



iPF-Series

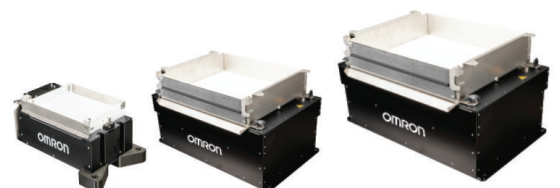
Flexible Part Feeder

User's Manual

iPF-240

iPF-380

iPF-530



NOTE

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Introduction

Thank you for purchasing the iPF-Series Flexible Part Feeder.

This manual is OMRON's original instructions describing the setup, operations, and user maintenance of the part feeder.

Please read this manual and make sure you understand the functionality and performance of the Part Feeder before attempting to use it.

Keep this manual in a safe place where it will be available for reference during operation.

Intended Audience

This manual is intended for the following personnel, who must also have knowledge of factory automation (FA) systems and robotic control methods.

- Personnel in charge of introducing FA systems.
- Personnel in charge of designing FA systems.
- Personnel in charge of installing and maintaining FA systems.
- Personnel in charge of managing FA systems and facilities.

Applicable iPF Part Feeder Models

The following table lists all applicable iPF-Series Part Feeder models.

Product	Models
iPF-Series Part Feeder	iPF-240
	iPF-380
	iPF-530

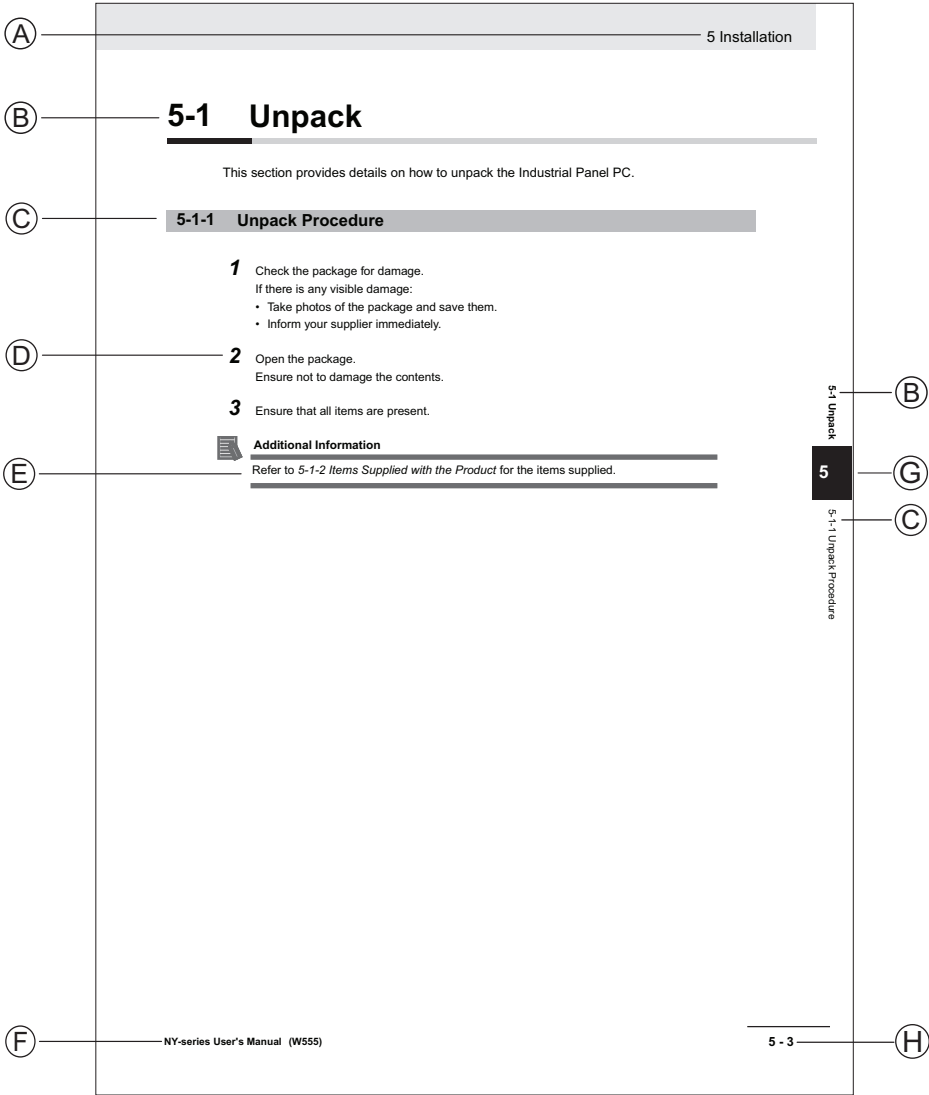
Units

All units are metric unless otherwise noted.

