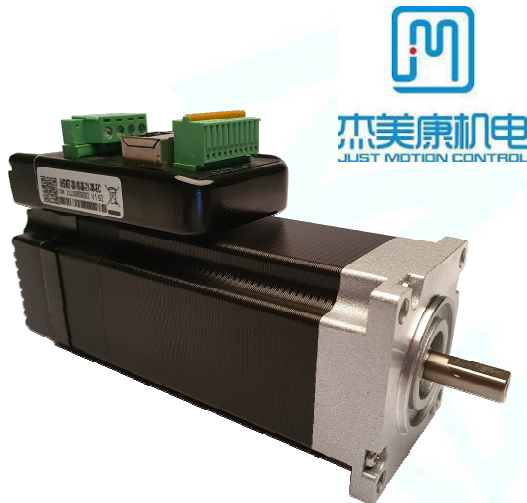


## iHSV57-XX-EC

Integrated AC Servo Motors  
with EtherCAT interface**1. Features:**

- High positioning accuracy
- High torque
- Cost-effective servomotor solution
- Smooth and very low noise
- Compact Size
- Support of the standard EtherCAT protocol
- Support of the standard CIA402 protocol
- Built-in acceleration and deceleration control to improve smoothness when starting and stopping
- Integrated CW, CCW and HW signal inputs (5 V ~ 24 V) for limit values and zero reference
- Alarm and In-position Output signal
- Built-in brake supply circuit
- RJ45 standard network connection, the slave stations can be connected via a twisted pair network cable
- High compatibility, can communicate with common brands of PLC controllers, such as: Beckhoff, Omron, Panasonic, Keyence, Inovance, etc.

**2. Description:**

The iHSV-XX-EC is an integrated EtherCAT AC servo motor. It uses the standard CoE communication protocol and has an integrated CIA402 motion control protocol for cycle synchronization position (CSP), cycle synchronization velocity (CSV) and cycle synchronization torque (CST), contour position (PP), contour velocity (PV), contour torque (PT) and homing mode (HM). The optimized PID control algorithm achieves complete digital control of position, speed and torque. Compared with the combination of conventional servo driver and servo motor, the cost is lower, the installation is more convenient, the vibration of the motor is greatly reduced, and the high-speed performance of the motor is improved. 3 digital signal inputs for reference, positive and negative limit, as well as sensor function and 2 digital signal outputs for in-position signal and alarm signal.

**3. Applications:**

The iHSV57-XX-EC can be used in various applications, such as laser cutting machines, laser markers, high-precision XY tables, labeling machines, CNC milling machines, etc. Due to their unique characteristics, the iHSV57-XX-EC are the ideal choice for applications that require smooth motor operation at low speeds, high torque even at higher speeds and small installation space.

**4. Naming Rules:**

|             |          |           |          |           |          |           |          |           |          |           |          |           |          |           |
|-------------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|
| <b>iHSV</b> | <b>-</b> | <b>57</b> | <b>-</b> | <b>30</b> | <b>-</b> | <b>10</b> | <b>-</b> | <b>36</b> | <b>-</b> | <b>XX</b> | <b>-</b> | <b>XX</b> | <b>-</b> | <b>EC</b> |
| 1           |          | 2         |          | 3         |          | 4         |          | 5         |          | 6         |          | 7         |          | 8         |

1. integrated servo motor
2. motor frame size: 57 mm
3. motor speed (unit: x 100 min<sup>-1</sup>) 10  $\triangleq$  1000 min<sup>-1</sup>, 20  $\triangleq$  2000 min<sup>-1</sup>, 30  $\triangleq$  3000 min<sup>-1</sup>
4. output power (unit: x 10 W) 14  $\triangleq$  140 W; 18  $\triangleq$  180 W
5. rated voltage: 24  $\triangleq$  24 V, 36  $\triangleq$  36 V, 48  $\triangleq$  48V
6. shaft length: no number = 33 mm, 30 = 30 mm, 21 = 21 mm
7. centering diameter: no number = 25.4 mm, 38 = 38.1 mm
8. control: EC  $\triangleq$  EtherCAT

