

GE Consumer & Industrial
Electrical Distribution

AF-600 FP™ OPCAIO Analog I/O Option Module



a product of
ecomagination



1 Analog I/O Option OPCAIO

1.1 Introduction

1.1.1 OPCAIO Analog I/O Option Module

The analog I/O card is supposed to be used in the following cases:

- Providing battery back-up of clock function on control card
- As general extension of analog I/O selection available on control card
- Turning the adjustable frequency drive into a de-central I/O block supporting a Building Management System with inputs for sensors and outputs for operating dampers and valve servos
- Support extended PID controllers with I/Os for setpoint inputs, transmitter/sensor inputs and outputs for switches.

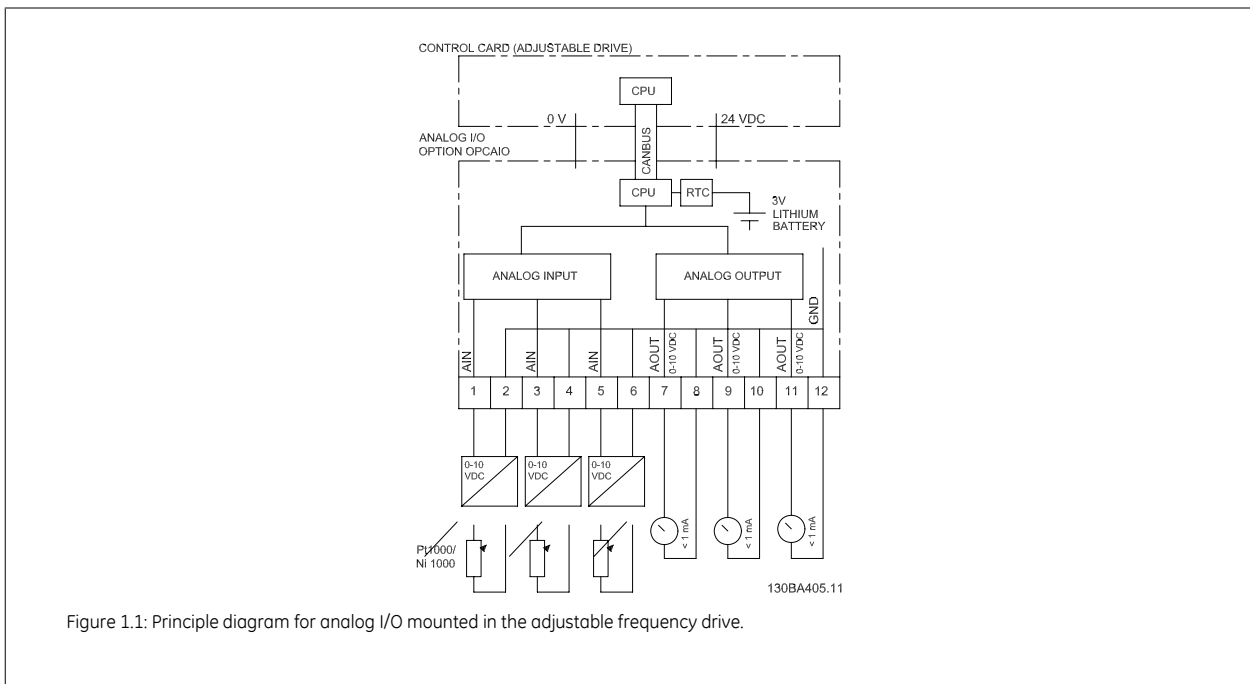


Figure 1.1: Principle diagram for analog I/O mounted in the adjustable frequency drive.

Analog I/O configuration

3 × analog inputs, capable of handling following:

- 0–10 VDC

OR

- 0–20 mA (voltage input 0–10 V) by mounting a 510Ω resistor across terminals (see NB!)
- 4–20 mA (voltage input 2–10 V) by mounting a 510Ω resistor across terminals (see NB)
- Ni1000 temperature sensor of 1000 Ω at 0° C. Specifications according to DIN43760
- Pt1000 temperature sensor of 1000 Ω at 32°F [°C]. Specifications according to IEC 60751

3 × analog outputs supplying 0–10 V DC.

