

MDI MICROCONTROLLERS FOR RECIPROCATING COMPRESSORS /w ENGINE OR MOTOR DRIVES

DESCRIPTION

MDi's controller for Reciprocating compressors is a simple shutdown panel that incorporates many unique features developed over 20 years of experience. Simple design and very flexible configuration allows the same controller to be setup for different skids avoiding having custom panels to be built for different applications. Single board microprocessor based electronics allows for achieving maximum throughput and reducing maintenance costs. Micro-Design controllers are designed specifically with this in mind. They incorporate all of the unique features required, but never available, to the **O E M** or **Compressor Packager**.

Micro-Design has developed this new standard for reciprocating compressor control by combining the power of the **NP 60**-microprocessor board, which includes more than **96 I/O points** on a single board. The software is very comprehensive and allows the user to configure the controller to fit most applications by simply setting the set points and other start/stop sequence parameters thus giving the end user the ability to customize the compressor program to fit any particular needs without having to "Send for a new chip from the factory".

The standard NP-60 recip. compressor controller comes with a preloaded program. This program includes the ability to address all set points, and to activate or deactivate each point, as they relate to your particular application. The standard preloaded software can be configured to operate motor drives or engine drives. The program includes the ability to operate as a simple shutdown panel or perform complete start/stop/run sequences where automatic operation can be achieved based on external control parameters.



FM Approved for Class 1, Div. 2, and grps C & D. Available with or without the pedestal support



The **NP-60's** will keep you running even if minor system upsets occur which can easily knock out the controller on false alarms. Automatic Start/Stop can be controlled either by Suction Pressure or remotely by other equipment such as Plunger Lift controls, SCADA Systems, etc. Governor control and Air-Fuel Ratio are optional features that can be easily added to the system.

All controllers include easy-to-read **digital** displays. The display continually scrolls to show user selected screens. This feature allows quick and simple viewing of all conditions and set points. Set point changes are easy to enter via the front keypad. Set point security can be set as required. The panel also includes throttle control, and operating switches such as start, stop, reset, manual, auto, test, etc.

The Single board solution reduces controller failures due to vibration and minimizes maintenance costs and number spare parts.



MICRO-DESIGN INC.

972- 488- 8725

sales@micro-design.com

10210 Monroe Dr. or P.O. Box 59449
DALLAS, TEXAS 75229

[www. Micro-design.com](http://www.Micro-design.com)

SPECIFICATIONS FOR *NP 60* MICROCONTROLLERS

GENERAL SPECIFICATIONS

Analog Inputs – Pressure

Inlet Suction pressure
1st, 2nd, 3rd Interstage pressures
Discharge pressure
Compressor oil pressure
Compressor oil filter pressure differential
Engine oil pressure

Analog Inputs – Temperature

Suction Gas Temperature
1st, 2nd and 3rd Interstage temperatures
Compressor oil temperature
Engine oil temperature
Engine jacket water temperature

Analog Inputs – Other

Ambient Temperature
Flow Rate
Vibration
Gas leak level % LEL
Oxygen Sensor (O₂)

Digital Inputs

Scrubber High Level
Engine oil level
Compressor oil level
Vibration
Engine Speed sensor (Pulses)
User Defined as required (12 available)

Digital (Control) Outputs

Fuel Valve energize
Ignition Grounded or ungrounded (as req.)
Motor Start Relay
Engine Starter solenoid
Engine Throttle
Alarm Shutdowns
Emergency Shutdown
User Defined as required (8 available)
Fans, pumps, motors, vent valves, lights, etc.



An MDI NP 60 on a gas lift screw package

Operators Panel

Large LCD Display 2 line X 20
With scrolling screens
Membrane Keypad, for Data entry
Rpm speed controller
Operating switches
Gauge Panels (Optional)

Power

12 to 32 VDC, 120/220 VAC
Solar powered/ battery option
Sensors 0 to 5 or 4 to 20 mA

Communication Capabilities

Telephone modem
Modbus /SCADA interface
Cellular phone interface
MDI CellCon System
GPS

Enclosure

Nema 4 steel, painted
Std. Dimensions 24 x 24 x 10
Pedestal Base 36 x 24 x 10



MICRO-DESIGN INC.