## iHSV57-XX-EC

Integrated AC Servo Motors  
with EtherCAT interface

## 5. Electrical Specification:

| Parameter                                  | Min                                             | Typical | Max | Unit |
|--------------------------------------------|-------------------------------------------------|---------|-----|------|
| Input Voltage                              | 20                                              | 36      | 50  | VDC  |
| Communication Prot.                        | EtherCAT Protocol                               |         |     |      |
| Maximum Communication Distance             | 100                                             |         |     | m    |
| Maximum number of slave stations supported | 65535                                           |         |     |      |
| Protection                                 | I <sub>ft</sub> Integral limit load 300% 3 sec. |         |     |      |

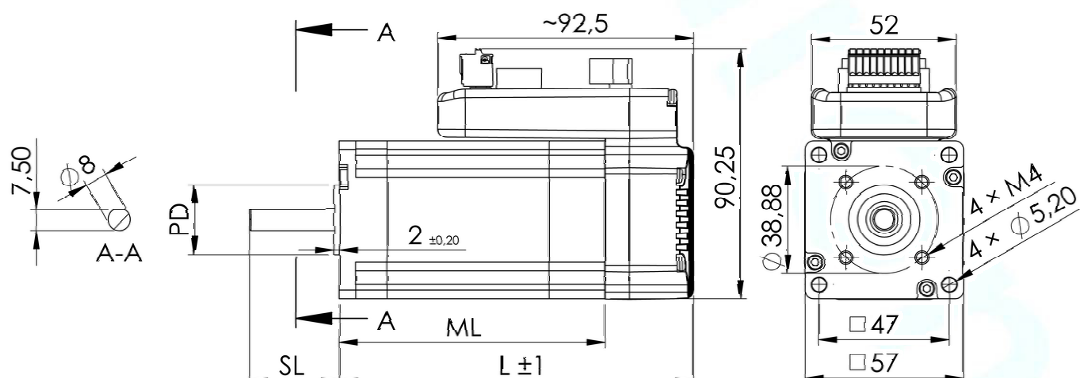
## 6. Motor Specification:

| Name:         | iHSV57-30-14-XX-EC | iHSV57-30-18-XX-EC |  | Unit              |
|---------------|--------------------|--------------------|--|-------------------|
| Rated Power   | 140                | 180                |  | W                 |
| Rated Torque  | 0.44               | 0.57               |  | N·m               |
| Rated RPM     | 3000               | 3000               |  | min <sup>-1</sup> |
| Maximum RPM   | 3000               | 3000               |  | min <sup>-1</sup> |
| Rated Voltage | 36                 | 36                 |  | V                 |
| Rated Current | 5.4                | 7.5                |  | A                 |
| Weight        | 1.3                | 1.6                |  | kg                |

## 7. Environment:

|                     |                           |                                     |
|---------------------|---------------------------|-------------------------------------|
| Cooling             | Natural or forced cooling |                                     |
| Working environment | Environment:              | Avoid oil, dust and corrosive gases |
|                     | Operating temperature     | 0°C — 70°C                          |
|                     | Humidity                  | 40 %RH — 90 %RH                     |
|                     | Temperature               | max. 70°C                           |
| Storage temperature | -20°C — 80°C              |                                     |

## 8. Mechanical Specification:



| Name:              | Motor Length ML | Total Length L | Shaft Length SL | Pilot Diameter PD |
|--------------------|-----------------|----------------|-----------------|-------------------|
| iHSV57-30-14-36-EC | 96 mm           | 128 mm         | 33 ± 0.5 mm     | 25,4 mm           |
| iHSV57-30-18-36-EC | 116 mm          | 148 mm         | 33 ± 0.5 mm     | 25,4 mm           |

## iHSV57-XX-EC

Integrated AC Servo Motors  
with EtherCAT interface

## 9. Connectors and Pin assignment

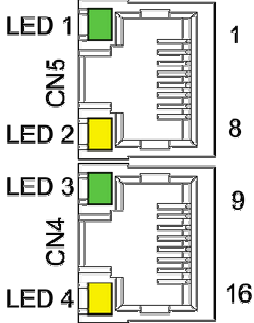
The iHSV57-XX-EC have 5 Connectors:

