rhothor™ X7 I/O configuration: XY2-100
TECHNICAL DATASHEET

General description

The XY2-100 interface is used to send X and Y coordinates from the controller to the deflection system. It is a serial interface using 20-bit words, sent with a speed of 2 Mbit/s or 100 kwords/s. This document describes the IO-pin configuration, the signal description and the timing specifications.

Pin configuration

Pin	Name	Signal description	In/Out
1 / 14	IO1- / IO1+	SENDCK: Continuously running clock	Input
2 / 15	IO2- / IO2+	SYNC: Synchronises data transfer	Input
3 / 16	IO3- / IO3+	CHANNELX: Data to X axis	Input
4 / 17	IO4- / IO4+	CHANNELY: Data to Y axis	Input
5 / 18	IO5- / IO5+		
6 / 19	IO6- / IO6+	STATUS: Defines head status	Output
7 / 20	IO7- / IO7+		
13	REF_IO	Reference I/O, connect with GND of controller board.	

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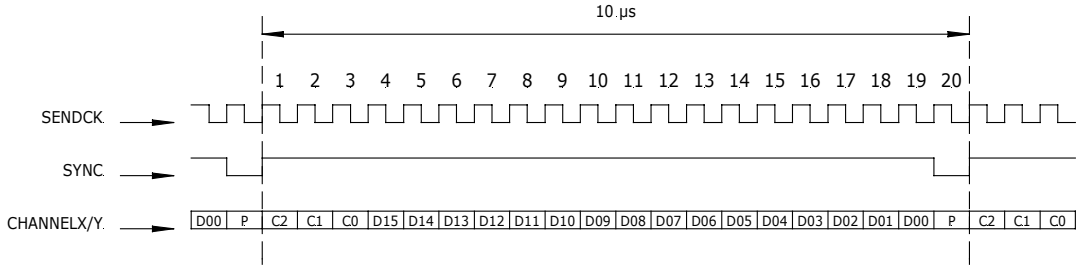
Signal description



- **DATA (CHANNELX, CHANNELY)**

  The data of each axis consist of 20-bit words. The first 3 bits are used as a control word (C2-C0). The next 16 bits are data information (D15-D0, offset binary) and the last bit is a parity bit (P, even parity).

C2	C1	C0	data information
0	0	1	motor setpoint value

- **SYNC**

  The transfer of data is synchronised using a synchronisation signal. The SYNC bit goes high when the first bit can be sent. It remains high for 19 bits and goes low when the parity can be sent.

- **SENDCK**

  The clock signal runs at a frequency of 2 MHz. When it goes high, the data bit changes. When it goes low, the data bit is sampled by the deflection system.

- **STATUS**

  The status bit is sent by the deflection system, it is not synchronised with the SENDCK input.

  The STATUS bit is '0' when:
  - the X axis position < maximum position error and
  - the Y axis position < maximum position error and
  - the effective rotor X current < warning level and
  - the effective rotor Y current < warning level and
  - the digital regulator runs.

  The STATUS bit is '1' when at least one of these conditions is false.

Timing specifications

- **Clock to data timing**

Description	Name	Min	Typ	Max	Units
data-in setup time	t_{DS}	50			ns
data-in hold time	t_{DH}	100			ns