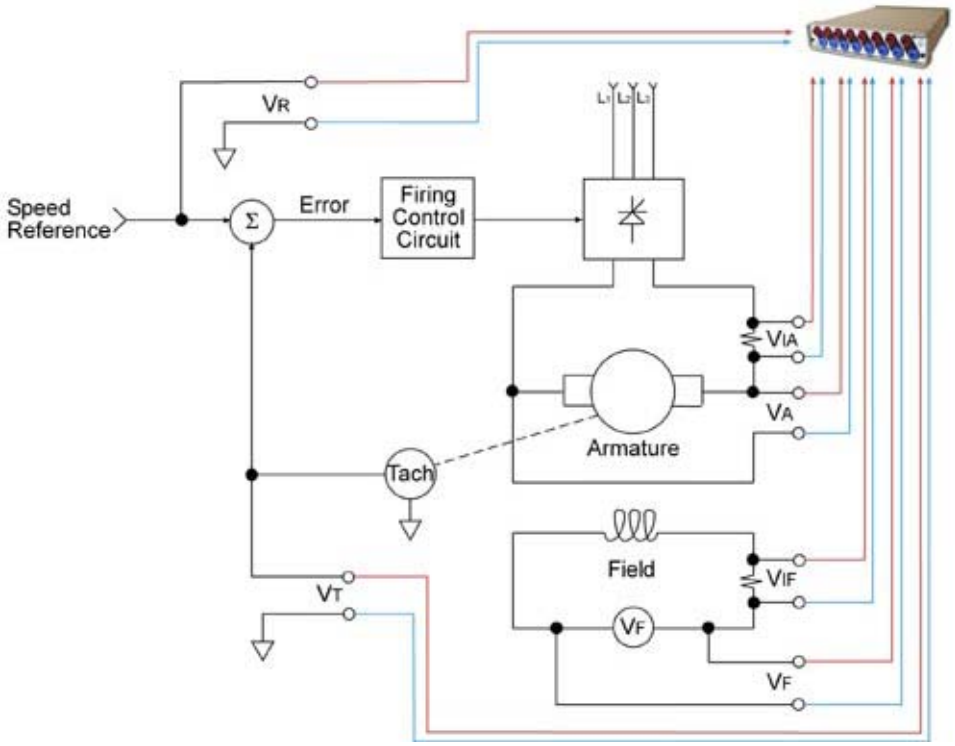
Variable Speed Drive Measurements Using the DI-730

Motors using variable speed drives are found at virtually all levels of production, from mining raw materials and processing them into finished goods, to transporting those to market. Examples include open pit mining machines, steel and steel rolling mills, aluminum rolling mills, paper mills, heavy duty cranes, heavy duty construction equipment, electric locomotion by rail and sea, and high speed transit cars. In these applications and many more, the costs associated with system down time caused by a motor or drive failure can be severe. For this reason motor and drive maintenance and troubleshooting is a major activity in many industries, and our DI-730 is the first PC-based product designed specifically for these and other demanding measurements that require isolation and wide dynamic range.

The following diagram shows a variety of typical measurements made by our customers every day on variable speed drives using our model DI-730 data acquisition hardware. Each represents a direct-connected measurement without applying external isolators, dividers, or amplifiers.



Symbol Descriptions (direct connections to the DI-730)				
Symbol	**Description**	**Method**	**Typical Voltage Range**	**Typical Calibrated Range**
V_{IA}	Armature Current	Shunt	+/-100 mV	100-2000 A
V_A	Armature Voltage	Direct	0-500 V	0-500 V
V_{IF}	Field Current	Shunt	10-50 mV	0-20 A
V_F	Field Voltage	Direct	0-300 V	0-300 V
V_R	Speed Reference	Direct	0-10 V	0-4000 RPM
V_T	Tachometer	Direct*	0-200 V*	0-4000 RPM
*May also be acquired as a pulse train with frequency proportional to RPM.				