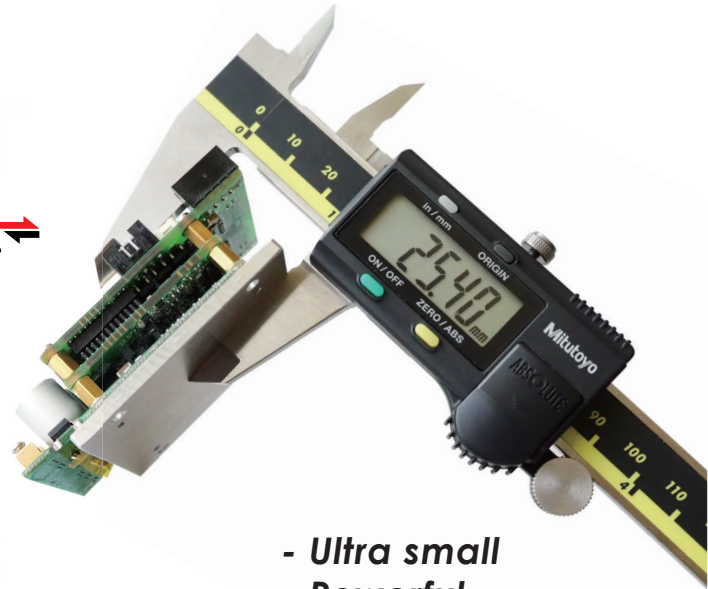
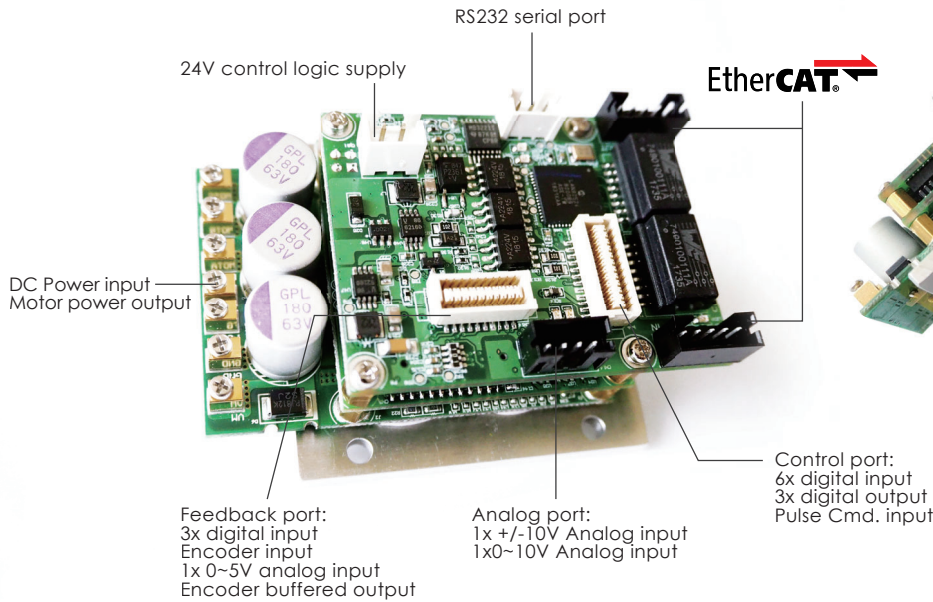


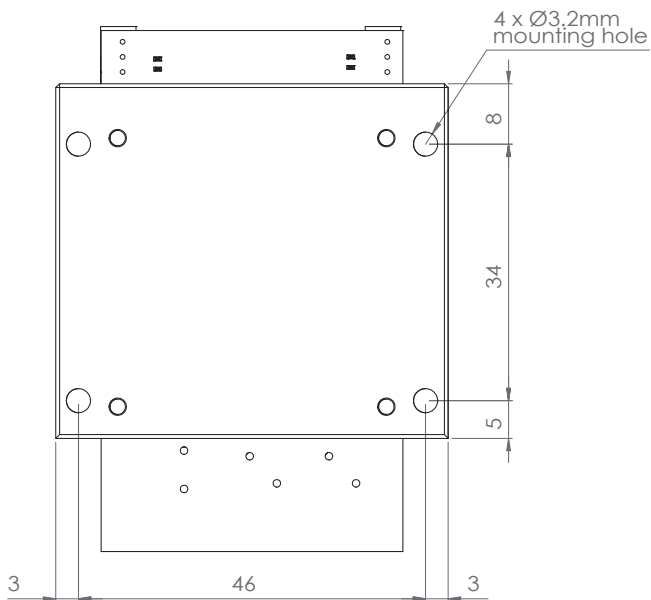
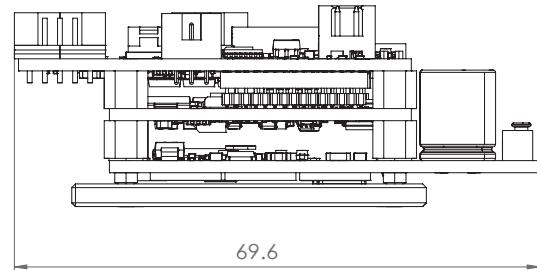
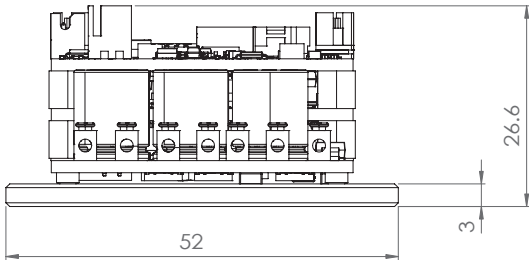
## Will1-D

