

SERIES 1900C

LOOP POWERED DIGITAL INDICATORS

Noshok Series 1900 Compact Digital Indicators provide digital display of any desired unit of pressure, temperature, level, force or flow measurement. Their 3 1/2 digit display has a span range of 0 to 1999 and is available in a positive image reflective LCD or in an optional back-lit version.

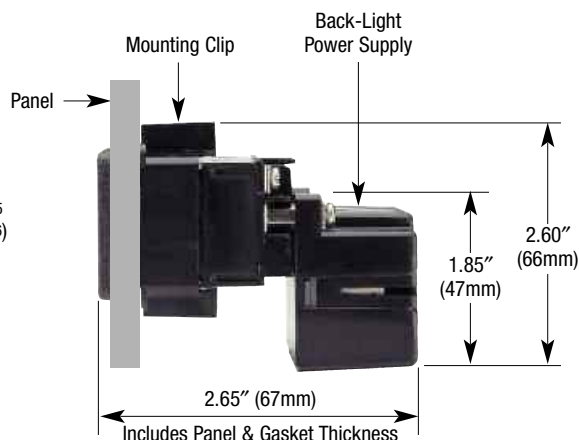
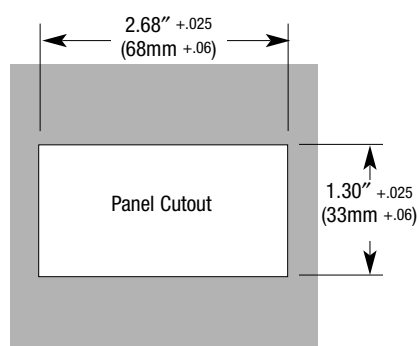
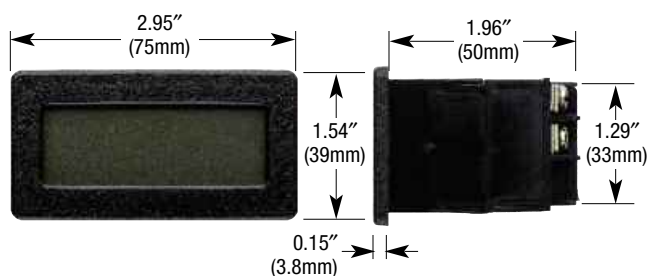
They are housed in a compact, lightweight, impact resistant plastic case with a clear viewing lens. The sealed front panel installation also meets NEMA 4x/IP65 specifications for wash down and dusty environments, when properly installed.



FEATURES

- Factory scaled and calibrated
- Dual range 4 mA to 20 mA or 10 mA to 50 mA
- 3 1/2 digit, 0.6" high display
- Positive image reflective LCD-standard
- Red or yellow/green back-lit versions-optional
- Span and zero offset capabilities
- Negative pressure and overpressure indication
- Selectable decimal point position
- NEMA 4X, IP65 sealed front bezel
- Fits DIN standard cut-out 2.68 (68mm) x 1.30 (33mm)

Outline Dimensions



1900C-3/1900C-4: Loop Powered Display with backlight power supply

SPECIFICATIONS

Display	3 1/2 digit (-1999 to 1999), 0.6" tall LCD
Display type	Positive image reflective LCD standard; red or yellow/green backlight transreflective LCD optional
Power supply	1900C-1/1900C-2: Loop Powered, 4 mA to 20 mA or 10 mA to 50 mA 1900C-3/1900C-4: Loop Powered Display w/backlight power supply 115/230 Vac, 50/60 Hz, 3VA required for backlight power supply, unregulated
Input signal	4 mA to 20 mA or 10 mA to 50 mA
Input impedance	160 ohms max @ 20 mA; 60 ohms max @ 50 mA
Maximum input current	100 mA
Span range	0 to 1999
Offset range	-1999 to 1999
Linearity	±0.1 % to 1 digit
Reading rate	2.5 Readings per second, nominal
Response time	1.5 seconds to settle for a step change
Temperature ranges	Storage -40 ° to 175 °F/-40 ° to 80 °C Operating 32 ° to 140 °F/0 ° to 60 °C
Thermal effect (reference temperature 68°F/20°C)	Span: 100PPM/°C Offset: 0.2 digits/°C
Electromagnetic rating	CE compliant to EMC norm EN 61326:1997/A1:1998 RFI, EMI and ESD protection

ORDERING INFORMATION

SERIES 1900C

INDICATION

- | | | | |
|---|---|---|---|
| 1 | Positive image reflective LCD | 3 | Yellow/green backlight transfective LCD with backlight power supply |
| 2 | Positive image reflective LCD backlight | 4 | Red backlight transfective LCD with backlight power supply |