- one for the power supply
- one for control signals
- one micro USB (CN6) for RS232 communication
- two RJ45 connections (CN4, CN5) for EtherCAT communication.

| Power Supply Connector                                                                                                                                                                                                                                                                                                          |      |                                                                                                                                                                |                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| Pin                                                                                                                                                                                                                                                                                                                             | Name | Description                                                                                                                                                    |                           |
| 1                                                                                                                                                                                                                                                                                                                               | DC+  | Power supply 20 - 36 V DC is recommended in order to leave room for voltage fluctuations and reverse currents (back-EMF) during the deceleration of the motor. |                           |
| 2                                                                                                                                                                                                                                                                                                                               | GND  |                                                                                                                                                                |                           |
| 3                                                                                                                                                                                                                                                                                                                               | BK+  | Input voltage 24V for brake on models with SC in the type designation, not necessary for motors without brake.                                                 |                           |
| 4                                                                                                                                                                                                                                                                                                                               | BK-  |                                                                                                                                                                |                           |
| Control Signal Connector                                                                                                                                                                                                                                                                                                        |      |                                                                                                                                                                |                           |
| Pin                                                                                                                                                                                                                                                                                                                             | Name | I/O                                                                                                                                                            | Description               |
| 1                                                                                                                                                                                                                                                                                                                               | COM  | I                                                                                                                                                              | Public End                |
| 2                                                                                                                                                                                                                                                                                                                               | CW-  | I                                                                                                                                                              | Clockwise Limit -         |
| 3                                                                                                                                                                                                                                                                                                                               | HW+  | I                                                                                                                                                              | Mechanical Origin Limit + |
| 4                                                                                                                                                                                                                                                                                                                               | CCW+ | I                                                                                                                                                              | Counter clockwise Limit – |
| 5                                                                                                                                                                                                                                                                                                                               | DI3  | I                                                                                                                                                              | Sensor Input 1            |
| 6                                                                                                                                                                                                                                                                                                                               | DI4  | I                                                                                                                                                              | Sensor Input 2            |
| 7                                                                                                                                                                                                                                                                                                                               | DO0+ | O                                                                                                                                                              | Alarm Output              |
| 8                                                                                                                                                                                                                                                                                                                               | DO0- | O                                                                                                                                                              |                           |
| 9                                                                                                                                                                                                                                                                                                                               | DO1+ | O                                                                                                                                                              | In Position Output        |
| 10                                                                                                                                                                                                                                                                                                                              | DO1- | O                                                                                                                                                              |                           |
| RS232 Communication Connector – CN6                                                                                                                                                                                                                                                                                             |      |                                                                                                                                                                |                           |
| Pin                                                                                                                                                                                                                                                                                                                             | Name | Scheme                                                                                                                                                         |                           |
| 1                                                                                                                                                                                                                                                                                                                               | VCC  |  <div>3,3V<br/>TX<br/>RX<br/>NC<br/>GND</div>                               |                           |
| 2                                                                                                                                                                                                                                                                                                                               | TX   |                                                                                                                                                                |                           |
| 3                                                                                                                                                                                                                                                                                                                               | RX   |                                                                                                                                                                |                           |
| 4                                                                                                                                                                                                                                                                                                                               | NC   |                                                                                                                                                                |                           |
| 5                                                                                                                                                                                                                                                                                                                               | GND  |                                                                                                                                                                |                           |
| Currently, the RS232 communication interface for all JMC drivers is a micro USB interface, including a dedicated cable for the HISU handheld debugger and a dedicated cable for RS232 communication with the host computer. The figure above shows the interface definition of the driver's dedicated RS232 communication line. |      |                                                                                                                                                                |                           |