972- 488- 8725
sales@micro-design.com
10210 Monroe Dr. or P.O. Box 59449
DALLAS, TEXAS 75229
[www. Micro-design.com](http://www.Micro-design.com)

WIRELESS REMOTE MONITORING

CellCon enables you to monitor and control your valuable remote company assets. Using Cellular Control Channel Technology or Low Orbit Satellite communications, this system gives you **TWO-WAY ACCESS** to remote terminal units. The user can log on to a customized and secure Internet Web Site and determine operating conditions, alarm status, and can also shutdown or reset the machine. The remote unit, upon initial power up will automatically connect to the MDi Data Center and establish communications. The user has the ability to customize the details of each unit such as Input/output descriptions, alarm trigger levels, e-mails lists, voice mails, pagers, PDA's, cell phone messaging, etc.



The **CellCon** system transmits analog and digital signals including run time and alarm conditions. In addition, GPS can be added to these remote units to determine exact location of the equipment. Detailed, scalable maps of the equipment location are available on the Internet for the user's convenience. The CellCon system is completely integrated and does not require the end user to "sign-up" for any local services such phone lines, cellular, etc. The system automatically operates anywhere in the US, Mexico, most of Canada, US Virgin Islands and Puerto Rico.



Data Center

- Secured, customized Internet web site for customer
- 365 x 24 completely automated service with offsite Backup System Management
- Administrator level access capable of the following:
 - Create new users with multiple access levels – view only, edit contact/unit properties, etc.
 - Setup level reporting e-mail lists, pagers, automated daily level reports, etc.
 - Incorporate Asset Management services directly with RTU data



MICRO-DESIGN INC.

972- 488- 8725

sales@micro-design.com

10210 Monroe Dr. or P.O. Box 59449

DALLAS, TEXAS 75229

[www. Micro-design.com](http://www.Micro-design.com)

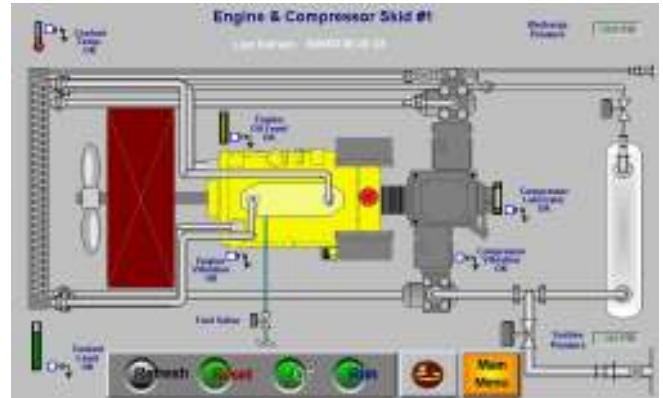
MICROPROCESSOR CONTROLS FOR SCREW COMPRESSORS PROCESS SYSTEMS REMOTE MONITORING AND CONTROL STAND ALONE OR REMOTE WIRELESS COMMUNICATIONS

The NP-60-microprocessor package is the ideal controller for industrial engine driven or electric drive screw compressor packages. This package has been utilized in many different applications that require accurate and dependable control in the harshest conditions.

With the availability of MDI custom programming and the ability to easily configure the micro to accept several types of analog inputs and the large onboard base of active digital input and output points, the NP- 60 controller can quickly become “**What You Need It To Be...**”

The standard NP-60 controller configuration has been used in the **CNG industry** as compressor and priority/sequential controls for high volume fueling operations. Additionally, it has been used in the “**oil patch**” for control of engine driven High pressure Reciprocating compressors, in the **food processing industry** for sequencing control of cooking operations and as remote terminals in many **Plant SCADA Systems**. The controller has also been applied in the Water and Waste Water Industry for communicating and controlling Remote Pump Stations/Lift Stations. It has been interfaced to cellular modems, Spread Spectrum Radios, CDPD, TDMA modems and many other data transfer technologies.

New applications that use the controller include low voltage and solar powered units that include both **GPS and MDI CellCon** communications. These units can, not only report location but also communicate bi-directionally reporting multiple analog and digital conditions. This unit can start/stop or reset a unit **anywhere** a cellular signal is available. All of this new ability is very reliable and cost effective.



Features

- **MODBUS Protocol for SCADA Interface**
- **Cost Effective RTU vs. PLC's**
- **Customization with simple programming Languages**
- **Compact Design**
- **Wireless Remote Terminals**
- **Hardened for the industrial environment**
- **Comes complete, all points are pre-wired**
- **Sensors for a complete system available**
- **Programming available for custom units**
-

Applications

**CNG PRIORITY CONTROLLERS
RECIP. COMPRESSOR CONTROLLER
RTU'S FOR SCADA SYSTEMS
WATER TREATMENT CONTROLLERS
FOOD PROCESSING CONTROLLERS
REMOTE WIRELESS SOLAR POWERED**



REPRESENTATIVE / DISTRIBUTOR