NOTE!

Please note the values available within the different standard groups of resistors:

E12: Closest standard value is 470Ω, creating an input of 449.9Ω and 8.997 V.

E24: Closest standard value is 510Ω, creating an input of 486.4Ω and 9.728 V.

E48: Closest standard value is 511Ω, creating an input of 487.3Ω and 9.746 V.

E96: Closest standard value is 523Ω, creating an input of 498.2Ω and 9.964 V.

**Analog inputs - terminal X42/1-6**

Parameter group for readout: LG-3#. See also *AF-600 FP Programming Guide*.

Parameter groups for set-up: AO-##, AO-1#, AO-2# and AO-3#. See also *AF-600 FP Programming Guide*.

3 x analog inputs	Operating range	Resolution	Accuracy	Sampling	Max load	Impedance
Used as temperature sensor input	-58°--+302°F [-50°-+150°C]	11 bits	-58°F [-50°C] ±1 Kelvin 302°F [+150°C] ±2 Kelvin	3 Hz	-	-
Used as voltage input	0-10 VDC	10 bits	0.2% of full scale at cal. temperature	2.4 Hz	+/- 20 V continuously	Approximately 5 kΩ

When used for voltage, analog inputs are scalable by parameters for each input.

When used for temperature sensor, analog inputs scaling is preset to necessary signal level for specified temperature span.

When analog inputs are used for temperature sensors, it is possible to read out feedback value in both °C and °F.

When operating with temperature sensors, the maximum cable length to connect sensors is 262 ft [80 m] with non-shielded/non-twisted wires.

Analog outputs - terminal X42/7-12

Parameter group for readout and write: LG-3#. See also *AF-600 FP Programming Guide*

Parameter groups for set-up: AO-4#, AO-5# and AO-6#. See also *AF-600 FP Programming Guide*

3 x analog outputs	Output signal level	Resolution	Linearity	Max load
Volt	0-10 VDC	11 bits	1% of full scale	1 mA

Analog outputs are scalable by parameters for each output.

The function assigned is selectable via a parameter and has the same options as for analog outputs on the control card.

For a more detailed description of parameters, please refer to the *AF-600 FP Programming Guide*.

Real-time clock (RTC) with back-up

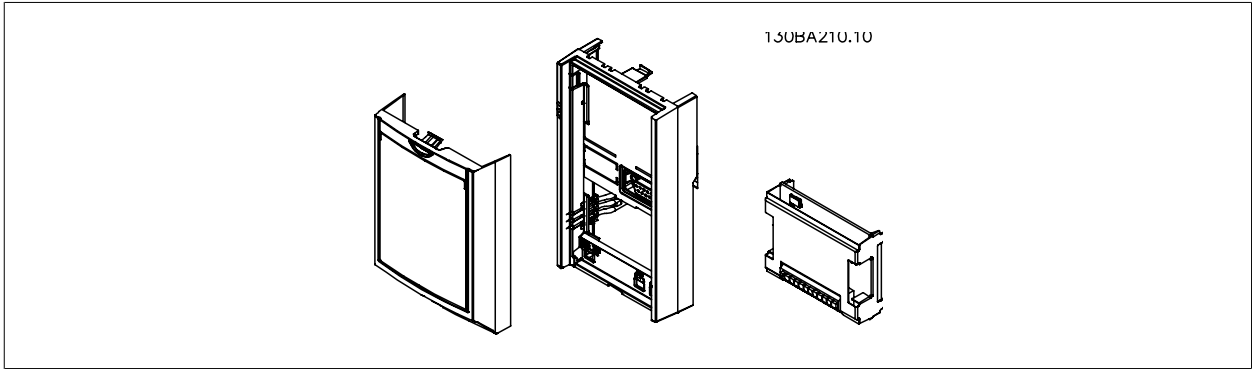
The data format of RTC includes year, month, date, hour, minutes and weekday.

Accuracy of clock is better than ± 20 ppm at 77°F [25°C].

The built-in lithium back-up battery lasts on average of 0 years, when adjustable frequency drive is operating at 104°F [40°C] ambient temperature. If the battery back-up pack fails, the analog I/O option must be replaced.