## iHSV57-XX-EC

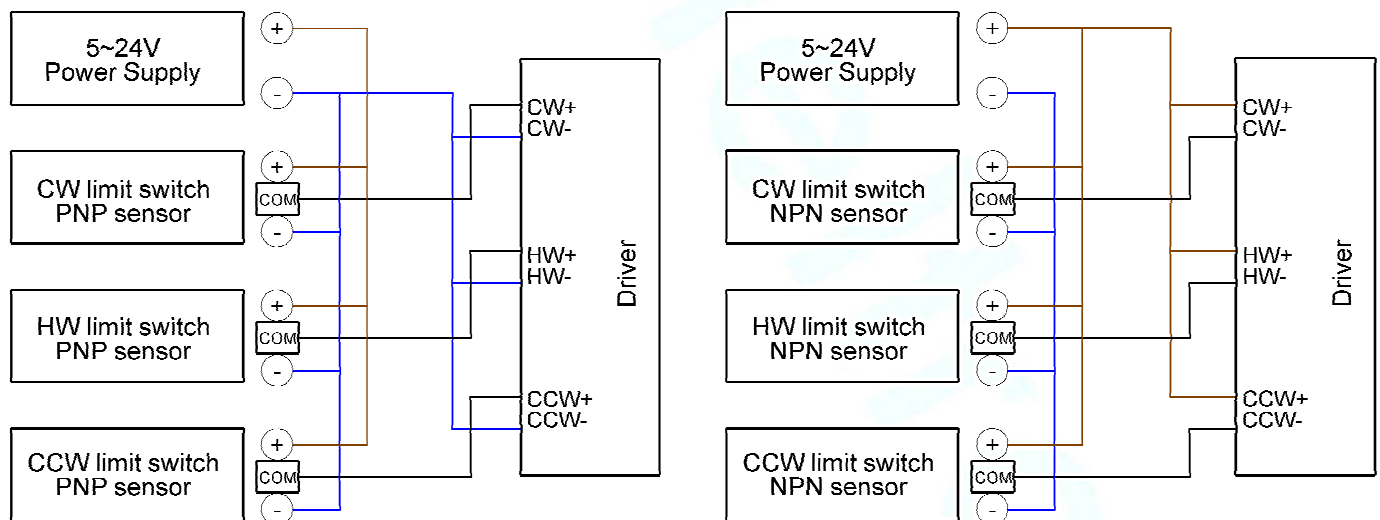
Integrated AC Servo Motors  
with EtherCAT interface

| EtherCAT Communication Connector – CN4, CN5 |                                                                                                                                                          |                                             |                                                                                     |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|-------------------------------------------------------------------------------------|
| Pins                                        | Name                                                                                                                                                     | Description                                 | Scheme                                                                              |
| 1, 9                                        | E_TX+                                                                                                                                                    | EtherCAT Positive data transmission contact |  |
| 2, 10                                       | E_TX-                                                                                                                                                    | EtherCAT Negative data transmission contact |                                                                                     |
| 3, 11                                       | E_RX+                                                                                                                                                    | EtherCAT Positive data receiving contact    |                                                                                     |
| 4, 12                                       | -                                                                                                                                                        | -                                           |                                                                                     |
| 5, 13                                       | -                                                                                                                                                        | -                                           |                                                                                     |
| 6, 14                                       | E_RX-                                                                                                                                                    | EtherCAT Negative data receiving contact    |                                                                                     |
| 7, 15                                       | -                                                                                                                                                        | -                                           |                                                                                     |
| 8, 16                                       | -                                                                                                                                                        | -                                           |                                                                                     |
| Housing                                     | Shielding                                                                                                                                                |                                             |                                                                                     |
| Note:                                       | LED 1, green, is on: „In operation“<br>LED 2, yellow, is on: „Data output“<br>LED 3, green, is on: „In operation“<br>LED 4, yellow, is on: „Data output“ |                                             |                                                                                     |

