Product Catalog

2000B-Low Cost  2400-Custom Options  3300-Temperature

2100-Stroke Counter (1-4)  2200-Position Indicator  2000P-Parking Meter

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HISTORICAL OVERVIEW

Houston Digital Instruments, Inc. (HDI) is the industry leader in the manufacturing of battery powered, intrinsically safe instrumentation. Founded in 1990 by William Condon, Richard McLatchy, and Harold Fenn. With their combined experience of over sixty years in instrument design solutions, they had a vision of a compelling need by the industry for accurate, reliable and environmentally safe instrumentation. The collaboration of these men resulted in a pressure sensing and display system that makes obsolete all previous instrumentation. The patented, internationally certified, innovative system lead to the design and development of a wide range of instrumentation possibilities. Backed by a team of engineering and service professionals, HDI has become known as a leader in the supply of electronic oilfield instrumentation.

The oil industry responded to this system with requests world wide, for continued development of technologically advanced systems with varied applications. HDI, in response to that interest, manufactured a line of battery operated, microprocessor based instruments, with applications in drilling such as: pressure gauges, pump stroke counters, position indicators, and temperature gauges. Other successful areas have been in non-drilling applications, such as custom data acquisition and control applications. HDI has also developed pit volume totalizer, and BOP test systems. HDI’s innovative instrumentation concepts have produced requests from many sources, oilfield and industrial, for the development of a more extensive instrument line.

HDI’s Research and Development group has anticipated your company’s needs for new and innovative designs, and has recently developed a data acquisition system, the Model V9000 virtual choke control console. HDI’s future expansion of its instrument line includes: 4” pressure gauge system, and low cost choke panel, as well as other applications.

HDI’s success has been derived from the industry’s knowledge that it manufactures very accurate, reliable equipment that performs as specified and offers an alternative to outdated technology. HDI’s technology is an integral part of any responsible safety program, and offers an environmentally friendly solution to measurement needs.
Advantages that HDI systems offer over other systems available in the industry include:

**Oilfield rugged designs**: Withstands heat, vibration, humidity, and rigorous environments.

**Field proven**: More than 12 years in operation. Thousands shipped from Alaska to the Sahara.

**Accuracy**: 0.25% full scale. Far superior to all hydraulic technology.

**Field repairable designs**: Products designed for accessibility, and ease of service by field personnel.

**Reliability**: Most instruments are still running. Some are 12 years old.

**Wide operating temperature ranges**

**Bargraph and digital readouts**
Model 2000B Pressure Gauge System

Low cost, 6” round pressure gauge system. The control head, or display offers a digital readout as well as an analog bargraph format.

The system is calibrated from the factory for either one of the following customer specified engineering units: Kg/Cm2, BAR, KPA, or PSI. Customers can specify an optional dual bargraph scales.

The system is self powered. The power pack is of HDI patented design. The power pack is contained within the gauge case, and it contributes to the intrinsically safe integrity of the system. The battery life is guaranteed for one year.

The following are options available upon request: 4-20mA output signal, 0-1V output signal, and custom logo with volume orders.

The system is composed of a sensing device housed in a 316 stainless steel figure 2” 1502 male sub. It includes a 50’cable with an end connector, and a 2” 1502 wingnut. Other mating configurations are available, call for details.

CSA/UL certified. The gauge is designed for a Class 1 Division 1 area rating, and intrinsic safety. ATEX/Cenelec certifications for Zone 1 are pending.
Model 2000P Pressure Gauge System

This is a direct replacement for type “D” and “F” hydraulic, parking meter style pressure gauges.

The control head, or display offers a digital readout as well as an analog bargraph format. The system is calibrated from the factory for either one of the following, customer specified, engineering units: Kg/Cm2, BAR, KPA, PSI. Customers can specify single, or dual bargraph scales.

The system is self-powered. The power pack is of HDI patented design. The power pack is contained within the gauge case, and it contributes to the intrinsically safe integrity of the system. The battery life is guaranteed for one year.

