



# rhohor™ 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.

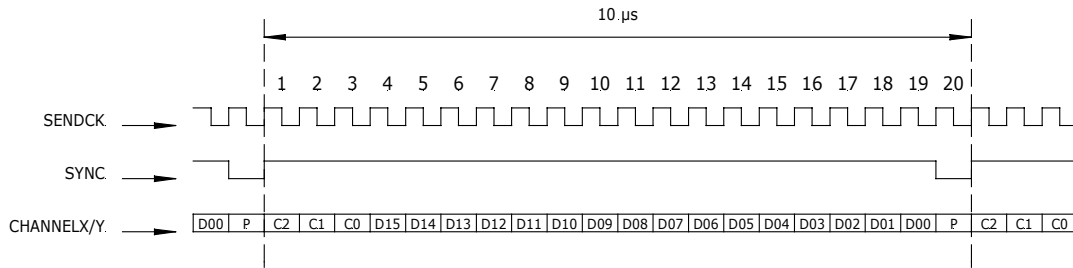
## Pin configuration

| Pin    | Name        | Signal description                                   | In/Out |
|--------|-------------|--|--------|
| 1 / 14 | I01- / I01+ | SENDCK: Continuously running clock                   | Input  |
| 2 / 15 | I02- / I02+ | SYNC: Synchronises data transfer                     | Input  |
| 3 / 16 | I03- / I03+ | CHANNELX: Data to X axis                             | Input  |
| 4 / 17 | I04- / I04+ | CHANNELY: Data to Y axis                             | Input  |
| 5 / 18 | I05- / I05+ |  |        |
| 6 / 19 | I06- / I06+ | STATUS: Defines head status                          | Output |
| 7 / 20 | I07- / I07+ |  |        |
| 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 | tDS  | 50  |     |     | ns    |
| data-in hold time  | tDH  | 100 |     |     | ns    |