Manual Information

Page Structure

The following page structure is used in this manual.



Note: This illustration is provided as a sample. It will not literally appear in this manual.

Item	Explanation	Item	Explanation
A	Level 1 heading	E	Special Information
B	Level 2 heading	F	Manual name
C	Level 3 heading	G	Page tab with the number of the main section
D	Step in a procedure	H	Page number

Special Information

Special information in this manual is classified as follows:



Precautions for Correct Use

The reader's attention is drawn to this point in order to ensure that the product is used correctly. However, failure to respect this instruction does not pose a danger.



Additional Information

Additional information to read as required.
This information is provided to increase understanding or make operation easier.



Version Information

Information on differences in specifications and functionality between different versions.

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Terms and Conditions Agreement

Warranty and Limitations of Liability

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Information presented by Omron Companies has been checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical or proofreading errors or omissions.

Safety Precautions

Definition of Precautionary Information

The following notation is used in this manual to provide precautions required to ensure safe usage of the part feeder. The safety precautions that are provided are extremely important to safety. Always read and heed the information provided in all safety precautions. The following notation is used.

 WARNING	RISK OF INJURY Warning indicate a hazardous situation which, if not avoided, could result in death or serious injury.
 CAUTION	PERSONAL INJURIES Caution indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

Warnings

 **WARNING**

Maintenance

Be sure that all power sources and other cables to the unit are disconnected before doing any maintenance action on the product.



Cybersecurity

To maintain the security and reliability of the system, a robust cybersecurity defense program should be implemented, which may include some or all of the following:

Anti-virus protection

- Install the latest commercial-quality anti-virus software on the computer connected to the control system and keep the software and virus definitions up-to-date.
- Scan USB drives or other external storage devices before connecting them to control systems and equipment.

Security measures to prevent unauthorized network access

- Install physical controls so that only authorized personnel can access control systems and equipment.
- Reduce connections to control systems and equipment via networks to prevent access from untrusted devices.
- Install firewalls to block unused communications ports and limit communication between systems. Limit access between control systems and systems from the IT network.
- Control remote access and adopt multifactor authentication to devices with remote access to control systems and equipment.
- Set strong password policies and monitor for compliance frequently.

Data input and output protection

- Backup data and keep the data up-to-date periodically to prepare for data loss.
- Validate backups and retention policies to cope with unintentional modification of input/output data to control systems and equipment.
- Validate the scope of data protection regularly to accommodate changes.
- Check validity of backups by scheduling test restores to ensure successful recovery from incidents.
- Safety design, such as emergency shutdown and fail-soft operations in case of data tampering and incidents.

Additional recommendations

- When using an external network environment to connect to an unauthorized terminal such as a SCADA, HMI or to an unauthorized server may result in network security issues such as spoofing and tampering.
 - You must take sufficient measures such as restricting access to the terminal, using a terminal equipped with a secure function, and locking the installation area by yourself.
 - When constructing network infrastructure, communication failure may occur due to cable disconnection or the influence of unauthorized network equipment.
 - Take adequate measures, such as restricting physical access to network devices, by means such as locking the installation area.
 - When using devices equipped with an SD Memory Card, there is a security risk that a third party may acquire, alter, or replace the files and data in the removable media by removing or unmounting the media.
 - Please take sufficient measures, such as restricting physical access to the Controller or taking appropriate management measures for removable media, by means of locking and controlling access to the installation area.
 - Educate employees to help them identify phishing scams received via email on systems that will connect to the control network.
-











Cautions

CAUTION

The part feeder's integrated backlight belongs to risk group 2 according to the norm EN 62471. Hazardous optical radiation are possibly emitted from this product. Do not stare at the operating lamp. May be harmful to the eye.



