DOBOT

PGSE Mini Servo Gripper User Guide

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Preface

Purpose

This document introduces the functions, parameters, installation, and operation of the PGSE Mini Servo Gripper, helping users understand and use the servo gripper effectively.

Intended audience

This document is intended for:

- Customer
- Sales Engineer
- Installation and Commissioning Engineer
- Technical Support Engineer

Revision history

Date	Version	Revised content
2024/08/22	V1.0	The first release

Symbol conventions

The symbols that may be found in this document are defined as follows.

Symbol	Description
DANGER	Indicates a hazard with a high level of risk which, if not avoided, could result in death or serious injury.
WARNING	Indicates a hazard with a medium level or low level of risk which, if not avoided, could result in minor or moderate injury, robot arm damage.
NOTICE	Indicates a potentially hazardous situation which, if not avoided, could result in robot arm damage, data loss, or unanticipated result.
NOTE	Provides additional information to emphasize or supplement important points in the main text.

Contents

1. Product Introduction

1.1 Product specifications

The PGSE157 is a parallel servo gripper equipped with a pair of parallel fingertips that move symmetrically during operation. The gripper comes with an aviation connector cable that can be directly connected to the Magician E6 end. It communicates with Magician E6 via digital I/O.

Parameter	Value
Model	DT-AC-PGSE157-01
Gripping force (per jaw)	6 N – 15 N
Stroke	7 mm
Maximum recommended payload*	0.25 kg
Opening/Closing time	0.15 s / 0.15 s
Size	85.6 mm x 38 mm x 23.2 mm
Weight	0.15 kg
Noise emission	< 50 dB
Protection level	IP40
Communication protocol	Digital I/O
Operating voltage	24V DC ± 10%
Rated current	0.15A
Peak current	0.8A
Rated power	3.6W
Recommended environment	0℃ – 40℃, ≤ 85% RH

* The maximum recommended payload depends on the shape of the object being gripped, the material of the contact surface, friction, and motion acceleration. The center of gravity of the gripped object can also affect the payload. Please consult us if you have any questions.

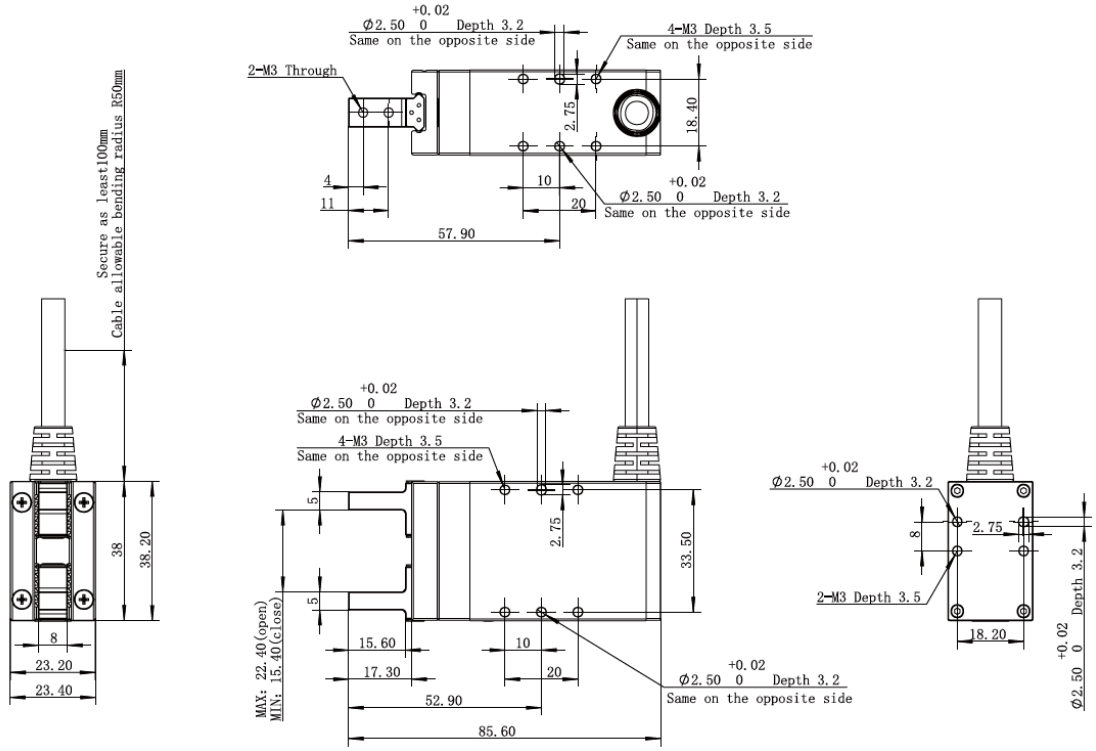
1.2 Indicator definition

The gripper provides real-time feedback on its status. In addition to reading through digital I/O, the status can also be judged by the indicator light color, described as follows:

- Uninitialized status: Red light flashing, other lights OFF.
- Initialized status: Blue light ON, indicating the gripper is in operational status.

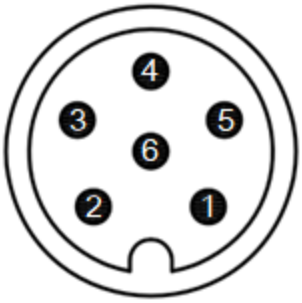
- Object gripped status: Green light ON, other lights OFF.

