MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Amikon cover with ABB catalogue and upgrade reference pages; not an installation manual

APC / DCV 700 / 3ASD573001A5

YPQ110A

EXTENDED REMOTE INPUT OUTPUT BOARD

OFFICIAL SOURCES

Original ABB DCV 700 catalogue pages and DOCPDCDCYPQ01 Rev B upgrade note retained unchanged. Historical service terms are not an Amikon quotation.

ABB DC Drives

DCV 700 thyristor panels

for 6-/ and 12-pulse DC drive systems
in Drive-MNS-cabinets
22 to 5150/10300 A
10 to 4900/9400 kW

Catalogue



I/O Connections

The I/O connections of the DCV 700 are in the Application Controller (APC) and in the Digital Drive Controller (DDC).

The Application Controller APC includes:
- 4 digital inputs
- 2 digital outputs
- 2 analogue inputs
- 1 voltage reference output

The I/O connections in the Drive Controller DDC are used for safety and other drive specific functions like emergency stop and motor temperature measurement:
- 3 digital inputs
- 4 digital outputs
- 5 analogue inputs
- 2 analogue outputs
- 1 pulse encoder input
- 1 emergency stop input
- 1 emergency stop output
- 1 current source
- 1 voltage reference output
- 1 actual armature current output

Optional I/O boards are available to provide tailored solutions for the most demanding applications.

The quantity of I/Os can be increased by using extended I/O board and speed measurement board.

Extended / Remote I/O Board YPQ110A
Connection to the APC can either be through parallel bus (extended) or through low speed serial bus (remote).
- 8 digital inputs
- 8 digital outputs
- 4 analogue inputs
- 2 analogue outputs
- 3 voltage reference outputs

Speed Measurement Board YPH107A
The board can be used for accurate speed and position measurement. Connection to the APC is through the parallel bus. For positioning there is a 32 bit hardware counter.
- 1 digital input for synchronisation
- 1 pulse encoder input
- 2 analogue outputs

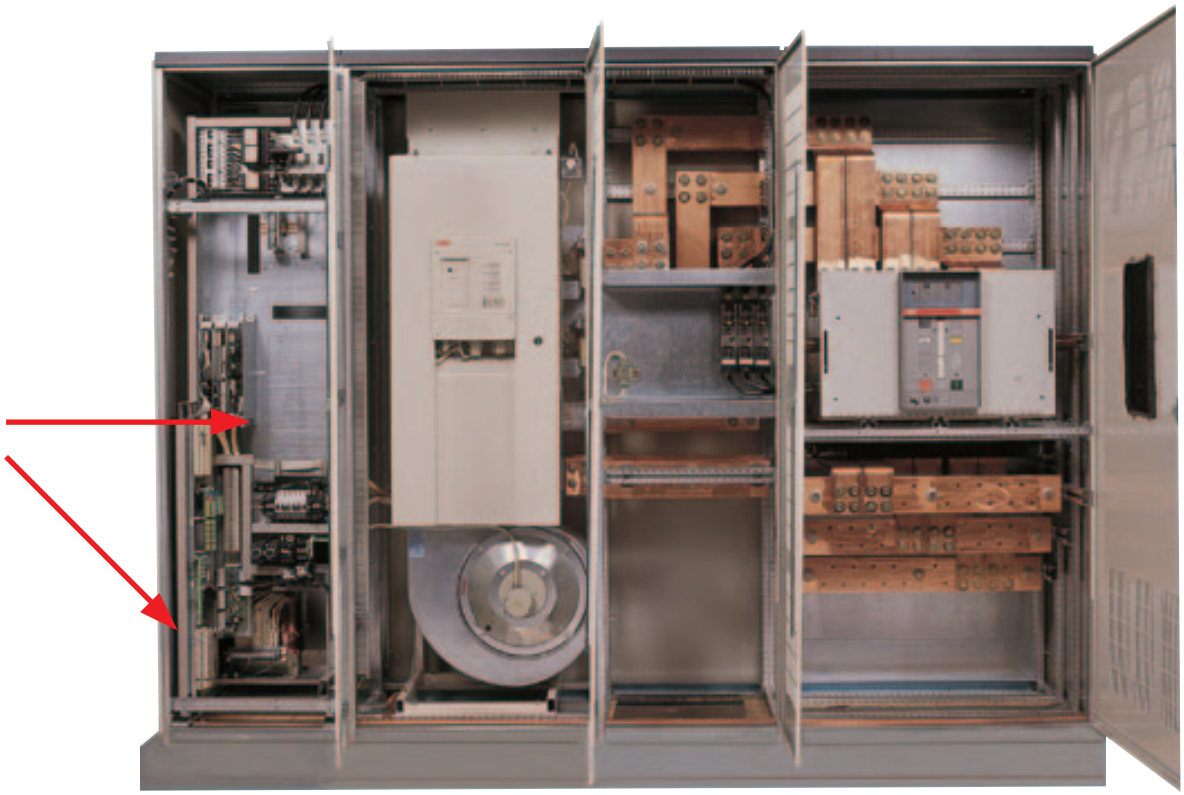

Figure 4. The 5150 A DC converter with air circuit breaker.