In case of humidity and temperature variation, note that it might affect the global performances of the part feeder and cause electrical hazard.	
In case of humidity and temperature variation, note that it might affect the global performances of the hopper and cause electrical hazard.	
Never modify the product. Unauthorized modification may cause the product to malfunction, resulting in injury, electric shock, fire, etc.	
Do not use the product in a place where the main unit or controller may come in contact with oil droplets.	
The part feeder must be mounted on a smooth, flat, and strong surface. Ensure that the part feeder is not submitted to mounting flexure. Failure to do so would degrade the part feeder's performance and cause mechanical hazard.	
The hopper must be mounted on a smooth, flat, and strong surface. Ensure that the hopper is not submitted to mounting flexure. Non-compliance with these rules may affect the performances.	
Risk of pinching. Do not place your fingers between the container and the hopper base.	
The sound level of the part feeder during intensive use without components on the platform is less than 72 dB. Depending on the components distributed on the platform, the sound level may be higher. In this case, it is the customer's or integrator's responsibility to implement the necessary measures to meet the safety requirements for operators.	

Precautions for Correct Use

- The mounting surface should be clean and prepared according to the information provided in the manual before attempting to mount the part feeder and the hopper.
- Before supplying power to the part feeder, check that your distribution voltage is the same as the nominal voltage. Use PELV (protected extra-low voltage) nominal voltage. Incorrect wiring of 0 V and 24 V would cause irreparable damage and void the warranty. It is recommended to supply each part feeder with a dedicated power supply.
- Switch off the system and disconnect the power supply before opening the fuse holder.
- Ensure that the total mass of the part feeder along with its accessories does not exceed the maximum allowed compressive force of the round buffers (Fz).
- Vibration isolators should be mounted outside of the part feeder's foot print. Using a mass between the part feeder and the vibration isolators is mandatory. Not following this practice could irreparably damage the part feeder and would void the warranty.
- It is highly recommended not to mount the part feeder and the camera on the same support structure. If the vision system is disturbed by residual vibrations, the coordinates sent to the robot will not be reliable, thus compromising the precision of the whole system.
- Never attach the hopper directly to vibration isolators, the hopper already has integrated vibration isolators in its housing. Using external vibration isolators would cause the inside of the hopper to vibrate more than the container itself and could damage the electronic controller irremediably.
- The hopper must be mounted at the optimal height with respect to the part feeder for dispensing parts. The Modular Fixation kit allows the hopper's height to be adjusted from 180 to 255 mm in increments of 15 mm. This increase in height is required for all hopper models when mounted with the iPF-380 and iPF-530 part feeders.
- While vibrating, the container displacement does not exceed ± 1 mm in X and Z axes. However a minimal margin of 10 mm must be considered in all axes (X/Y/Z) when mounting the hopper.
- When installing the container, first install all the screws loosely. After the holes are aligned and the screws are in place, tighten the screws with a torque of 9 N-m.
- For the Large Hopper, you must tighten the front screws first. Failure to follow this instruction could cause the hopper to malfunction and damage the system.
- If modifications to the hopper container are considered, it should be done at the user's responsibility. If modifications are to be undertaken, the container **MUST** be removed from the hopper base before any drilling operations. The following are considered modifications to the container: Removing material by machining or cutting the container must be avoided, it can impact the rigidity of the system and its proper functioning. If modifications are to be undertaken, the container **MUST** be removed from the hopper base before any drilling operations.
- Before supplying power to the hopper, check that your distribution voltage is the same as the nominal voltage. Use PELV (protected extra-low voltage) nominal voltage. Check the correct polarity of your 24 VDC power plug before connection. It is recommended to supply each hopper with a dedicated power supply.
- The hopper must be calibrated before initial use.
- Before triggering a calibration, ensure the following: remove all parts from the container, make sure the hopper is correctly fixed, the container is properly fixed to the hopper base, the container is free to move without interfering with a neighboring element, and that there is no nearby equipment that could generate unwanted vibrations.

- During an ongoing calibration session ensure the following: do not touch the hopper or the frame on which the hopper is mounted.
- When the purge gate is open, do not use any other vibration setting other than left or right. If this restriction is not followed, the mechanism could be irreparably damaged. Since enabling the purge function modifies the vibratory behavior of the part feeder, remember to deactivate it after you remove the purge system.
- For any kind of maintenance, always use spare parts provided by OMRON.
- There are no user serviceable parts inside the product. Contact your local OMRON representative to effect maintenance. In cases of non-compliance, the product guarantee will expire.
- Before replacing the purge kit actuator, unplug the purge kit actuator from the part feeder, remove the platform and the actuator.
- Ensure that all power sources and other cables to the unit are disconnected before replacing the backlight.
- Ensure that the backlight is turned off before removing the platform module.
- Do not expose the shipping container to excessive shock and vibration. Never place heavy objects on the package. This could damage the part feeder.
- Be aware of the weight and take care when transporting the system.