1.3 Mechanical specifications



1.4 Electrical interface

The gripper connects to the end of Magician E6 through an aviation connector, with DI/DO in PNP type. The interfaces are defined as follows:

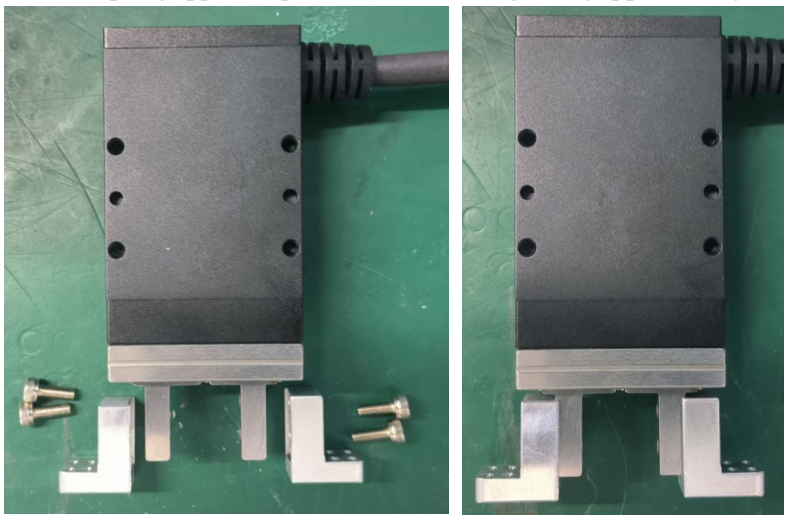


Pin	Definition
1	24V
2	DO1
3	DO2
4	DI1
5	DI2
6	GND

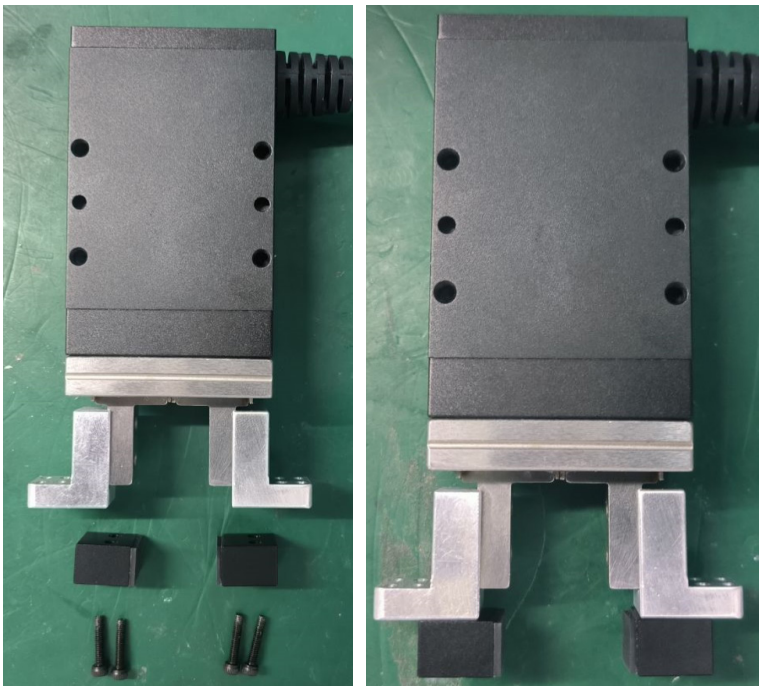
2. Installation Instructions

2.1 Assembling the gripper

1. Attach the L-shaped gripper adapter to the electromagnetic gripper and tighten the screws.

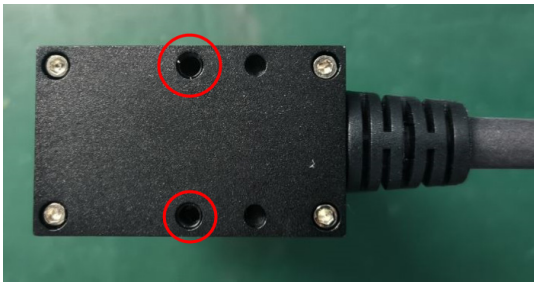


2. Install the gripper fingers and tighten the screws. Adjust the installation position of the gripper fingers on the L-shaped adapter according to the actual situation. The protective pad on the side of the gripper fingers can be attached or removed as needed.



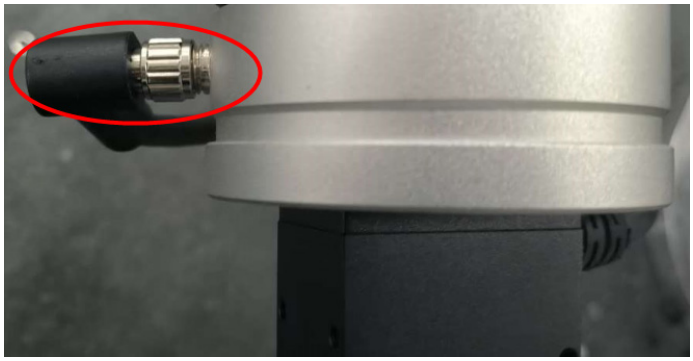
2.2 Installing gripper onto Magician E6 end

1. Attach the Magician E6 adapter flange (an accessory of Magician E6) to the gripper and tighten the two screws.




2. Install the electromagnetic gripper onto the Magician E6 end through the adapter flange and tighten the four screws.


3. Connect the gripper cable to the end-of-arm aviation connector.



3. Gripper Control

The robot can control the gripper through Tool DO1 and DO2.

The gripper has been initialized at the factory. In most cases, users can directly control the gripper using Tool DO1.

Tool_DO1	Function	Tool_DO2	Function
OFF	Open	OFF	Default
ON	Close	ON	Initialize

The robot can read the gripper's status through Tool DI1 and DI2.

Tool_DI1	Tool_DI2	Gripper status
OFF	OFF	Moving/Just started/Fault
ON	OFF	Closed
OFF	ON	Opened
ON	ON	Object gripped

