

Thermocouple (TC) for Model 79 only	Range	
Type R	-40°C ... 1760°C	Measure and source
Type S	-20°C ... 1760°C	Measure and source
Type K	-20°C ... 950°C	Measure
	-200°C ... 370°C	Source
Type E	-200°C ... 500°C	Measure
	-200°C ... 1000°C	Source
Type S	-200°C ... 700°C	Measure
	-200°C ... 1200°C	Source
Type T	-200°C ... 400°C	Measure and source
Type N	-200°C ... 1000°C	Measure
	-200°C ... 1300°C	Source
Type B	-200°C ... 1800°C	Measure and source
Thermoresistance (RTD) for Model 79 only		
Pt100	-200°C ... 700°C	Measure
	-200°C ... 850°C	Source
Cu50	-200°C ... 150°C	Measure and source
DC Current (Process Signal)	4 ... 20mA	Measure, source and sinking
		Manual, Ramp or Step mode
Frequency	50Hz ... 100kHz	Measure
	100Hz ... 10kHz	Source



Multimeter function

DC/AC Voltage	400V RMS
DC/AC Current	400mA RMS
Resistance	40M
Diode Test	1.1V ~1.6V short circuit <0.2mA
Continuity Test	<50 Open circuit voltage <0.45V Short circuit 130µA typical
Overload protection	600V p-p

Technical Data

Input Function

Measuring function	Range	Measuring range	resolution	Accuracy	Remarks
DC Voltage	4V	-4.000V~4.000V	1mV	0.2%+4	Input impedance 10M
	40V	-40.00V~40.00V	0.01V	0.2%+4	
	400V	-400.0V~400.0V	0.1V	0.2%+4	
AC Voltage (40Hz~500Hz) (5%~100%range)	400mV	0~400.0mV	0.1mV	1%+4	Input impedance 10M <100pF
	4V	0~4.000V	1mV	0.5%+4	
	40V	0~40.00V	0.01V	0.5%+4	
	400V	0~400.0V	0.1V	0.5%+4	
DC mV Voltage	40mV	- 40.00mV~40.00mV	0.01mV	0.5%+6	Input impedance 10M
	400mV	- 400.0mV~400.0mV	0.1V	0.2%+4	
OHM	400	0~400.0	0.1	0.2%+4	Plough voltage : 0.4V not including the accuracy of lead resistance
	4k	0~4.000k	1	0.2%+4	
	40k	0~40.00k	0.01k	0.2%+4	
	400k	0~400.0k	0.1k	0.2%+4	
	4M	0~4.000M	1k	0.2%+4	
	40M	0~40.00M	0.01M	1%+4	
DC Current	40mA	- 40.00mA~40.00mA	0.01mA	0.2%+4	Input impedance 1
	400mA	- 400.0mA~400.0mA	0.1mA	0.5%+4	
AC current (40Hz~200Hz) (5%~100%range)	40mA	0~40.00mA	0.01mA	0.5%+4	Input impedance 1
	400mA	0~400.0mA	0.1mA	0.5%+4	
	4000μA	0~4000μA	1μA	0.5%+4	
Frequency	50Hz	0~50.0Hz	0.01Hz	0.1%+3	
	500Hz	0~500.0Hz	0.1Hz	0.1%+3	
	5kHz	0~5.000kHz	1Hz	0.1%+3	
	50kHz	0~50.00kHz	0.01kHz	0.1%+3	
	100kHz	0~100.0kHz	0.1kHz	0.1%+3	
Duty cycle	0.1%~99%		0.1%	1%	
Diode test	1V		0.001V	10%	Plough: 1.1V~1.6V s/c 0.6mA
Continuity test	<50 BB		0.1		
Thermocouple (79 only)	R	-40°C ~ 1760°C	1°C	0.5%+3(<100°C)	Adopt ITS-90 thermometric scale not including the accuracy of RJC error RJC error ±2°C
	S	-20°C ~ 1760°C		0.5%+2(>100°C)	
	K	-200°C ~ 950°C	1°C	0.2%+2(<100°C)	
	E	-200°C ~ 500°C		0.5%+1(>100°C)	
	J	-200°C ~ 700°C			
	T	-200°C ~ 400°C			
	N	-200°C ~ 1000°C	1°C	0.5%+3(400~600°C)	
	B	400°C ~ 1800°C		0.5%+2(>600°C)	
Thermo-resistance (79)	Pt100	-200°C ~ 700°C	1°C	0.5%+2	Pt100-385 thermometric scale not including lead resistance
	Cu50	-50°C ~ 150°C	1°C	0.5%+4	