Regulations and Standards

The OMRON iPF-Series Part Feeder and OMRON Hopper are compliant with the following directives and standards:

Conformance to Directives

The part feeder and the hopper are compliant with the following directives for the EU and the UK.

EU Directives

- 2006/42/EC
Machinery directive
- 2014/30/EC
EMC directive
- 2011/65/EC + 2015/863
RoHS directive

UK Directives

- S.I. 2008 No. 1597
The Supply of Machinery (Safety) Regulations 2008
- S.I. 2016 No.1091
The Electromagnetic Compatibility Regulations 2016
- The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012

Conformance to Reference Harmonized Standards

The part feeder and the hopper conform to the following standards.

- EN IEC 61000-6-4:2019 (Not harmonized in EU)
- EN IEC 61000-6-2:2019 (Not harmonized in EU)
- EN 12100:2010
- EN 14118:2018
- EN 60204-1:2018
- EN 63000:2018
- IEC 61000-6-2:2016
- EN 61000-6-2:2005+AC:2005
- EN 61000-6-2:2016
- EN 61000-6-4:2007+A1:2011
- IEC 61000-6-4:2018

Related Manuals

Use the following related manuals for reference.

Manual Title	Description
Automated Control Environment (ACE) Version 4 User's Manual (Cat. No. I633)	Instruction for the use of the ACE Version 4 software.

Revision History

A manual revision code appears as a suffix to the catalog number on the front and back covers of the manual.

Cat. No.

I684-E-01

Revision code

Revision code	Date	Revised content
01	June 2023	Original production

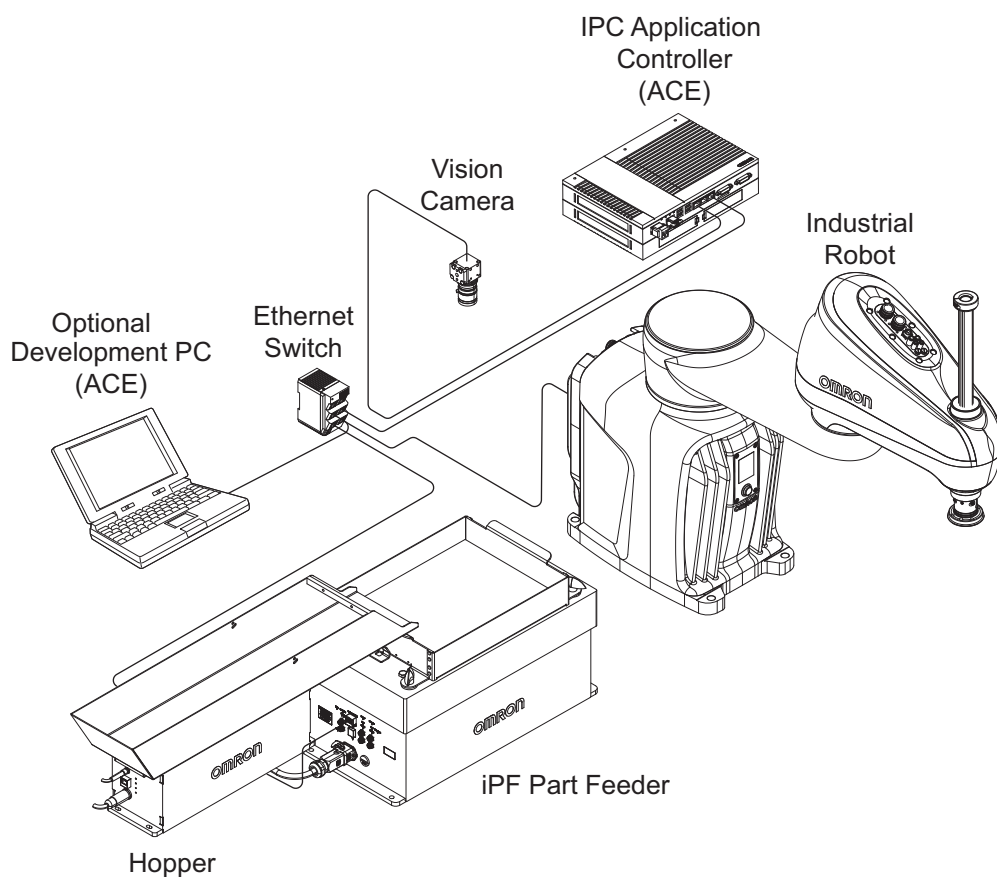
Overview

This section provides general information about the part feeder.