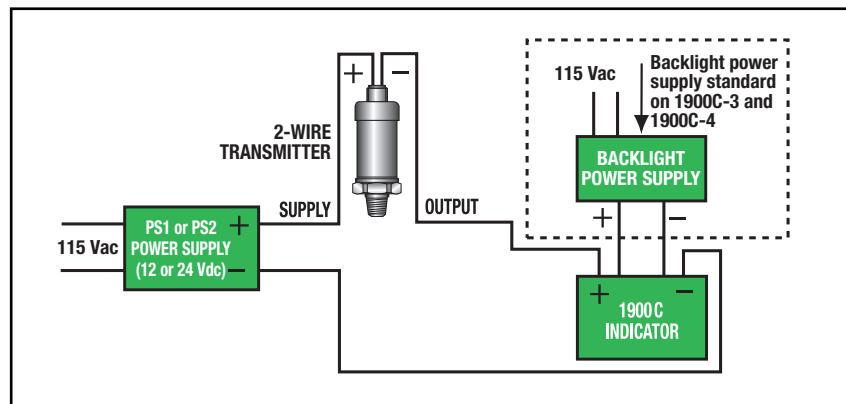
Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

OPTIONAL POWER SUPPLIES		
MODEL	INPUT	OUTPUT
PS1	115 Vac	12 Vdc
PS2	115 Vac	24 Vdc

EXAMPLE

Series1900C
IndicationRed backlight LCD

1900C - 4



Typical wiring for the 1900C including the optional back light feature. See the photos below showing both the green and red color backlight versions.

Green Backlight Version
1900C-3



Available PS1 (12 Vdc) and PS2 (24 Vdc) power supply for powering a typical 2 wire loop or 3 wire configuration.

Red Backlight Version
1900C-4



1900C-3/1900C-4: Loop Powered Display
with backlight power supply



1900C-1/1900C-2: Loop Powered



FEATURES

- 0.46" LCD display
- LCD, reflective or selectable red of green backlighting
- Fully scalable
- Field upgradeable
- Simple programming through front panel
- NEMA 4X/IP65 sealed front panel

SERIES 1950

NOSHOK Series 1950 Compact Smart System Digital Indicator offers the features of a full size panel meter compressed into a small design for ease of installation in almost any application. The 5 digit display has a span range of -9999 to 99999 and is available in a reflective LCD or backlit versions.

The display can accept a variety of process signals for applications in pressure, flow, level, force and temperature. All programming can be done through the front of the meter with little difficulty. The display is fully expandable to accommodate applications requiring relays, dual sinking outputs, and serial communications by RS232 or RS485.

SPECIFICATIONS

Input signals	Current, voltage or resistance
Process display	5 digit, 0.48 " high, (-9999 to 99999)
Power requirement	9 Vdc to 28 Vdc, unregulated (Optional power supply available for 85 Vac to 250 Vac excitation)
Connections	Terminal block in rear Recommended wire: 30-14 AWG copper
Memory	Nonvolatile E2PROM memory retains all programming parameters and max/min values when power is removed
Accuracy	0.1% of span
Response time	< 500 msec
Temperature ranges	Operating -35°C to 75°C Storage -35°C to 85°C
Operating and Storage Humidity	0 to 85% max. relative, non-condensing
Vibration	5 to 500 Hz, in X,Y,Z direction for 1.5 hours, 5 g's. According to IEC 68-2-6
Shock	Operational 30 g, 11 msec in 3 directions. According to IEC 68-2-27
Electromagnetic rating	Emissions and immunity to EN 61326
Environmental protection	NEMA 4X/IP65, sealed bezel only
Weight	3.2 oz (100 g)
Relay option card	Type: Single FORM-C relay Isolation To Sensor & User Input Commons: 1400 Vrms for 1 min. Working Voltage: 150 Vrms Contact Rating: 1 amp @ 30 Vdc resistive; 0.3 amp @ 125 Vac resistive Life Expectancy: 100,000 minimum operations Response Time: Turn On Time: 4 msec max. Turn Off Time: 4 msec max.
Communications option card	RS485 multi-point balanced interface (non-isolated) Baud Rate: 300 to 38.4k Data Format: 7/8 bits; odd, even, or no parity Bus Address: 0 to 99; max 32 meters per line Transmit Delay: Selectable RS232 half duplex (non-isolated) Baud Rate: 300 to 38.4k Data Format: 7/8 bits; odd, even, or no parity
Dual sinking output option card	Non-isolated switched DC, N Channel open drain MOSFET Current Rating: 100 mA max. VDS ON: 0.7 V @ 100 mA VDS MAX: 30 VDC Offstate Leakage Current: 0.5 mA max.