### Product Overview



- Ultra small
- Powerful
- Customized

### Dimension



### Ordering Information

| Will1-  | D | 20 | 48 | S | A | E |
|---|---|----|----|---|---|---|
| Fieldbus type:<br><input type="checkbox"/> CANopen<br><input type="checkbox"/> EtherCAT               |   |    |    |   |   |   |
| Encoder type:<br>A: Incremental<br>B: BiSS-C, Tamagawa, EnDat 2.2, SSI<br>R: Resolver<br>S: Sin / cos |   |    |    |   |   |   |
| Case type:<br>S: Miniture connector board<br>L: Bookshelf style case<br>C: Core module only           |   |    |    |   |   |   |
| DC supply: 48VDC  |   |    |    |   |   |   |
| Continuous current (Amps): 1, 3, 6, 10, 20  |   |    |    |   |   |   |
| DC supply type  |   |    |    |   |   |   |
| Servo Driver  |   |    |    |   |   |   |

# Will

# SERIES

DC Servo Driver

## Specification

## Will1-D

| Model                              |                           | Will1-D/48 E   |  |     |     |      |
|------------------------------------|---------------------------|--|--|-----|-----|------|
| Input Power                        | Voltage (VDC)             | 48VDC  |  |     |     |      |
|                                    | DC Bus Peak Voltage (VDC) | 55VDC  |  |     |     |      |
|                                    | Power Rating (W)          | 48   | 144                                    | 288 | 480 | 960  |
| Control Logic Power                | Voltage Range (VDC)       | 12 VDC or 48 VDC   |  |     |     |      |
|                                    | Current (A)               | > 0.5  |  |     |     |      |
| Peak power output (W)              |                           | 96   | 288                                    | 876 | 960 | 1920 |
| Peak current output (A)            |                           | 2  | 6                                      | 12  | 20  | 40   |
| Cont. current output (A)           |                           | 1  | 3                                      | 6   | 10  | 20   |
| Fieldbus (DS402 V3.0)              |                           | EtherCAT   |  |     |     |      |
| DS402 Operation modes              |                           | PP, PV, PT, HM, CST, CSV, CSP  |  |     |     |      |
| Serial bus                         |                           | RS232  |  |     |     |      |
| Motor type                         |                           | Linear/Rotary PMSM   |  |     |     |      |
| Encoder Input                      | Digital                   | Type   | A/B Incremental (RS422 signaling)      |     |     |      |
|                                    |                           | Work Frequency   | Max. 20 Mega counts/s                  |     |     |      |
|                                    |                           | Count Range  | $\pm 2^{31}$ counts                    |     |     |      |
|                                    | Analog (sin / cos)        | Amplitude  | 1V <sub>P-P</sub>                      |     |     |      |
|                                    |                           | Work Frequency   | 100 kHz, 4096 Cnt/Period Interpolation |     |     |      |
|                                    | Absolute                  | Type   | BiSS-C, Tamagawa, EnDat 2.2, SSI       |     |     |      |
| Feedback position error mapping    |                           | Yes  |  |     |     |      |
| Current control                    | Loop Frequency            | 20 KHz   |  |     |     |      |
|                                    | PWM modulation            | SVPWM  |  |     |     |      |
|                                    | Command input             | Serial, Fieldbus, $\pm 10$ V Analog, internal software   |  |     |     |      |
| Velocity control                   | Loop Frequency            | 10 KHz   |  |     |     |      |
|                                    | Command input             | Serial, Fieldbus, $\pm 10$ V Analog, internal software   |  |     |     |      |
|                                    | Output filter             | x3 (Low-pass or Notch)   |  |     |     |      |
|                                    | Counter range             | -2, 147, 483, 648 to 2, 147, 483, 647 counts/second  |  |     |     |      |
| Position control                   | Loop Frequency            | 5 KHz  |  |     |     |      |
|                                    | Command input             | Pulse command (A/B, Step/Dir, CW/CCW), Serial, Fieldbus, $\pm 10$ V Analog, internal software  |  |     |     |      |
|                                    | Trajectory generator      | Trapezoidal with S-curve filter  |  |     |     |      |
|                                    | Counter range             | -2, 147, 483, 648 to 2, 147, 483, 647 counts   |  |     |     |      |
| Analog Input                       | Input type                | x1 ( $\pm 10$ V differential), x1 (10 V Single-end)  |  |     |     |      |
|                                    | ADC resolution            | 12 bit   |  |     |     |      |
| Pulse command frequency            | RS422                     | Max. 10 MHz  |  |     |     |      |
|                                    | 5V single-end             | Max. 1 MHz   |  |     |     |      |
| Total Digital Inputs               |                           | x6 (5~24 V)  |  |     |     |      |
| Total Digital Outputs              |                           | x3 (5~24 V, 100 mA)  |  |     |     |      |
| High speed Position compare output |                           | x1 (RS422)   |  |     |     |      |
| Autotuner                          |                           | Current/Velocity/Position loop gain, motor phasing setup, sin/cos encoder calibration  |  |     |     |      |
| Gain switch function               |                           | Yes  |  |     |     |      |
| Software protection                |                           | Dynamic brake, motor over-current, over/under-position, over-velocity, Virtual/physical position limit switch, missing hall signal, external fault trigger |  |     |     |      |
| Hardware protection                |                           | Drive over-temperature (analog), 5V output short circuit, motor over-temperature (analog)  |  |     |     |      |
| Dimensions (LxHxW)(mm)             |                           | 69.6 x 26.6 x 52   |  |     |     |      |
| Weight (g)                         |                           | 74 (excluding optional heatsink)   |  |     |     |      |
| Operating temperature              |                           | 10~40 °C   |  |     |     |      |

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