Output Function

Function	Range	Setting range	Resolution	Accuracy	Remarks
OHM	400	0~400.0	0.1	0.2%+4	
78DC mV	500mV	-50.00mV~550.00mV	0.1mV	0.5%+6	Max output current : 5mA
79DC mV	100mV	-10.00mV~110.00mV	0.01mV	0.2%+4	
DCV	5V	-0.5000V~5.5000V	1mV	0.2%+4	
Frequency	100Hz	1.0Hz~110.0Hz	0.1Hz	0.2%+2	50% Duty cycle 5Vp-p
	1kHz	0.100kHz~1.100kHz	0.001kHz	0.2%+2	
	10kHz	1.0kHz~11.0kHz	0.1kHz	0.2%+2	
Analog XMT	-20mA	0~22.000mA	0.01mA	0.2%+4	Ext power supply 28V @20mA 1k
DC mA	20mA	0~22.000mA	0.01mA	0.2%+4	Ext power supply 15V @20mA 400
Thermocouple	R	-40°C ~ 1760°C	0.1°C	0.5%+3(<100°C)	Adopt ITS-90 thermometric scale not including the accuracy of RJC error RJC error : ±2°C
	S	-20°C ~ 1760°C			
	K	-200°C ~ 1370°C			
	E	-200°C ~ 1000°C			
	J	-200°C ~ 1200°C			
	T	-200°C ~ 400°C			
	N	-200°C ~ 1300°C			
B	400°C ~ 1800°C	1°C	0.5%+3(400~600°C) 0.5%+2(>600°C)		
Thermo-resistance	Pt100	-200°C ~ 850°C	0.1°C	0.2%+6	Pt100-385 thermoelectric scale ±0.1mA excluding lead resistance error
	Cu50	-50~150°C			

**Application:
Shipboard, marine and offshore**

Diesel Engine : (Main Engine)
Typical measuring elements:
Thermocouple Type K
1. Exhaust gas temperature

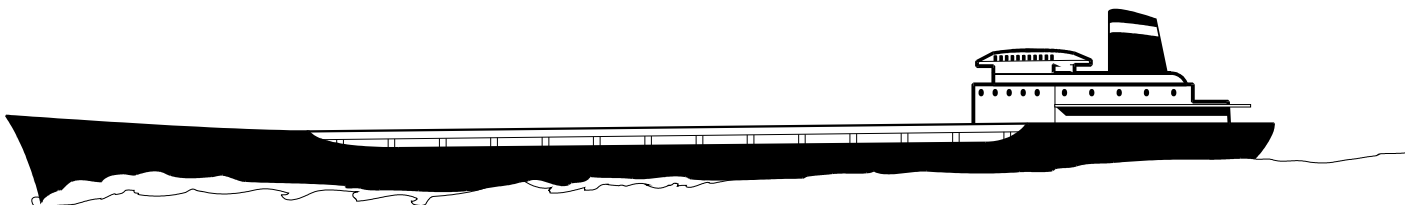
Platinum Resistance Temperature Device (F
Pt100 (100 Ω at 0°C)
1. Cooling water temperature
2. Lube Oil temperature
3. Bearing temperature
4. Scavenger air temperature
5. Cargo Tanks temperature

Thermistors (non-standard Thermo-resistance thermometer - either PTC or NTC)
1. Bearing temperature
2. Cooling Water temperature

Standard Process Signals (4 ~20 mA)
Speed transmitter
Temperature transmitter
Heavy Fuel Oil Viscosity transmitter
Level transmitters
Inert Gas Pressure transmitter
Flow transmitter of Ballast Water Discharge

Frequency / Pulse Signals (Hz)
Non contact speed pickups
Turbo-charger speed pickup
Engine drive shaft speed pickup
Speed log transmitter
Starter motor clutch engage/disengage RPM set point
Flow meter

Multimeter
Electrical motor starters
resistance of electrical motors
contactors and control circuits
Sfot Starters
Inverters and speed controller





Industrial Application

Process measurement and control

Pressure

Temperature

Speed

Level

Weight

Chemical parameters : pH, Brix, Density, etc.