



# Computer Weld Technology, Inc.

# DART™

## Digital Analog Remote Transducer

Take a look at our new Digital Analog Remote Transducer (DART™) the new way to win by assuring weld quality in your GMAW welding process. The DART transducer provides the necessary isolation and signal conditioning for remote weld data acquisition sub systems. The DART transducer converts the arc voltage, arc current and torch shielding gas pressure to an isolated 0-10 vdc output and the wire feed speed to a TTL level of 100 pulse/inch output. The sensor is compact and provides a single cable connection for all sensors. The sensor is simple to install at the wire drive motor inlet using industry standard quick disconnect conduit fittings.



DART - Standard Configuration



DART with Optional Mounting Brackets

The sensor may also be remotely mounted using industry standard conduit assemblies and optional mounting brackets. The DART sensor provides sensor output active LED indicators, which provides visible indication of sensor activity. The DART sensor is powered by an external 24 vdc power source. The sensor is connected to an analog data acquisition system via a single 8-conductor cable assembly. This allows easy installation of the sensor to any Robot or PLC controller. The DART can also be used with other CWT weld controllers and weld monitoring products to provide total weld quality control and monitoring systems.

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

### BENEFITS

- Mount directly to 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 lengths
- 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

# DART™ SPECIFICATIONS

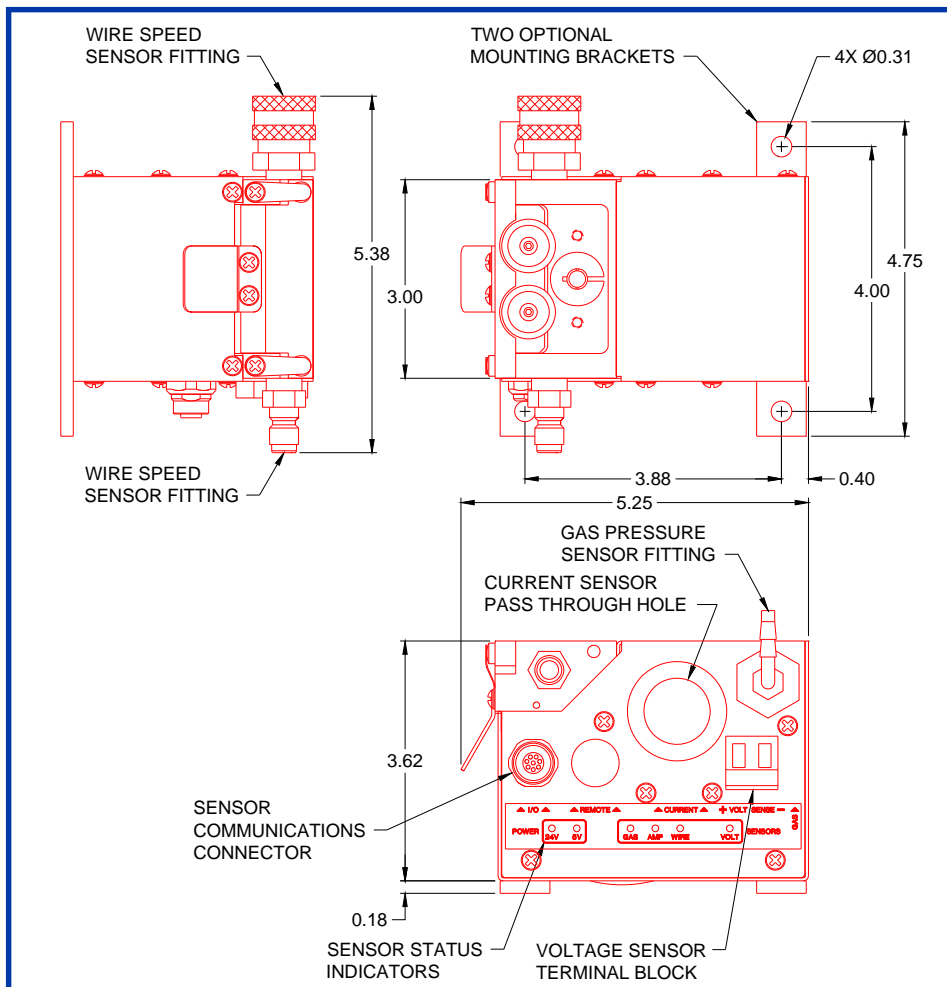
CURRENT SENSOR	
Current Range	0 - 600 amps (DC)
Relative Precision of Range	±1%
Max Linearity Error	± 0.9 % of reading
Max Zero Offset Error	± 3.0 mv
Sensitivity (V out / V in)	10mv / Amp
Band Width at ±1db	2.5 KHz

VOLTAGE SENSOR	
Voltage Range	0 - 100 volts (DC)
Relative Precision of Range	±1%
Max Linearity Error	± 0.5 % of reading
Max Zero Offset Error	± 1.0 mv
Sensitivity (V out / V in)	± 1.0 mv
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%
Encoder Pulse Rate	100 pulse / inch ( 3.94 pulses / mm)
Output Frequency Range	16.7 – 1666.7 Hz

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
Max Zero Offset Error	0.510 Vdc
Sensitivity (V out / V in)	0.5 Vdc / Psi
Band Width at ±1db	250 Hz

**Note:** The analog outputs provide a 10 ma drive capacity and the encoder output provides a TTL compatible pulse and will sink/source 25 ma. The sensor outputs can drive cable lengths up to a maximum of 75 ft. Specifications subject to change without notice.



MECHANICAL SPECIFICATIONS	
Dimensions	5.25" L X 5.38" W X 3.81" H (133mm X 137mm X 97mm)
Weight	2.7 lbs (1.2 kg)
Temperature	-10°F– 140°F (-12°C - 60°C)

"Keep your welds on target with the DART™"

ELECTRICAL SPECIFICATIONS	
Sensor Power	24 vdc @ 0.1 amp ripple 200 mv
Analog Output	0 - 10 vdc @ 10ma current limited
Encoder Output	TTL compatible levels sink / source 25 ma.

"Play it smart. Use the DART"

CWT PART NUMBERS	
P/N	Description
A0A0095	DART™ Sensor Assembly with 6 meter Cable
A3A0207	DART™ sensor assembly
A2A0025	Mounting Bars Kit (Optional)