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1-1 Intended Use

The iPF-Series Flexible Part Feeder is a flexible feeder system that provides efficient part feeding solutions for a robot with a vision system such as the OMRON industrial robots. The part feeder can distribute and flip the parts over the picking surface as well as manage the feeding from a hopper in order to have enough components on the surface. The part feeder functionalities are controlled through the ACE software. Refer to the illustration below for a typical robot system set up with a part feeder and hopper.



1-2 Part Feeder Features

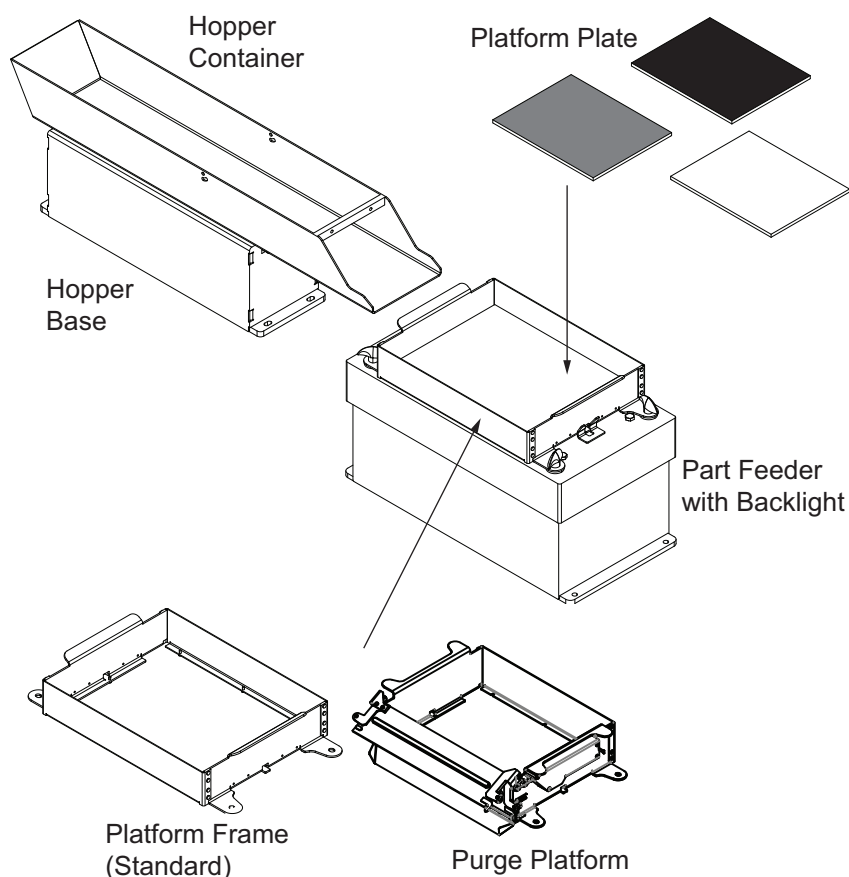
This section provides information about the features of the iPF-Series Flexible Part Feeder. The following items summarize the main features of the part feeder.

- A 3-axis vibrating platform that moves parts in all directions and ensures the parts do not accumulate in a corner or on an edge.
- Appropriate vibration signals allow for forward, backward, sideways, and flipping movements of the parts.
- Feeds parts and components ranging from 5 mm to 150 mm in size.
- An integrated backlight that facilitates easy recognition of parts by the robot's vision system.
- Purge function to evacuate parts from the part feeder.
- Fully integrated with the ACE software tool for fast deployment of pick and place solutions.
- Modular design with many customizable options.