1.1.2 Product Number - OPCAIO



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1.2 Mounting Guidelines

1.2.1 Mounting Option Modules in Slot B

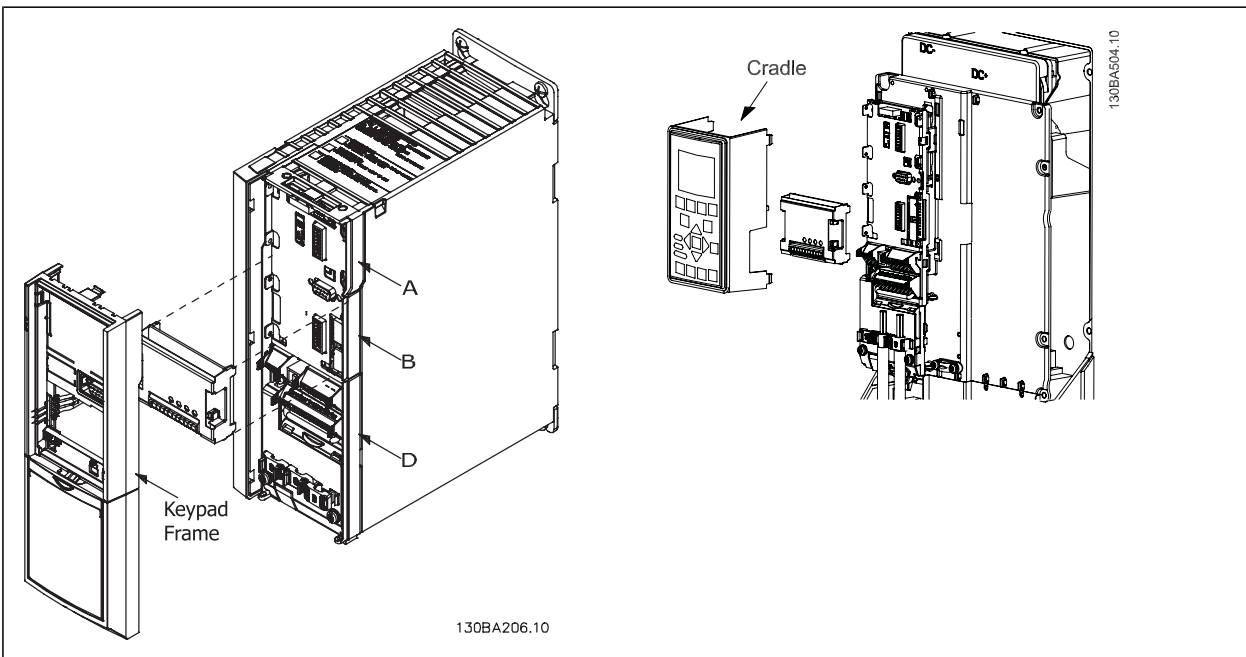
The power to the adjustable frequency drive must be disconnected.

For Unit Sizes 12, 13 and 23:

- Remove the Keypad, the terminal cover, and the Keypad frame from the adjustable frequency drive.
- Fit the OPCGPIO option card into slot B.
- Connect the control cables and fasten the cables with the enclosed cable strips.
Remove the knock-out in the extended Keypad frame delivered in the option set so that the option will fit under the extended Keypad frame.
- Fit the extended Keypad frame and terminal cover.
- Fit the Keypad or blind cover in the extended Keypad frame.
- Connect power to the adjustable frequency drive.
- Set up the input/output functions in the corresponding parameters, as mentioned in this document.

For Unit Sizes 15, 21, 22, 24, 31, 32, 33, 34, 4X, 5X and 6X:

- Remove the Keypad and the Keypad cradle
- Fit the OPCGPIO option card into slot B
- Connect the control cables and relieve the cable by the enclosed cable strips.
- Fit the cradle.
- Fit the Keypad



Unit Sizes 12, 13 and 23

Unit Sizes 15, 21, 22, 24, 31, 32, 33, 34, 4X, 5X and 6X

The instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to the GE company.

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