



## Environmental Ltd

### PRODUCT SPECIFICATION

#### GENERAL DESCRIPTION

The 320 Series is a range of universal digital process indicators, which accept over 20 common industrial inputs.

A wide range of options is available enabling the 320 to be used in a variety of applications with 4 software alarms; optional 0-10V, 4-20mA or 0-20mA isolated re-transmission; bridge excitation; and serial digital communications.

The sensor type and range are user configurable, either from the front panel or via the optional serial communications port, which can be set to read only if required. All ranges are calibrated which means that the user can change quickly and easily from one sensor type to another. The re-transmission can be any part of the incoming range, allowing the 320 to be used as a smart sensor transmitter.

The IP65 sealed front panel means that water, dust or other such environmental conditions are no obstruction to the use of the 320 - a hazard that may prohibit the use of other instruments.

The versatility of the 320 results in reduced stock holding which, combined with its exceptional accuracy and stability and 12 month warranty, gives the lowest cost of ownership of any of its competitors.

#### PROGRAMMING

All parameters can be entered from the front panel or via the communications port (optional). Programming is done by pressing combinations of the five keys on the front panel of the instrument. The keys are pressed to progress through a series of menus which are displayed on the display in helpful mnemonics. Lack of activity returns the instrument to the run mode. In the run mode the keys are used individually to examine set-points and clear latched alarms.

#### SIGNAL RE-TRANSMISSION - 323 & 324

The user programmable isolated analogue output allows the 320 series to be used in applications where a local display as well as data recording is required. This output can be configured to transmit the measured, averaged, maximum or minimum value and has its own damping filter for noisy or fast moving signals. The input can be locally conditioned and retransmitted over a relatively long distance. Being electrically isolated, problems associated with earth loops, which are often encountered in measurement systems, are eliminated.

#### Alarms - 322 & 324

Any of the four standard software alarms can be used to operate a relay. In addition a special AND function allows a relay to switch only if two or more alarm conditions are active.



### DIGITAL INDICATOR SERIES 320



- \* Universal Input
- \* 2 User definable Buttons
- \* 4 or 5 digit display
- \* IP65 (NEMA4) front panel
- \* Isolated re-transmission option
- \* 4 software alarms with  $\pm$ AND $\emptyset$  function.
- \* 2 output relay option
- \* RFI screened
- \* Programmable signal linearisation
- \* Serial communications

**SK ENVIRONMENTAL LTD**

## SPECIFICATIONS

### ENVIRONMENTAL

Ambient temperature range: 10-50°C  
 Humidity: 0-95% RH non-condensing  
 Power Supply: 90 to 265Vac 50/60 Hz  
 10 to 32V ac or dc.

### VOLTAGE INPUTS

Ranges: ±100mV, ±10V  
 Accuracy: 0.05% of reading ± 20µV (Typically 0.02%)  
 Resolution: 1µV (100mV range), 100µV (10V range)  
 Input Impedance (Ohms): >100M (mV i/p) >1M (V i/p)

### CURRENT INPUT

Range: ±20mA  
 Accuracy: 0.05% of reading ±4µA (Typically 0.02%)  
 Resolution: 2.0µA  
 Input Impedance: 5 Ohms Typical  
 Maximum Burden: 100mW

### REFERENCE JUNCTION COMPENSATION (CJC)

Accuracy: Better than ± 0.5°C after 30 minutes

### RESISTANCE/RTD INPUTS

Configuration: 2, 3 or 4 wire programmable.  
 Excitation Current: 0.25mA Typical  
 Range: 0 to 400 Ohms  
 Accuracy: 0.4 Ohms (Typically 0.2 Ohms)  
 Resolution: 0.01 Ohms

### TRANSMITTER/TRANSDUCER SUPPLIES

All supplies isolated: 500Vdc/peak ac

24V Transmitter supply - All models  
 Nominally 24V @ 32mA Maximum

10V Regulated Transducer supply - 321, 322  
 10V ± 0.1V @ 30mA Maximum

0 to 12V Regulated Transducer supply - 323, 324

Resolution: 0.01V  
 Accuracy: ± 0.05V (Typically 0.02V)  
 Temperature Drift: <100ppm/°C  
 Output Ripple: <5mV  
 Output Current: 35mA Maximum

### ANALOGUE OUTPUT - 323, 324

Isolation: 500Vdc/peak ac  
 Ranges: User Selectable 0-10V, 0-20mA or 4-20mA  
 Accuracy: 0.2% of Span (Typically 0.1%)  
 Temperature Drift: <100ppm/°C  
 Output Ripple: <10mV  
 Response: 63% within 32ms, 99% within 100ms  
 Resolution: 0.05% of Span(5mV or 0.01mA)  
 Maximum Voltage Output: 11V @ 22mA  
 Maximum Current Output: 22mA @ 18V  
 Maximum Load: 900Ohms  
 Programmable Damping Filter

### ALARM RELAY OUTPUTS

Relays: 2x Change over contacts - 1A @ 250Vac  
 5A @ 30Vdc

## THERMOSENSOR BREAK DETECTION

Programmable: Up or Down Scale

### DISPLAY

Type: 14.2mm High Brightness LED (Red or Green)  
 Range: -1999 to 9999 (321, 322)  
 -19999 to 99999 (323, 324)

### SERIAL COMMUNICATIONS

Type: RS422/485 2 or 4 wire multi-drop  
 Speed: 1200, 2400, 4800 or 9600 baud  
 Parity: Odd, Even or None  
 Stop Bits: 1 or 2  
 Protocol: MODBUS and DTPI  
 Isolation: 500Vdc/peak ac

### A/D CONVERTER

Dual slope integrating with auto zero  
 Conversion Rate: 10 per second  
 Resolution: 16 bit + sign (1µV)  
 Common Mode Rejection: >150dB  
 Series Mode Rejection: >70dB (50 or 60Hz)

### MECHANICAL

Front Panel: Protection to IP65 (NEMA4)  
 Dimensions: 173mm(D) x 48mm (H) x 96mm(W)  
 Panel Cutout: 92mm(W) x 44mm(H)  
 Depth Behind panel: 466mm including terminals  
 Weight: 0.4kg Maximum, Packed weight 0.55kg

## ORDERING INFORMATION AND KEY MODEL CODE

### KEY MODEL CODE

321 - 1 - R

TABLE 1

TABLE 2

TABLE 3

TABLE 1 - MODEL TYPE

321	Universal Input Digital Indicator - display only
322	Indicator with:- Dual Relay - Rated 1A @ 250Vac Rated 5A @ 30Vdc
323	Indicator with: Analogue Output 0-10V, 0-20mA, 4-20mA
324	Indicator with: Dual Relay - Rated 1A @ 250Vac Rated 5A @ 30Vdc and: Analogue Output 0-10V, 0-20mA, 4-20mA

TABLE 2 - SUPPLY

1	90-265Vac 50 or 60Hz 10VA (40mA @ 240V)
2	10-32V ac or dc

TABLE 3 - DISPLAY COLOUR

R	RED
G	GREEN

SK Environmental Limited reserve the right to change any of the specification without prior notice.



SK ENVIRONMENTAL LIMITED  
 GREENHEY PLACE  
 SKELMERSDALE  
 LANCASHIRE  
 WN8 9SB  
 UNITED KINGDOM

Telephone: +44 (0) 1695 714600  
 Fax: +44 (0) 1695 714611  
 Email: [sales@skenvironmental.com](mailto:sales@skenvironmental.com)  
 Website: [www.skenvironmental.com](http://www.skenvironmental.com)