Technical Data

Optional I/O Connections

Extended/Remote I/O board YPQ110A

8 digital inputs	Opto isolated inputs, control voltage 110 VAC/ 24 VDC. Hardware delay 2 ms. Digital filter time constants from 0.5 ms to 128 ms in 0.5 ms steps. Input impedance 3 kΩ for 24 VDC and 13 kΩ for 110 VAC.
8 digital outputs	6 relay outputs, normally open contacts. Max. voltage 230 VAC, max. current 2 A at 230 VAC, min. switching time 20 ms. 2 opto isolated transistor outputs. Max. voltage 60 V DC, max. current 100 mA, min. switching time 100 µs.
4 analogue inputs	Differential inputs, resolution 12 bits+sign. Input ranges -10 to +10 V or -20 to +20 mA (0 to +10 V, 0 to +1 V and 0/4 to 20 mA by software scaling), input impedance is 400 kΩ. Accuracy ± 0.1 % at ± 10 V and ± 0.4 % at ± 1 V. Hardware filter time constant 5 ms. Digital filter time constants from 5 ms to 32 s in 1 ms steps.
2 analogue outputs	Output voltage -10 to +10 V, output current -10 to +10 mA. Resolution 12 bits+sign, accuracy ± 0.1 %.
3 voltage reference outputs	+10 V voltage reference, accuracy ± 1 mV. Max. load current 10 mA. -10 V voltage reference, accuracy ± 5 mV. Max. load current 10 mA. 5 mA current reference, accuracy ± 0.05 mA. Max. load resistance 1 kΩ.

Extended, connection through parallel bus: max. 4 boards.
Remote, connection through low speed serial bus: max. 8 nodes.

Speed measurement board YPH107A

1 digital input for synchronisation	Control voltage 24 V AC/DC or 110 V AC/DC. Input impedance 3 kΩ at 24 V and 13 kΩ at 110 V. Hardware delay 1 ms or 10 ms, software adjustable.
1 pulse encoder input	3 opto isolated channels (A, B and Z), differential or single ended tachometers. ± 13 mA current input or ± 24 V voltage input. Max. input frequency 300 kHz.
2 analogue outputs	Output voltage ± 10 V, output current ± 10 mA. Resolution 12 bits, accuracy ± 1 %.

Connection through parallel bus.

The technical data and dimensions are valid at the time of printing. We reserve the right to subsequent alterations.



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YPQ110A board upgrade with YPQ111A board

The extended I/O board YPQ111A as YPQ110A is mounted next to the application controller YPP110A or next to another I/O board. In the case of local I/O it is connected to the I/O bus with a 64-pole ribbon cable at X1, and it is powered from the I/O bus. The same APC application program can be used as with YPQ110A board.

A time-out time can be set by software. When the I/O board has not been updated with new data within the time-out time the outputs are reset. This is not implemented in the local I/O function elements but can be used with remote I/O.

The watchdog function is used in the board. The micro controller in the YPQ111A has to refresh the watchdog once every 100 ms. The watchdog time out period is 1.6 seconds immediately after reset. If the watchdog goes off, all the binary and analog outputs are inactivated and the red LED indicator will turn on and the micro controller is reset.

YPQ111A always needs a connection board YPT111A for connecting the field instruments.

Benefits to upgrade YPQ110A to YPQ111A:

- YPQ111A board contains more channels than YPQ110A:
  - 16 binary inputs
  - 8 binary outputs
  - 8 analog inputs
  - 4 analog outputs
- Time out setting by software
- Watchdog function

1. UPGRADE PROVIDES

- YPQ111A EXTENSION I/O BOARD (code 61248285 in Parts OnLine)
- YPT111A TERMINAL BLOCK BOARD (code 61205055 in Parts OnLine)
- Assembly of the boards and the cabling work

2. UPGRADE DOES NOT PROVIDE

- Repair work and spare parts for repair, which will be charged according to the valid price list
- Assistance
- Waiting time caused by the customer or his actions

3. LIABILITIES OF THE PARTIES

The supplier is responsible for the defined preparation for and performance of the upgrade, and any reporting during the time agreed. When necessary, the customer is responsible for implementing actions identified in the service report. The customer is responsible for providing all available information of the system. The customer is responsible for providing assistance. The supplier must also have free access to the system for the upgrade during the shutdown as agreed, and the upgrading must be planned well in advance in order to reserve resources and service parts needed. In addition, it has to be possible to operate the system under its normal conditions.

4. OTHER TERMS AND CONDITIONS

The General Conditions of Orgalime SE 01 are applied for all deliveries and installations.

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Specifications subject to change without notice.