The following are options available upon request: 4-20mA output signal, 0-1V output signal, and custom logo with volume orders.

The system is composed of a sensing device housed in a 316 stainless steel figure 2” 1502 male sub. It includes a 50’ cable with an end connector, and a 2” 1502 wingnut. Other mating configurations are available, call for details.

CSA/ UL certified. The gauge is designed for a Class 1 Division 1 area rating, and intrinsic safety. ATEX/Cenelec certifications for Zone 1 are pending.
Model 9900 Digital Choke
Control Console

This low cost system includes HDI electronic instruments, which allow precise process monitoring in critical well control applications. Independent of rig power, the instrument systems are powered by HDI patented batteries.

The power pack system includes the choke controls, and choke control components: hydraulic, air, speed controls, and all components necessary for proper/safe operation of the choke and kill manifold. This portion of the system is designed to work with any, customer defined, choke configuration.

The console is of stainless steel construction, and meets API requirements.

The system is configured to include the following instrumentation: Model HDI 2400B, HDI 2200B, and HDI 2100B. Please refer to the respective specification sheets for additional information.

Certifications for this system are available upon request.

For a fully electronic/electric or a hybrid version of this console, refer to the Model HDI V9000 on pages 14 and 15.
Model 2400 Pressure Gauge System

The Model 2400 pressure gauge is a fully featured, programmable pressure gauge system. Readings are displayed in both digital and analog formats. A programmable, and a basic, or non-programmable version of the system are available. The programmable system allows for user settings on bargraph ranges, engineering units (Kg/Cm2, BAR, KPA, PSI), and high/low alarms.

The system is self-powered. The power pack is of HDI patented design. The power pack is contained within the gauge case, and it contributes to the intrinsically safe integrity of the system. The battery life is guaranteed for one year.

The following are options available upon request: programmable option, 4-20mA output signal, 0-1Volt recorder output signal, external power (not certified), backlights (not certified), and 4-20mA input signal (not certified.)

The system is composed of a sensing device housed in a 316 stainless steel figure 2" 1502 male sub. It includes a 50' cable with an end connector, and a 2" 1502 wingnut. Other mating configurations are available, call for details.

CSA certifications are available on certain variants of this pressure gauge system. It is rated for Class 1 Division 1 areas, and it is intrinsically safe by design.
Model 2455/65 Cementing Pressure Gauge System

This pressure gauge system is based on the Model 2400. Readings are displayed in both digital and analog formats. The system is programmed for cementing applications by allowing the user to set a maximum pressure range for automatic pump shut down.

The system is self-powered. The power pack is of HDI patented design. The power pack is contained within the gauge case, and it contributes to the intrinsically safe integrity of the system. The battery life is guaranteed for one year.

The following are options available upon request: programmable option, 4-20mA output signal, 0-1Volt recorder output signal, external power (not certified), backlights (not certified), and 4-20mA input signal (not certified.)

The system is composed of a sensing device housed in a 316 stainless steel figure 2" 1502 male sub. It includes a 50' cable with an end connector, and a 2" 1502 wingnut. Other mating configurations are available, call for details.

CSA certifications are available on certain variants of this pressure gauge system. It is rated for Class 1 Division 1 areas, and it is intrinsically safe by design.
Model 3300 Temperature Gauge System

This temperature gauge system gauge is a fully featured, programmable temperature gauge system. Readings are displayed in both digital and analog formats. The system allows for user settings on bargraph range, and engineering units (degrees F or C.)

The system is self-powered. The power pack is of HDI patented design. It is contained within the gauge case, and it contributes to the intrinsically safe integrity of the system. The battery life is guaranteed for one year.

The following are options available upon request: programmable option, 4-20mA output signal, 0-1Volt recorder output signal, external power (not certified), backlights (not certified), and 4-20mA input signal (not certified.)

The system is composed of a sensing device housed in a 316 stainless steel figure 2" 1502 male sub. It includes a 50' cable with an end connector, and a 2" 1502 wingnut. Other mating configurations are available, call for details.