ORDERING INFORMATION			
SERIES 1950			
INPUT SIGNAL	C Current	V Voltage	R Resistance
DISPALY	1 Reflective	2 Backlight	
OPTION CARDS	0 None 6 RS232 Comm	1 Single Relay 7 RS485 Comm	2 Dual Sinking Open Collector
OPTIONAL POWER SUPPLIES	PS1 115 Vac to 12 Vdc (400 mA) PS3 85 - 250 Vac to 12 Vdc (400 mA)	PS2 115 Vac to 24 Vdc (200 mA)	
OPTIONAL ENCLOSURES	ENC1 Black Painted Steel	ENC2 Off-White Fiberglass	

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

EXAMPLE

1950

C

-

1

-

1

-

ENC1

Series

Input Signal

Display

Option Cards

Options

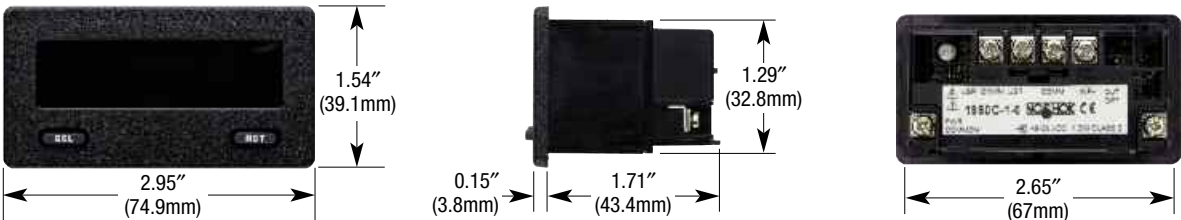
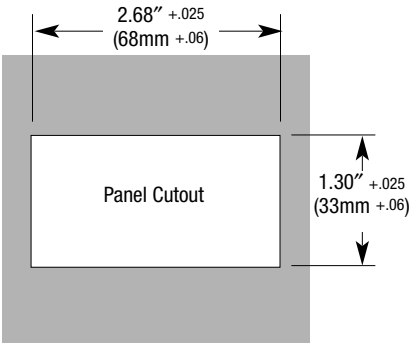
.....1950

.....Current

.....Reflective

.....Single relay

.....Enclosure black painted steel



SERIES 2000/2100

FIELD UPGRADEABLE DIGITAL PROCESS INDICATORS SINGLE INPUT OR DUAL INPUT

The Series 2000/2100 Smart System Digital Indicator embodies many features and performance capabilities to suit a wide range of indication and control requirements. It can accept a variety of standard process signals and precisely scale them into any desired unit of measurement. The indicator employs advanced technology for stable, drift free readout, while incorporating features that provide flexibility now and in the future with plug-in option cards. The option cards afford the opportunity to easily configure the indicator for the needs of the present while providing an upward migration path as control and indication needs evolve.

A full complement of options include relays, analog output and serial communication.



FEATURES

- Field upgradeable with plug-in option cards
- 24 Vdc transmitter power supply
- 16 point scaling for non-linear processes
- Max. and min. value display
- Easy menu-driven programming
- NEMA 4X/IP65 sealed front bezel
- 4 set point alarms (with plug-in card)
- Analog output (with plug-in card)
- Serial communication (with plug-in card)
- PC software available for configuration
- AC or DC input power
- Signal totalizer for batch weighing or other timed input processes
- CE compliant
- Programmable signal response time
- Standard DIN panel cutout

APPLICATIONS

- Process indication
- On/Off pump controls
- Compressor controls
- Safety or shutdown alarms
- Local indication with signal retransmission to computer control system

