



# UDC 3200 Application Note

## Input 1 Set Up Group

### INPUT 1 Group Function Prompts

Function Prompt Lower Display	Selections or Range of Setting Upper Display	Parameter Definition
<p><b>IN1 TYPE</b></p> <p><b>ATTENTION</b> Changing the input type will result in the loss of Field Calibration values and will restore Factory Calibration values.</p>	<p>DISABLE</p> <p>B TC</p> <p>E TC H</p> <p>E TC L</p> <p>J TC H</p> <p>J TC M</p> <p>J TC L</p> <p>K TC H</p> <p>K TC M</p> <p>K TC L</p> <p>NNM H</p> <p>NNM L</p> <p>NIC H</p> <p>NIC L</p> <p>R TC</p> <p>S TC</p> <p>T TC H</p> <p>T TC L</p> <p>W TC H</p> <p>W TC L</p> <p>100 PT</p> <p>100 LO</p> <p>200 PT</p> <p>500 PT</p> <p>RAD RH</p> <p>RAD RI</p> <p>0-20mA</p> <p>4-20mA</p> <p>0-10mV</p> <p>0-50mV</p> <p>0-100mV</p> <p>0-5 V</p> <p>1-5 V</p> <p>0-10 V</p> <p>TC DIFF</p> <p>CARBON</p> <p>OXYGEN</p>	<p><b>INPUT 1 ACTUATION TYPE</b> – This selection determines what actuation you are going to use for Input 1.</p> <p><b>DISABLE</b>—Disables Input.</p> <p><b>B TC</b>—B Thermocouple</p> <p><b>E TC H</b>—E Thermocouple High</p> <p><b>E TC L</b>—E Thermocouple Low</p> <p><b>J TC H</b>—J Thermocouple High</p> <p><b>J TC M</b>—J Thermocouple Med</p> <p><b>J TC L</b>—J Thermocouple Low</p> <p><b>K TC H</b>—K Thermocouple High</p> <p><b>K TC M</b>—K Thermocouple Med</p> <p><b>K TC L</b>—K Thermocouple Low</p> <p><b>NNM H</b>—Ni-Ni-Moly Thermocouple High</p> <p><b>NNM L</b>—Ni-Ni-Moly Thermocouple Low</p> <p><b>NIC H</b>—Nicrosil-Nisil Thermocouple High</p> <p><b>NIC L</b>—Nicrosil-Nisil Thermocouple Low</p> <p><b>R TC</b>—R Thermocouple</p> <p><b>S TC</b>—S Thermocouple</p> <p><b>T TC H</b>—T Thermocouple High</p> <p><b>T TC L</b>—T Thermocouple Low</p> <p><b>W TC H</b>—W5W26 Thermocouple High</p> <p><b>W TC L</b>—W5W26 Thermocouple Low</p> <p><b>100 PT</b>—100 Ohm RTD High</p> <p><b>100 LO</b>—100 Ohm RTD Low</p> <p><b>200 PT</b>—200 Ohm RTD</p> <p><b>500 PT</b>—500 Ohm RTD</p> <p><b>RAD RH</b>—Radiamatic RH</p> <p><b>RAD RI</b>—Radiamatic RI</p> <p><b>0-20mA</b>—0 to 20 Milliamperes</p> <p><b>4-20mA</b>—4 to 20 Milliamperes</p> <p><b>0-10mV</b>—0 to 10 Millivolts</p> <p><b>0-50mV</b>—0 to 50 Millivolts</p> <p><b>0-100mV</b>—0 to 100 Millivolts</p> <p><b>0-5 V</b>—0 to 5 Volts</p> <p><b>1-5 V</b>—1 to 5 Volts</p> <p><b>0-10 V</b>—0 to 10 Volts</p> <p><b>TC DIFF</b>—Thermocouple Differential</p> <p><b>Carbon</b>—Carbon Probe Input</p> <p><b>Oxygen</b>—Oxygen Probe Input</p>