CSA certifications are available on certain variants of this temperature gauge system. It is rated for Class 1 Division 1 areas, and it is intrinsically safe by design.
Model 2100 Pump Strokes Counter

This pump strokes counter system is designed for use with two, three or four pumps.

The strokes per minute and total stroke readings, are displayed on two separate digital displays. The system is equipped with selection buttons for two or four pumps.

The system is self-powered. The power pack is of HDI patented design. The power pack is contained within the gauge case, and it contributes to the intrinsically safe integrity of the system. The battery life is guaranteed for one year.

The sensor is composed of a main cable length divided into two, three or four pump legs. Proximity switch assemblies, or optional microswitches, are attached to the cable legs, and are designed to be mounted at each pump. Various sizes of mounting brackets are available in stock. Please specify pump manufacturer and model when ordering this device.

CSA certifications are available on certain variants of this system. It is rated for Class 1 Division 1 areas, and it is intrinsically safe by design. ATEX/Cenelec certifications for Zone 1 are pending.
Model 2200 Choke Position Indicator

The choke position indicator accurately indicates the position of any industry standard choke (or valve.) Readings are displayed in digits, as well as in an analog bargraph format. Choke position is indicated on the bargraph in 1% increments from 0 to 100%.

The system is self-powered. The power pack is of HDI patented design. The power pack is contained within the gauge case, and it contributes to the intrinsically safe integrity of the system. The battery life is guaranteed for one year.

The following are options available upon request: 4-20mA output, 0-1Volt output, 4-20mA input (not certified), backlights (not certified.)

The customer must be specific as to the choke manufacturer. Extension cables for this system are available upon request.

CSA certifications are available on certain variants of this system. It is rated for Class 1 Division 1 areas, and it is intrinsically safe by design. ATEX/Cenelec certifications for Zone 1 are pending.
Model 2050A Pressure Transmitter

From our Heritage - on oilfield drilling floors worldwide - is a new line of 4-20mA pressure transmitters designed for E & P, Pipeline, Petrochemical, Water/ Wastewater, and generic Process Control applications.

The Model 2050A is built to withstand harsh atmospheres including corrosive environments and submersion to 100 feet. The O-Ring free design simplifies the transmitter and ensures reliability. It is capable of handling any pressure range and any common process connection, with base configuration options of: 316 Stainless Steel, Inconel and Titanium, call for specific information.

The transmitter is designed to simplify field installations by removing confusing switches and settings from the transmitter. It includes factory calibrated compensation circuitry built into the unit.

The Model 2050A is designed as a universal pressure monitor for control networks in almost any area up to and including Class 1 Division 1 applications. FM certifications are pending for EEx type applications.
Model 9000 Digital Choke Control Console

This fully featured system includes HDI electronic instruments, which allow precise process monitoring in critical well control applications. Independent of rig power, the instrument systems are powered by HDI patented batteries.

The power pack system includes the choke controls, and choke control components: hydraulic, air, speed controls, and all components necessary for proper/safe operation of the choke and kill manifold. This portion of the system is designed to work with any, customer defined, choke configuration.

The console is of stainless steel construction, fully enclosed with front access door, removable side panels and removable face cover with safety latches. Includes an accessible brass manifold for hydraulic connections, stainless steel tubing (vs. hoses), and high quality valves and fittings.

The system is configured to include the following instrumentation: Model HDI 2400, HDI 2200, and HDI 2100. Please refer to the respective specification sheets for additional information.

Certifications for this system are available upon request.

For a fully electronic/electric, or a hybrid version of this console, refer to the Model HDI V9000 on pages 14 and 15.
Model V9000 Virtual Choke Control Console

This system is based on industrial grade computing equipment. It provides precise process monitoring in critical well control applications. The system can be configured to include one, two or more standard or custom consoles depending on the customer’s needs. Electric joy stick controls at the driller’s cabin can integrate remotely with a HDI 9000 Choke Control Console and hydraulic controls on the rig floor. Design flexibility is offered to accommodate parameters other than those found on standard panels: i.e. valve controls, monitoring of temperatures, riser and buffer pressures, etc.

