Computer Weld Technology, Inc.

Intelli-DART™
Intelligent Digital Analog Remote Transducer

The Intelli-DART™ Transducer is a lightweight; compact, multi-sensor unit designed for monitoring and telemonitoring service purposes in a welding environment. The Intelli-DART™ Transducer includes an embedded microcontroller to provide the necessary data acquisition, signal processing and communications firmware to allow remote logging of the arc voltage, arc current, wire feed speed and shielding gas pressure. The optional WireLog Plus™ software offers the ability to program, download data and communicate with multiple Intelli-DART™ units.

Intelli-DART™ - Standard Configuration

Intelli-DART™ with Optional Mounting Bar Kit

The lightweight, easy to install design allows the user to install the Intelli-DART at the wire drive motor inlet using industry standard quick disconnect conduit fittings or to a fixed surface with the optional mounting brackets. The LED indicators provide the operator or maintenance personnel with a quick visual indication of sensor activity. The unit is powered by a user supplied external 24 VDC power source via the sensor interface cable. This cable also provides the Analog and TTL Signal Outputs to an external system (data acquisition or PLC).

Total isolation of all sensors from the welding arc. Arc current is measured using a laser trimmed hall-effect transducer. Arc voltage sensor provides a 1 KV isolation using capacitive isolation technology. The wire speed transducer is a precision optical encoder housed in a Delron body, for isolation and mechanical rigidity, with a heavy duty sealed bearing cartridge for increased durability. An integrated silicon differential pressure sensor provides torch shielding gas back pressure measurements.

FEATURES

- Industry standard quick disconnect fittings for wire speed transducer and mounting

- Hall-effect current transducer with 25 mm opening for welding cable

- A screw terminal block connections for positive and negative voltage sense leads

- Gas pressure sensor to measure welding torch back pressure

- Optional mounting brackets

- Two BCD switches provided to allow external definition of 1 to 247 MODBUS™ addresses

BENEFITS

- Mount directly to any wire drive motor inlet

- Provides electrical isolation and reduces cable heating by eliminating additional mechanical connections

- Provides easy installation of voltage sense leads and allows custom wire length

- Provides indication of torch degradation due to leaks or clogged gas orifice or nozzle

- Allows remote mounting of sensor using standard quick disconnect conduit assemblies for wire speed sensor

- Communication with multiple Intelli-DART™ transducers with optional software package

Intelli-DART™ SPECIFICATIONS

CURRENT SENSOR

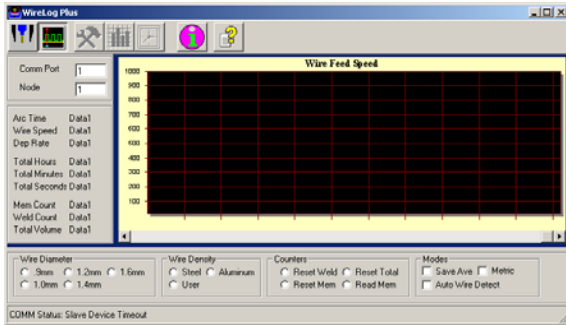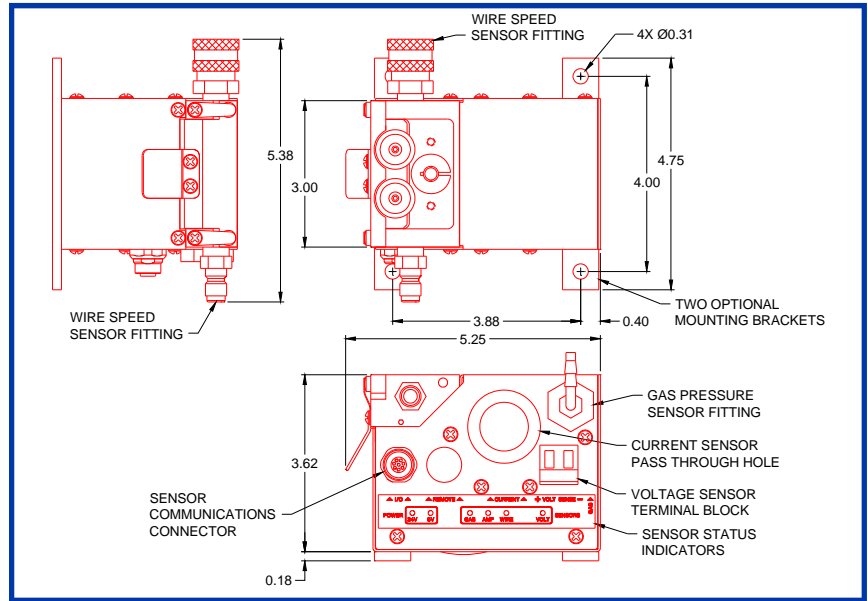|	
Current Range	0 - 600 amps (DC)
Relative Precision of Range	±1%
Max Linearity Error	± 0.9 % of reading
Band Width at ±1db	2.5 Khz

VOLTAGE SENSOR

Voltage Range	0 - 100 volts (DC)
Relative Precision of Range	±1%
Max Linearity Error	± 0.5 % of reading
Band Width at ±1db	2.5 Khz

WIRE SPEED SENSOR

Wire Diameter (min / max)	0.30 – 0.62 (0.8 mm / 1.6 mm)
Speed Range	10 – 1000 ipm (4 – 420 mm / s)
Relative Precision of Range	±3%

GAS PRESSURE SENSOR

Pressure Range	2.18 – 14.5 Psi (15 – 100 Kpa)
Relative Precision of Range	±3%
Max Linearity Error	± 1.8 % of reading
Band Width at ±1db	250 Hz

Intelli-Dart GENERAL SPECIFICATIONS

Dimensions	5.25" L x 5.38" W x 3.81" H (133 mm L x 137 mm W x 97 mm H)
Weight	2.7 lbs (1.2 kgm)
Communications	MODBUS™ RTU

Intelli-DART™ Product Part Numbers

Part Numbers	Description
A0A0101	Intelli-DART™ System (Includes: Transducer and Cable)
A2A0025	Mounting Bar Kit

WireLog Plus™ Data Logging Program

The WireLog Plus™ Program is used with the Intelli-DART™ Sensor and provides a simple MODBUS terminal to program and download data from multiple Intelli-DART™ Sensors. The program uses the MODBUS™ RTU protocol to establish communication with multiple Intelli-DART™ devices. The interface to the Sensor is via a RS-485 duplex network.

WireLog Plus™ Product Part Numbers

Part Numbers	Description
A5Z0036	WireLog Plus™ Software

NetHub™

NetHub™ is an isolated RS-485 communications driver and power supply to connect up to six Intelli-DART™ Sensors to the MODBUS™ RTU network. A total of 247 sensors may be connected to the network using multiple NetHub™ units.

NetHub™ Product Part Numbers

Part Numbers	Description
A3A0214	110 VAC NetHub™
A3A0219	220 VAC European NetHub™
X3W5042	RS-485 Cable (Cable needed between NetHub™ units or between NetHub™ unit and RS-232/RS-485 Converter at your personal computer)
X5A5062	RS-232/RS-485 Converter
X3T5036	110 VAC Power Supply
X3T5047	220 VAC Power Supply