SPECIFICATIONS

Input signals	Current, voltage or resistance
Process display	5 digit, 0.56" red LED, (-19999 to 99999)
Keypad	3 programmable function keys, 5 keys total
Power requirement	115/230 Vac or 11 Vdc to 36 Vdc (18 Vdc to 36 Vdc for 2100 Series)
Internal power supply	24 Vdc (18 Vdc for 2100 Series), unregulated
Electrical connection	Terminal blocks in rear
Memory	Non-volatile Eprom, will hold set up data for 10 years without power
Accuracy	±0.03 % of reading +3" A for 4 mA to 20 mA input; ±0.03 % of reading +3 mV for 0 Vdc to 5 Vdc and 0 Vdc to 10 Vdc inputs over the range of 18 °C to 28 °C
Update rate	Up to 20 times per second, adjustable (Up to 105 times per second, adjustable for 2100 Series)
Temperature ranges	Operating 32 °F to 122 °F (0 °C to 50 °C) Storage -40 °F to 140 °F (-40 °C to 60 °C)
Electromagnetic rating	CE compliant to EMC norm EN 61326:1997/A1:1998 RFI, EMI and ESD protection
Environmental protection	Nema 4X/IP65 sealed bezel only
Linearization	16 point scaling of non linear input
Dual relay option card	Two FORM-C relays. Rating: One relay energized; 5 amps @ 120/240 Vac 115/230 Vac or 28 Vdc (resistive load), 1/8 HP @ 120 Vac, inductive load. Total current not to exceed 5 amps with both relays energized
Quad relay option card	Four FORM-A relays. Rating: One relay energized; 3 amps @ 240 Vac or 30 Vdc (resistive load), 1/10 HP @ 120 Vac, inductive load. Total current not to exceed 4 amps with all four relays energized
Analog output option card	0 mA to 20 mA, 4 mA to 20 mA or 0 Vdc to 10 Vdc retransmitted signal
Quad NPN-OC option card	4 isolated open collector sinking transistors, 100 mA at maximum 30 Vdc
Quad PNP-OC option card	4 isolated open collector sourcing transistors, 24 Vdc with 30 mA total maximum
Communication option cards	RS232C or RS485

ORDERING INFORMATION					
SERIES	2000 (Single Input)	2100 (Dual Input)			
INPUT SIGNAL	1 4 mA to 20 mA	2 0 Vdc to 5 Vdc	4 1 Vdc to 6 Vdc	5 0 Vdc to 10 Vdc	6 1 Vdc to 11 Vdc
POWER REQUIREMENTS	1 115/230 Vac	3 11 Vdc to 36 Vdc			
OPTION CARDS	1 Dual relay option card 4 Quad PNP-OC option card 7 RS 485 serial communications option card	2 Quad relay option card 5 Analog output option card	3 Quad NPN-OC option card 6 RS 232-C serial communications option card 0 No option card		

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

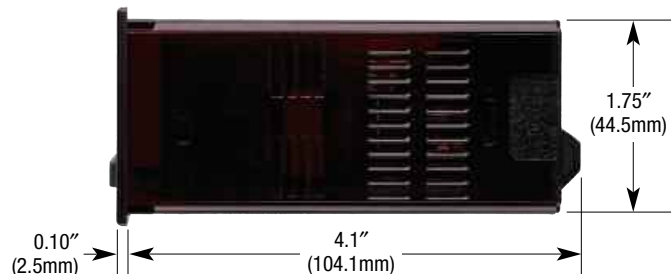
EXAMPLE

Series2000
 Input signal4 mA to 20 mA
 Power requirements115/230 Vac
 Option cardsDual relay option card

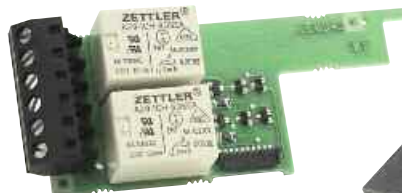
2000 - 1 - 1 - 1

OPTIONAL ACCESSORIES
 RS232C Mating Connector
 RS485 Mating Connector
 2000-50000 NEMA 4 Enclosure

Outline Dimensions



Typical Plug-in option card with on board terminals



NEMA 4 Enclosure

Available options are plug-in cards that provide alarm and setpoint relay outputs, analog and digital outputs, including RS 232-C and RS 485 functions.



Unit with relay option shown.

FEATURES

- 4 digit local display
- Easy menu-driven programming
- Powered by the 4 mA to 20 mA loop
- No extra wiring needed, inserts between the Hirschmann connector and transmitter body
- Selectable digital filtering
- CE Compliant

APPLICATIONS

- Hydraulic and pneumatic systems
- Pumps and compressors
- Test equipment and systems
- Industrial machinery and machine tools
- HVAC systems
- Power generation
- Water and wastewater
- Stamping and forming presses