# UDC 3200 Application Note

Function Prompt Lower Display	Selections or Range of Setting Upper Display	Parameter Definition
<b>XMITTER</b>	B TC      S TC E TC H    T TC H E TC L    T TC L J TC H    W TC H J TC M    W TC L J TC L    100 PT K TC H    100 LO K TC M    200 PT K TC L    500 PT NNM H    RAD RH NNM L    RAD RI NIC H    LINEAR NIC L    SQROOT R TC	<p><b>TRANSMITTER CHARACTERIZATION</b>—This selection lets you instruct the controller to characterize a linear input to represent a non-linear one. If characterization is performed by the transmitter itself, then select LINEAR.</p> <p><b>ATTENTION</b> Prompt only appears when a linear actuation is selected at prompt IN1 TYPE.</p> <p>FOR EXAMPLE: If input 1 is a 4 to 20 mA signal, but the signal represents a type K H thermocouple, then configure <b>K TC H</b> and the controller will characterize the 4 to 20 mA signal so that it is treated as a type K thermocouple input (high range).</p> <p>Parameter definitions are the same as in IN1 TYPE.</p>
<b>IN1 HI</b>	–999. To 9999. Floating (in engineering units)	<p><b>INPUT 1 HIGH RANGE VALUE</b> in engineering units is displayed for all inputs but can only be configured for linear or square root transmitter characterization.</p> <p>Scale the #1 input signal to the display value you want for 100 %.</p> <p>EXAMPLE: Process Variable = Flow Range of Flow = 0 to 250 Liters/Minute Actuation (Input 1) = 4 to 20 mA Characterization (XMITTER) = LINEAR Set IN1 HI display value to 250 Set IN1 LO display value to 0 Then 20 mA = 250 Liters/Minute and 4 mA = 0 Liters/Minute</p> <p><b>ATTENTION</b> The control setpoint will be limited by the range of units selected here.</p>
<b>IN1 LO</b>	–999. To 9999. Floating (in engineering units)	<p><b>INPUT 1 LOW RANGE VALUE</b> in engineering units is displayed for all inputs but can only be configured for linear or square root transmitter characterization.</p> <p>Scale the #1 input signal to the display value you want for 0 %. See example above.</p> <p><b>ATTENTION</b> The control setpoint will be limited by the range of units selected here</p>
<b>RATIO 1</b>	–20.00 to 20.00 Floats to 3 decimal places	<b>RATIO ON INPUT 1</b> —Select the Ratio value you want on Input 1.
<b>BIAS IN1</b>	–999. to 9999. (in engineering units)	<b>BIAS ON INPUT 1</b> — Bias is used to compensate the input for drift of an input value due to deterioration of a sensor, or some other cause. Select the bias value you want on Input 1.



# UDC 3200 Application Note

Function Prompt Lower Display	Selections or Range of Setting Upper Display	Parameter Definition
<b>FILTER 1</b>	0 to 120 seconds No filter = 0	<b>FILTER FOR INPUT 1</b> —A software digital filter is provided for Input 1 to smooth the input signal. You can configure the first order lag time constant from 1 to 120 seconds. If you do not want filtering, enter 0.
<b>BURNOUT</b>	NONE  UP   DOWN   NO FS	<p><b>BURNOUT PROTECTION (SENSOR BREAK)</b> provides most input types with upscale or downscale protection if the input fails</p> <p><b>NO BURNOUT</b>—Pre-configured Failsafe output (selected in the CONTROL Set up Group) applied if failed input is detected (does not apply for an input out of range). Diagnostic message IN1 FAIL is intermittently flashed on the lower display.</p> <p><b>UPSCALE BURNOUT</b> will force the Input 1 signal to the full scale value when the sensor fails. Diagnostic message IN1 FAIL intermittently flashed on the lower display.</p> <p>The controller remains in Automatic control mode and adjusts the controller output signal in response to the full scale Input 1 signal developed by the Burnout circuitry.</p> <p><b>DOWNSCALE BURNOUT</b> will force the Input 1 signal to the lower range value when the sensor fails. Diagnostic message IN1 FAIL intermittently flashed on the lower display.</p> <p>The controller remains in Automatic control mode and adjusts the controller output signal in response to the lower range Input 1 signal developed by the Burnout circuitry.</p> <p><b>NO FAILSAFE</b>— This selection does not provide input failure detection and should only be used when a thermocouple input is connected to another instrument that supplies the Burnout current. (For this selection, no burnout signal is sent to the sensor.)</p> <p><b>ATTENTION</b> For Burnout to function properly on a 0-20 mA input type (or a 0-5V type that uses a dropping resistor), the dropping resistor must be remotely located (across the transmitter terminals). Otherwise, the input at the instrument terminals will always be 0 mA (i.e., within the normal operating range) when the 0-20 mA line is opened.</p>



# UDC 3200 Application Note

<b>Function Prompt</b> Lower Display	<b>Selections or Range of Setting</b> Upper Display	<b>Parameter Definition</b>
<b>EMISSIV1</b>	0.01 to 1.00	<b>EMISSIVITY</b> is a correction factor applied to the Radiamatic input signal that is the ratio of the actual energy emitted from the target to the energy that would be emitted if the target were a perfect radiator. Available only for Radiamatic inputs