Current consumption for power supplied via RTU560 backplane	
5 VDC	75 mA
24 VDC	---

Signaling by LEDs	
ERR (red)	Common fault information for the module

Mechanical layout	
Dimensions	160 mm × 100 mm, 3HE euro card format 4R (20 mm) front panel
Housing type	Printed circuit board
Mounting	for mounting in RTU560 racks
Weight	0.3 kg

Connection type	
RTU560 backplane	48 pole type F DIN 41612 connector

Immunity test	
Electrostatic discharge IEC 61000-4-2	8 kV air / 6 kV contact (level 3) Performance criteria A
Electrical fast transient / Burst IEC 61000-4-4	2 kV (level 3) Performance criteria A
Surge IEC 61000-4-5	2 kV (level 3) Performance criteria A

Environmental conditions - climatic	
Operating temperature EN 60068-2-14	-25 °C - 70 °C
Start up EN 60068-2-1	-40 °C
Max. operating temperature, max. 96h EN 60068-2-2	+85 °C
Relative humidity EN 60068-2-30	5 - 95 % (non condensing)

Ordering information
560AIR01 R0001

Khorasan Science Technology Park

taliehshargh@msgroup.ir

www.taliehshargh.ir

051-37677068-9

TALIEH SHARGH
Electrical Equipment Manufacturing

Analog Input

Catalog RTU560

Application

The 560AIR01 is a module within the RTU560 product line, capable of recording up to eight analog measurements. The 560AIR01 module can process the following types of signals:

- Analog measured values (AMI)
- Measured floating point information (MFI)

The module allows the configuration of the following measurement ranges:

- ±2 mA
- ±5 mA
- ±10 mA
- ±20 mA
- ±40 mA
- ±2 VDC
- ±20 VDC

Other input ranges and live zero values are generated from these values by conversion on the communication unit (CMU).

Characteristics

Analog inputs

Basic signal checks and cyclic processing are performed locally on the 560AIR01 module to minimize the load on the communication unit. Relevant changes are transmitted as events via the RTU I/O bus.

The module features eight differential inputs that are galvanically isolated from the power supply. Both single-ended and differential input values are digitized with up to 4096 steps (12-bit plus sign) for full-scale measurement.

The high resolution of the internal A/D converter ensures consistent accuracy across all measurement ranges.

An additional measurement channel is dedicated to automatic zero calibration, compensating for long-term drift of the components.

The measurement range and line frequency can be easily configured using the RTUtil500 configuration tool. Synchronizing the scan cycle with the line frequency helps reduce interference from AC line signals in the DC input measurement.

Frequency time	Conversion time per channel	Scan cycle (same for all channels)
60 Hz	54 ms	486 ms
50 Hz	54 ms	486 ms
16.7 Hz	155 ms	1395 ms

Power supply input

The module receives its power directly from the RTU560 backplane, providing a reliable and uninterrupted energy supply without the need for any external connections.

I/O controller (IOC)

The 560AIR01 module provides parameterized processing functions and manages interactive communication with the I/O bus. All configuration data and processing parameters are loaded through the RTU560 I/O bus via the communication unit. A serial interface to the RTU560 I/O bus on the backplane ensures reliable and efficient data exchange.

The analog input unit performs the following processing functions on measured values:

- Scan cycle and line frequency interference suppression
- Zero value supervision and switching detection Smoothing
- Threshold monitoring based on absolute values or with accumulation
- Periodic transmission and background scanning

The module includes a data buffer capable of temporarily storing up to 50 event messages, each with a timestamp. Events are stored chronologically and prepared for transmission to the Communication Unit (CMU).

During initialization and operation, the module executes a series of self-tests. Any detected faults are reported to the CMU. All fault conditions affecting the module's functionality are indicated by a common fault signal via a red LED. Failures of connected modules are also detected and signaled through the CMU.

Technical Data

In addition to the general technical specifications of the RTU500 series, the following conditions apply:

Analog input channels 560AIR01

Inputs	8 differential inputs
Configurable measuring Range	• ±2 mA • ±5 mA • ±10 mA • ±20 mA • ±40 mA • ±2 VDC • ±20 VDC
Input impedance	150Ω @ ±2 mA and 5 mA 50Ω @ ±10 to ±40 mA 10 KΩ @ ±2 and ±20 VDC
Max. load to	80 mA continuous @ ±10 and ±40 mA 40 mA continuous @ ±2 and ±5 mA 38 V/ 0.5 mA @ ±2 and ±20 VDC
Resolution	12 bit + sign 11 bit + sign @ ±2 VDC
AD converter resolution	16 bit
Accuracy at 25 °C	≤ 0.25 % ≤ 0.2 % @ ±2 VDC
Linearity error at 25 °C	≤ 0.1 %
Temperature drift	≤ 100 ppm/K (0 - 70 °C)
Max. common mode input voltage	±150 VDC (electrical limit) ±8 VDC (functional limit)
Max. differential input voltage	±4 VDC (current input) ±38 VDC (voltage input)
Common mode rejection	> 70 dB @ 25 °C > 60 dB @ 0 - 25 °C
Configurable line frequency f_N	• 16.7 Hz • 50 Hz • 60 Hz
Line frequency interference suppression	> 100 dB @ f_N ±2 % > 45 dB @ f_N ±10 %