## 12. Fine Tuning

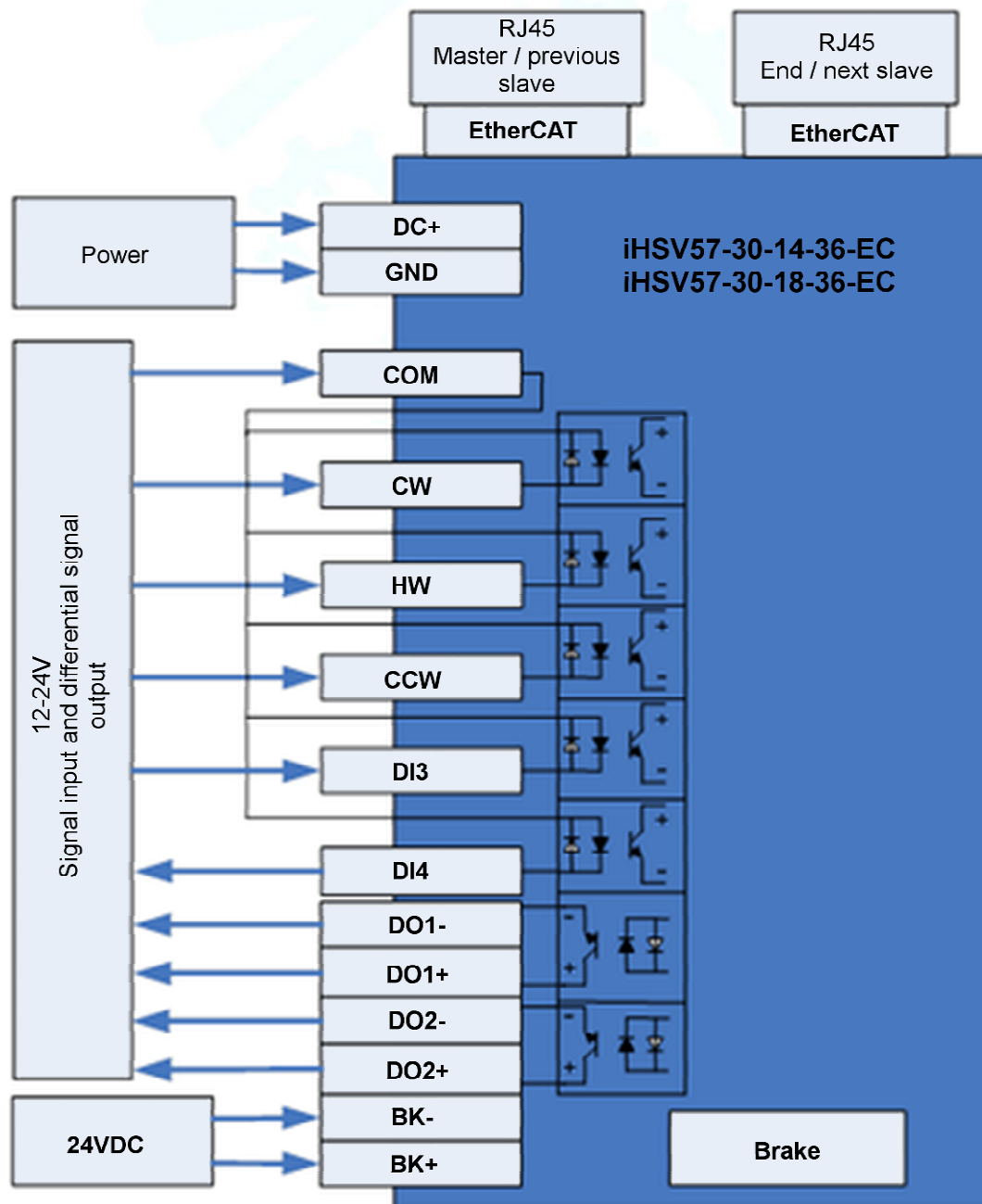
Standard parameters are already set at the factory. These standard parameter values are optimized and suitable for most industrial applications. In most cases it is not necessary to change them. However, if you want to optimize the performance for your application, the software can be used to adjust these parameters.

## 13. Typical Connections:



## iHSV57-XX-EC

Integrated AC Servo Motors  
with EtherCAT interface



## iHSV57-XX-EC

Integrated AC Servo Motors  
with EtherCAT interface

## 15. Power Curves

