

for the board is supplied by the bus. Power consumption is 7 VA (0.3 A at 24 VDC).

The board has one incremental encoder input with three optoisolated pulse channels (A, B and Z) for differential or single ended tachometers. Either current or voltage input can be used. Connector X4 is used for current input and connector X5 for voltage input.

Max. input frequency set by hardware is 100 kHz. Sample rate also limits the input frequency,

$$f_{\max} = 2^{15} / t_s \quad (t_s \text{ is the sample time})$$

Connector X3 is used for galvanically isolated synchronisation input.

Connector X9 is for two non-isolated analog outputs.

External Connections	Function
Digital synchronisation input 1 pc	Control voltage 24 V AC/DC or 110 V AC/DC. Input impedance 3 k Ω at 24 V and 13 k Ω at 110 V. Hardware delay 1ms or 10 ms, software adjustable.
Incremental encoder input 1 pc	3 optoisolated channels (A, B and Z), differential or single-ended tachometers. +/-13 mA current input or +/-24 V voltage input. Max. input frequency 300 kHz.
Analog outputs 2 pc	Output voltage +/-10 V, output current +/-10 mA. Resolution 12 bits, accuracy $\pm 1\%$.

Different Types of Speed Measuring Board YPH 108B

YPH
108B/GP
and YPH
108B/SP
Types

There are two basic types of Speed Measuring Board YPH 108B: YPH 108B/GP and YPH 108B/SP.

The YPH108B/GP board provides two incremental encoder interfaces for speed and position measurement, two inputs for synchronization and two analog outputs.

The YPH108B/SP board provides the same features as the YPH108B/GP board and, in addition, it has 4 programmable 16-bit counters with load and hold registers, 4 digital inputs and 4 digital outputs. The counters and their registers can be configured in various ways to count external or internal pulses (i.e. length, angle, time, etc.) in applications where greater accuracy is needed.

The inputs of both boards can receive 5 V signals from single-ended pulse encoders as well as signals from differential pulse encoders. High frequency signals from single-ended encoders can, however,

suffer from timing delay if the pulse encoder cables are long and if the encoder has a low driving capacity. This is because the falling edges of the signals are not received separately. In such a case, use board types YPH 108B/GP/GPC and YPH 108B/SP/SPC, see below.

YPH
108B/GP/
GPC and
YPH
108B/SP/
SPC Types

There are also Speed Measuring Boards YPH 108B/GP/GPC and YPH 108B/SP/SPC which functionally correspond to types YPH 108B/GP and YPH 108B/SP, respectively, but which are equipped with capacitors.

The inputs of these boards can receive signals from both single - ended and differential pulse encoders with equal timing accuracy provided that the capacitor input is used for 12 V and 24 V single ended signals. Note the jumper settings. The capacitor input cannot, however, be used for 5 V single-ended signals.

**Speed Measuring
Board YPH108B/
GP/GPC**

Code: Incl. CDC board rack installation plate

3AFE 6115 6968 = YPH108B/GP

3AFE 6117 9372 = YPH108B/GPC

The Extended Speed Measuring Card is used to measure time and speed with up to two incremental encoders. The card is connected to the CDC system via the parallel back plane I/O connector. The card is powered with +24 VDC.

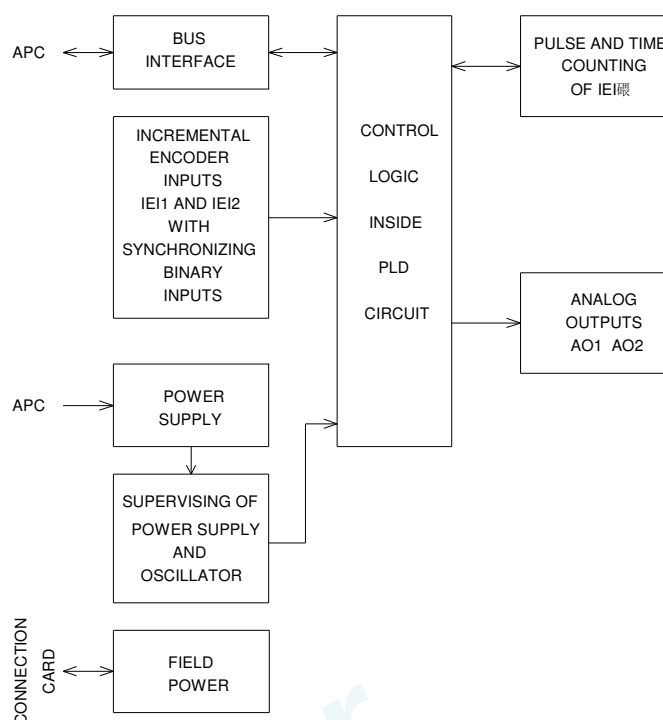


Figure 2 - 6 Block diagram of YPH 108B/GP.

Functional blocks:

- Interfaces for the 2 incremental encoders with 3 fast optochannels and a synchronizing binary input
- Pulse and time counter ASICs (IEI)
- PLD circuit for
 - control logic
 - status registers
 - configuration registers
- 2 analog outputs
- Crystal oscillator for the time base clock (32 Mhz).

Two incremental encoders can be connected to the card, each of them having 3 optoisolated fast input channels: CHA, CHB, CHZ and an optoisolated binary input for synchronizing.

The incremental encoder inputs can be connected to be either single-ended inputs or differential mode inputs. The input mode (encoder type) selection is made with the coding straps.

The incremental encoder input signals are filtered so that the maximum input frequency is 300 kHz.

There is software selectable filtering for the quadrature decoder inputs CHA and CHB to remove edge oscillation interferes.

Binary input signals for synchronizing have two software selectable filtering time constants 100 μ s and 5 ms.

External connections	Function
Binary synchronisation input 2 pc	Control voltage 24 VDC. Input voltage levels: Low max. 7,2 V high min. 16,2 V. Nominal input current 32 mA. Filtering time 100 μ s or 5 ms (software selectable).
Incremental encoder input 2 pc	3 optoisolated channels (A, B and Z), differential or single ended tachometers. Maximum input frequency 300 kHz. Nominal input voltage may be 24 VDC, 12 VDC or 5 VDC. Input voltage levels: Low max.9 V3,7 V0,7 V High min.16 V8,3 V3,4 V Incremental encoder power supply. Supply voltage 24 VDC (19 - 30 V), 12 VDC or 5 VDC. Maximum current 500 mA.
Analog outputs 2 pcs	Non isolated analog output channels. Output voltage +/-10 V, resolution 12 bits, accuracy $\pm$ 1 %.

Speed Measuring Board YPH 108B/ SP/SPC

Code: Incl. CDC board rack installation plate

3AFE 6115 6925 = YPH108B/SP

3AFE 6115 6917 = YPH108B/SPC

The Extended Speed Measuring Card is used to measure time and speed with up to two incremental encoders, binary inputs and hardware timing logic. The card is connected to the CDC system via the parallel back plane I/O connector. The card is powered with +24 VDC.