ORDERING INFORMATION

1. Order Series 1800-0
2. Indicate display range on order eg. 0-1000 for 4 mA to 20 mA

SERIES 1800

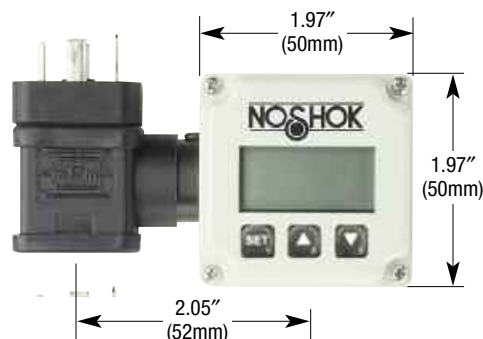
HIGH ACCURACY 4 mA to 20 mA LOOP-POWERED INDICATORS (for series 300, 600, 615, 616 and 800 transmitters)

The Model 1800 Attachable Loop-Powered Digital Indicator can be fitted to NOSHOK pressure transmitters utilizing a 4 mA to 20 mA output signal and the Hirschmann (DIN 43650A) connector. It is simply inserted between the transmitter body and the connector. The indicator is programmable to display a range of -1999 to 9999, and it may be tilted for better viewing. Also, there is user selectable digital filtering to improve readability in rapidly varying pressure applications. All parameters are stored in non-volatile memory so that reprogramming is not necessary in the event of a power failure.

SPECIFICATIONS

Display	0.4 " Liquid Crystal Display
Digits	4, from -1999 to 9999
Accuracy	±0.2 % Full Scale, ±1 digit
Update rate	5 times/second
Filtering	Digital, field selectable .2, .5, 1 or 1.5 seconds, display only
Range	The 4 mA to 20 mA signal from the transmitter can be assigned any display value within the display range. Both scaling points are individually adjustable using the push buttons inside the case
Power Supply	Loop-powered - no additional power supply required. Maximum current rating is 40 mA and voltage drop of 3 Vdc, unregulated
Temperature ranges	Ambient 32 °F to 122 °F (0 °C to 50 °C) Effect is ±0.006 % Full Scale/°F Storage -22 °F to 176 °F (-30 °C to 80 °C)
Electrical	Requires NOSHOK transmitter with 4 mA to 20 mA (2-wire) output and Hirschmann (DIN 43650A) connector
Environmental Protection	IP65, NEMA 4X according to EN 60529/IEC 529
Electromagnetic rating	CE compliant to EMC norm EN 61326:1997/A1:1998 RFI, EMI and ESD protection
Case material	ABS plastic with polycarbonate window
Weight	Approximately 3 oz.
Relay Option	Type: n-switching

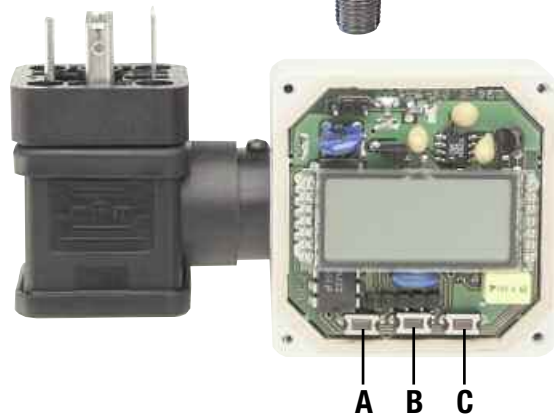
Outline Dimensions





To install, remove the DIN 43650A plug and insert indicator on top of transducer and reinstall the plug. This indicator can be used with NOSHOK and some competitive transmitters with 2-wire 4 mA to 20 mA output, Hirschmann connector with the same pin configuration. (Pin 1 + supply, Pin 2 + output)

To program, first remove the cover from the indicator housing and identify the buttons A, B, and C. These buttons are used to program the indicator to match the pressure range of the transmitter.



A → down

B → program steps

C → up

1. → Set the decimal point

1 x B:

d	P		
---	---	--	--

→ C/A up or down

2. Set the lower end of the range

2 x B:

A	n		4
---	---	--	---

→ C/A up or down

3. Set the upper end of the range

3 x B:

A	n	2	0
---	---	---	---

C/A up or down

4. To enable error codes

3 x B:

L	1		
---	---	--	--

1 x C:

			1
--	--	--	---

 on

→ 1 x A:

			0
--	--	--	---

 off

C/A up or down

Errors are shown as F1 for an underrange condition, and F2 for an overrange condition

5. Set digital filtering value

5 x B:

F	I	L	T
---	---	---	---

1 x C:

			0
--	--	--	---

 0.2 seconds

2 x C:

			1
--	--	--	---

 0.5 seconds

3 x C:

			2
--	--	--	---

 1.0 seconds

→ 4 x C:

			3
--	--	--	---

 1.5 seconds

C/A up or down

6. Return to measurement mode

2 x A