The DAQ is designed to decode inputs from various sensors. The information is then displayed on dual TFT flat panel displays. The DAQ system is capable of multiple inputs and outputs, and external communication is performed via Ethernet TCP/IP.

The software and hardware are designed to measure, calculate, transmit and display the standard parameters of standpipe pressure, casing pressure, choke position, stroke counts, and rig air/hydraulic pressures. The software is customized to meet the needs of the customer, and may incorporate many other parameters such as:

a) gauges for temperature, buffer pressure, riser pressure, degasser pressure, etc.
b) alarms
c) scaleable bargraphs/gauges
d) multiple screens
e) digital/analog readouts
f) touch selection
Controls may be provided in electric, hydraulic format or both. The console may contain hydraulic and air components for choke operation, or they may be provided on a separate panel.

When a backup control system is used, it houses electronic instrumentation for parameter monitoring purposes, hydraulic, air, speed controls, and all components necessary for proper/safe operation of the choke and kill manifold. A way of isolating this system's controls will be provided unless otherwise specified by the customer. The system is configured to include the following instrumentation: Model HDI 2400, HDI 2200, and HDI 2100. Please refer to the respective specification sheets for additional information. Additional backup instrumentation is available to be mounted directly at the manifold. Certifications for this system are obtained upon request. The system is built to meet API requirements.
SPECIALIZED CHOKE MONITORING:
HOUSTON DIGITAL INSTRUMENTS, INC. the world leader in advanced drilling choke control systems announces the industries latest advancement in choke monitoring systems, the HDI V9200. The V9200 is specifically engineered for the monitoring of high pressure/high temperature choke applications. Already deployed in the field, this system has proven to be a low cost solution for previously unattainable standards in well monitoring. The V9200 is a PC based system that replaces hydraulic measurement instruments. Non-linear hydraulic systems indicate higher pressures that are actually present under extreme temperatures (V=nrT). These inaccuracies can become critical in HP/HT drilling applications. The V9200 overcomes these barriers.

16K PSI and 400° F:
The V9200 is capable of accurately measuring mud and gas temperatures up to 400° F under pressures up to 16K PSI. A variant of this system is planned to measure up to 20K PSI. Single point sensor devices measure both pressure and temperature minimizing the installation and service time for the system.

MONITORS CHOKE, BUFFER, BOP AND DEGASSER:
The V9200 monitors all chokes (upstream and downstream), BOP fluid, as well as Degasser liquid seal and gas temperature and pressures. A single 15.1” TFT touch screen monitor is used to display the data. Data display takes the form of analog (dial type) gauges as well as digital readouts. This field proven display technique, a hallmark of HDI virtual technology has been successfully applied to choke control systems on many world class semi submersible and jack-up-rigs world round.

SYSTEM FEATURES:
Trending, user definable alarm set points and data logging are all built into the V9200. The easy to use system is adjusted via touch screen or mouse. HDI is very familiar with the rigors of oil field operation and has designed this system for use by busy rig operators that do not have time to consult the manual when this critical safety system is required.

CERTIFICATIONS:
All field sensors associated with this system are classified for use in Class1-Division 1 and Zone 1 areas. The monitoring console is certified for Class 1-Division 2 (Special Acceptance). The entire system is CSA certified.

SYSTEM OPTIONS:
- The V9200 interfaces to other data acquisition systems via a variety of standards including: Profibus, Ethernet, Modbus, RS-485, etc.
- Visual/Audible alarms may be added
- 4-20 mA outputs available

PHYSICAL SPECIFICATIONS MONITOR:
Weight: Approximately 30 Lbs.
Size: 20”x 24”x 11”
Screen Size: 15.1” TFT Day Light Viewable - color
## Instrumentation Systems and Panels Overview

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