill is an industrial plant for the manufacture of steel and a mini-mill is traditionally a secondary steel producer which usually obtains most of its iron from scrap steel. A typical mini-mill will have an electric arc furnace for scrap melting, a ladle furnace or vacuum furnace for precision control of chemistry, a strip or billet continuous caster for converting molten steel to solid form, a reheat furnace and a rolling mill. Most of the energy usage is from the furnace and the motors inside the plant.

By Deutsche Fotothek.
de.wikipedia.org.
Wikimedia Commons.

The Engineering Issue

- The engineer has a requirement to monitor motor current on their DC motors and integrate this information into the plant control and power monitoring system (PLC).

- There are currently ±100mV shunts installed but they need both to isolate the shunts from the PLC and convert the signal to ±10 VDC for the analog input card.

- The current panel is almost full, so there are space considerations.
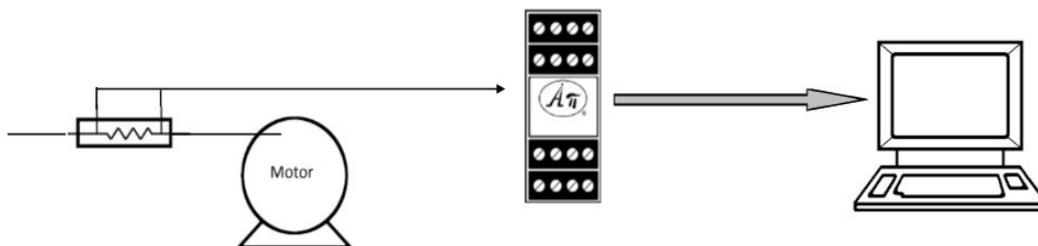
The engineer used an APD 4380, factory-calibrated for a ±100mV input and ±10 VDC output. Since the unit is only 22 mm wide and has full three-way isolation it satisfied all of the customer needs, allowing them to fully integrate their plant energy usage information into their control and power monitoring system.

Problem. Solved.