ADC SERIES
Analog to Digital Converters

The ADC Series connects up to eight 4–20 mA loop-powered analog sensors, or up to eight separately powered 4–20 mA output sensors, or up to four of each. This will produce a digital signal representing 0–100% of each sensor output. It is the perfect solution for photovoltaic power production system monitoring. The ADC converter allows for individually-ranged devices to interface with the industry-standard **Modbus RTU** serial protocol. The device can accept analog signals from current, voltage or temperature sensors, allowing the installer great versatility and higher accuracy. It was designed and built to meet the standards of reliability and easy of use that NK Technologies is know for.

Applications

Photovoltaic Power Production
- Measure current output accuratley using a sensor sized appropriately.
- Measure current from a panel and after the combiner with the same device.
- Measure voltage output, temperature, or any parameter sensor 4–20 mA output.
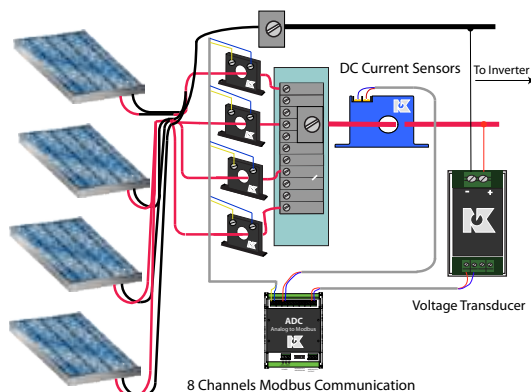
Machine Control
- Combine several analog signals into a single Modbus address to enable web viewing of data.

SCADA System
- Report and record current, voltage, power, pressure, frequency and flow by using existing sensors but adding network communication easily.

Analog Sensor to Digital Network Conversion

8 Channels Modbus Communication

Test & Evaluation Units
For OEMs
Free program expedites evaluation process.
See page 1 for details.

Features

Eight Points of Data
- Convert up to eight 4–20 mA sensor outputs using a single network address.
- Sensor loop power is supplied by the converter: No DC power supply is required.
- Models for 8 loop powered (2-wire) and 8 externally powered (4-wire) or 4 of each type.

Fast and Easy Installation
- DIN rail mounted converter with finger-safe terminals clearly marked for field installation speed.

Application Versatility
- Convert any standard sensor output to **Modbus RTU** digital network format.

Choice of Power Supplies
- ADC converter can be factory set for 120 VAC, 240 VAC or 24 VDC power supplies.
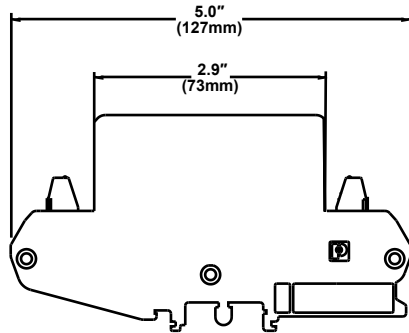
Communication Baud Rate Choices
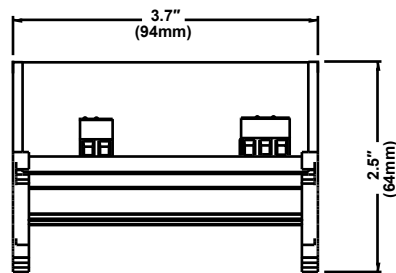- Field selectable 9600 or 19200 baud rate speeds.

Use any 4–20 mA output sensor as an input to the NK Technologies ADC analog-to-Modbus converter: Current, voltage, temperature, or any parameter that the application calls for. With the digital Modus output scaled for zero (4 mA) to 100 percent (20 mA) the signal will represent whatever you may need to measure.
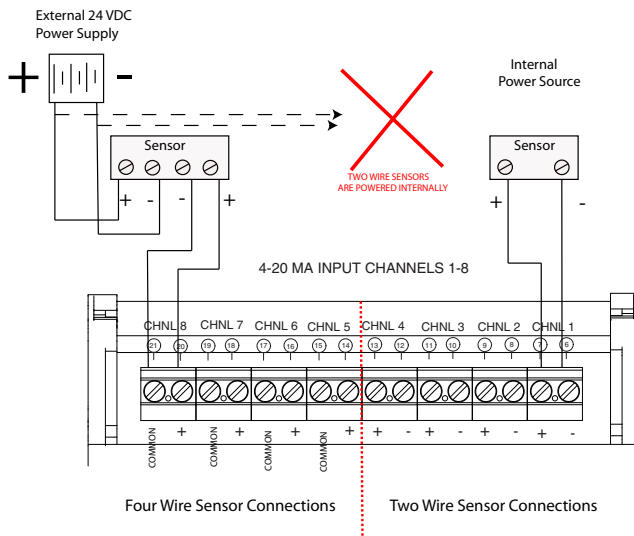
NK Technologies

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MADE IN USA

Signal Converters

Dimensions

Side View

5.0"
(127mm)

2.9"
(73mm)

End View

3.7"
(94mm)

2.5"
(64mm)

Connections

External 24 VDC
Power Supply

+ –

Sensor

+ – – +

Internal
Power Source

Sensor

+ –

TWO WIRE SENSORS
ARE POWERED INTERNALLY

4-20 MA INPUT CHANNELS 1-8

CHNL 8   CHNL 7   CHNL 6   CHNL 5   CHNL 4   CHNL 3   CHNL 2   CHNL 1

(21) (20) (19) (18) (17) (16) (15) (14) (13) (12) (11) (10) (9) (8) (7) (6)

COMMON +   COMMON +   COMMON +   COMMON +   + – + – + – + –

Four Wire Sensor Connections   Two Wire Sensor Connections

Wiring Notes for Installation:

1. Connect sensors to input channel teminals 6–21.
2. Set Modbus network address 1–247.
3. Connect 120 VAC power (240 VAC optional).

Specifications

Power Supply	120 VAC 50–60 Hz, 240 VAC optional
Output	**Modbus RTU** Slave 8 Channels (RS485)
Output Protocol	1 start bit, 8 data bits (LSB first), 1 bit for even parity, 1 stop bit
Output Functions	Function 04, "Read Input Registers"
Input Range(s)	4–20 mA (Power from Converter)
Accuracy	±1% FS
Indication	Green Power On LED, Yellow Busy LED, Red Fault LED
Addressing	8 wide binary switch (1 to 247)
Output Range	0–120% (4 mA = 0, 20 mA = 100%)
Dimensions	3.7"H x 5.0"W x 2.0"D (94 mmH x 127 mmW x 51 mmD)
Weight	9.6 ounces (270 grams)
Case	DIN rail mounting, UL94 V0 Flammability Rated
Environmental	-4 to 122°F (-20 to 50°C), 0–95% RH non-condensing
Listings	UL508 Industrial Control Equipment (USA & Canada pending)

Ordering Information

Sample Model Number: ADC1-420-120-MOD-DIN
Eight-channel 4–20 mA input converter, 120 VAC powered

(1)   (2)   (3)   (4)   (5)

ADC ☐ – 4 2 0 – 1 2 0 – M O D – D I N

(1) Input channels

1	Eight 4–20 mA loop-powered input channels
2	Four loop-powered, four external powered (4-wire)
3	Eight external-powered inputs

(2) Sensor Input Type

420	4–20 mA inputs

(3) Power Supply

120	120 VAC
240	240 VAC
024	24 VDC

(4) Output Type

MOD	Modbus RTU

(5) Housing Style

DIN	DIN rail mounting

Signal Converters

MADE IN USA

FIVE YEAR 5 WARRANTY

RoHS COMPLIANT 2002/95/EC