

... the far end of Ethernet

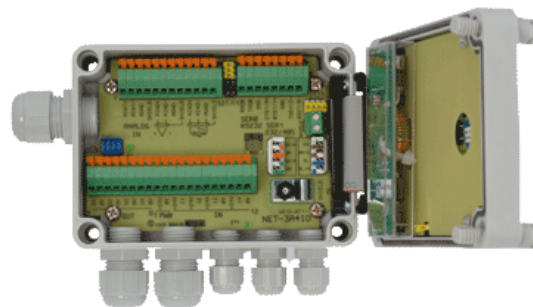
- Digital in- and outputs at the Ethernet in IP65-box
- Two serial interfaces, see details about hardware und software at ETH-A7-2SER
- 3 high-precision analog inputs for:
 - Pt100 temperature sensors or
 - thermocouples type J or K or
 - 0/4..20mA current
- accuracy at the example Pt100:
 - Resolution ras score 0,02 Ohm/Bit \approx 0,05°C
 - Resolution in Express-I/O: 0,1°C
 - Nonlinearity < 0,1°C
 - Amplification failure @25°C < 0,05%
 - Offset failure @25°C < 0,15°C
 - Amplification drift < 25ppm/°C
 - cable failure offset < 0,03°C/Ohm
- Digital inputs:
 - 4 opto-decoupled inputs 24V
- Overcharge-protected digital outputs:
 - 4 High-side (P-switching) outputs 1A@24V
 - 200µs switching-speed
- nodeAccess for direct I/O-access from Windows® PCs
- mCAT-Server-Pages (mSP) opens I/O-functions for the webbrowser
- Express-I/O access for local tasks, e.g. for socket interfaces
- All terminals over cage clamps
- Separate +24V/ground terminals for external units
- Insulating plate prevents trackcontact
- Accesses are marked on the insulating plate - clamps are blank for your own inscription
- Optionally remote control with PoE - therewith isolated interfaces

ethernode® ETH-A7-3A4IO is a full featured control unit at the Ethernet. It offers three high-precision analog inputs for PT100, thermocouples or 4..20mA process current, in addition 4 digital inputs and 4 P-switching 24V outputs, two serial interfaces and optionally an LCD.

This page centers on the special I/Os of the ETH-A7x-3A4IO. The basics are described on the [ethernode main page](#) or on the [LCD-versions start page](#). The details of the serial interfaces of every version is described at [ETH-A7x-2SER](#).

It is hard enough to get a Pt100 reasonably accurate into the Ethernet, but this small box does more: The precision of the 3 analog inputs is sufficient for real measuring, the internal buffered memory allows data logging and in the display version (A7L) you can even show a rough x/t or bar graph. Even more: With the digital outputs stand-alone two-step controls can be implemented, the beeper acoustically signals excess temperatures while an e-mail over the server activates an SMS. You also could assign data to a code read from a bar-code-reader on the RS232 line or read some scales over RS485. The 3A4IO gets fed either from the external 24V power supply or - with the [PoE option](#) - through the Ethernet cable from the PoE switch.

ETH-A7L-3A4IO is indeed usable for nearly everything and it can - if necessary - be extended over the I2C bus e.g. with [ETH-4I4RHV](#). This data logging controller with integrated terminal is as well suitable for a small machine, a cold store or a



Order codes:



ETH-A7-3A4IO 349.- € *

Standard-ethernode A7 with 1x RS232, 1x RS232/485, 3 analog inputs switchable between Pt100 RTD or thermocouple (as a group), 4 digital inputs 24V, 4 protected 24V/1A power outputs.



ETH-A7-3A4IO<I 349.- € *

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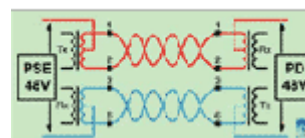
ETH-A7L-3A4IO 419.- € *

ethernode A7L with graphic LCD and membrane keyboard. I/O: 1x RS232, 1x RS232/485, 3 analog inputs switchable between Pt100 RTD or thermocouple (as a group), 4 digital inputs 24V, 4 protected 24V/1A power outputs.



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PoE 39.- € *
option

PoE remote control option (Power-over-Ethernet) for ethernode. Produces isolated voltages 5V and 24V of the 48V voltage provided from the PoE switch. Order codes with PoE: ETH-A7-3A4IO<POE, ETH-A7L-3A4IO<POE, ETH-A7-3A4IO<IPOE, or ETH-A7L-3A4IO<IPOE respectively.

flight of locks connected through WLAN while measuring the pH-value of the nearby fishpond. We are curious to hear what you are going to control with it!

* all prices ex works (+VAT/MwSt inside Germany)

ETH-A7x-3A4IO has got 3 analog inputs, 4 digital 24V-optocoupler-outputs and 4 p-switching 24V outputs. The digital I/Os are described more in detail at the ETH-A7-4IO, which is a partial assembly of the 3A4IO. The strengths of the analog inputs are well-founded in the 16-Bit-Delta-Sigma-ADCs: Δ - Σ -ADCs have got an intrinsic input filtering that is very important in a harsh industrial environment. So it is usually not necessary to calculate the average of several measurements in order to compensate troubles. 3A4IO is easy programmable in C thanks to it's all around support from mCAT, but also over web-interface many activities are already possible.

Local programming

If e.g. an analyser or a scale have to be get their raw data preprocessed such that possibly several users can work on them in parallel, you have to use local programming on ethernode. In comparison to other Ethernet-to-RS232 converters ethernode[®] performs here very well because the mCAT firmware offers comfortable support for such a small unit: Over the 3 separate webservers you can display e.g. the current values and statistic data for the general public while you can control the unit's functions over the input fields and buttons on a protected port. The live data access to inputs or your user task's variables is easily set up by introducing "mSP - mCAT Server Pages" tags into standard HTML pages (see [Webserver](#)).

Software

For addressing the serial interfaces please see [ETH-A7x-2SER](#). The inputs and relays are similarly multifaceted addressable:

If you wish a stand-alone function of ETH-A7-3A4IO, you have to program your [application task in C](#) and to load it with the aid of the mCAT monitor SYSMON at first into the RAM and later on into the flash on the ethernode-A7-CPU. Process in- and outputs of mCat are available with convenient I/O functions with `in(...)` and `out(...)` macros, the so-called Express-I/O. If you want to communicate with other tasks, send and receive messages e.g. of SerDrv for serial periphery. The Ethernet communication usually runs over the [Socket-Interface](#).

You can access all in- and outputs that are supported by Express-I/O directly from a Windows[®] PC over our [nodeAccess™-DLL](#). Therefore no programming on ethernode is required, but though you do not achieve an autonomous functionality in case of a breakdown of the Ethernet

The access to ETH-A7-4I4R over its [Web-Interface](#) is very universal. You can design one or more pages with your favourite HTML editor and interlace mSP instructions into these pages. mSP are "mCAT-Server-Pages" instructions that are replaced at the access time by a browser of the mCat webserver by for example the current state value of a digital input. For the relays you have to define buttons or check boxes wherewith the over mSP linked output is switched.

The 4I4R versions of ethernode[®] and ethernode[®]LCD respectively can get remote powered by the IEEE802.3af [Power-over-Ethernet technologie](#) of course, too. Therefore you only need the corresponding mains adapter.