1-2-1 Part Feeder System Components

A complete iPF Flexible Part Feeder system consists of:

- A vibrating part feeder unit with integrated backlight
- Removable platform frame and plate
- A purge system for automatic removal of parts
- Hopper base and container for bulk parts distribution
- Power cables



OMRON's iPF-Series Flexible Part Feeders are available in three different configurations:

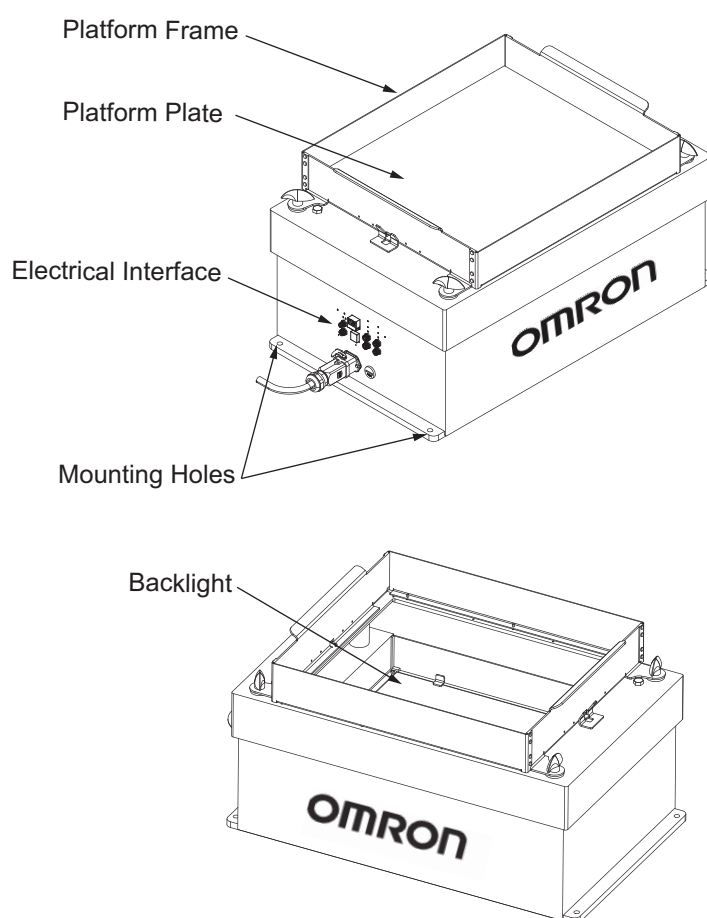
- iPF-240 Part Feeder
- iPF-380 Part Feeder
- iPF-530 Part Feeder

1-2-2 Part Feeder Components

The part feeder's mechanical components and electrical interfaces are described in the following sections.

Mechanical Components

Use the image below to identify the the part feeder's mechanical components.



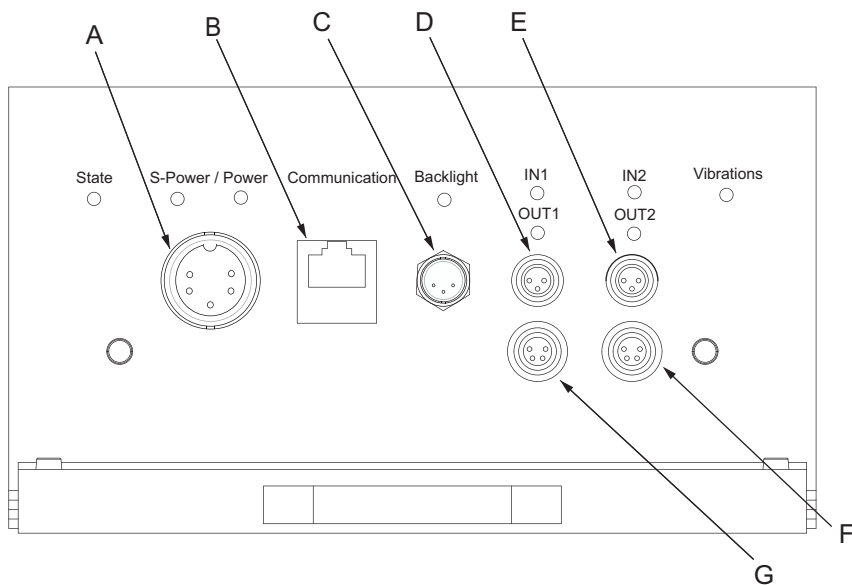
⚠ CAUTION

The part feeder's integrated backlight belongs to risk group 2 according to the norm EN 62471. Hazardous optical radiation are possibly emitted from this product. Do not stare at the operating lamp. May be harmful to the eye.



Electrical Interface for iPF-240

Use the figure below to identify the electrical interface connectors for the iPF-240 Part Feeder. Refer to *1-2-3 Part Feeder Connectors* on page 1-7 for more information.

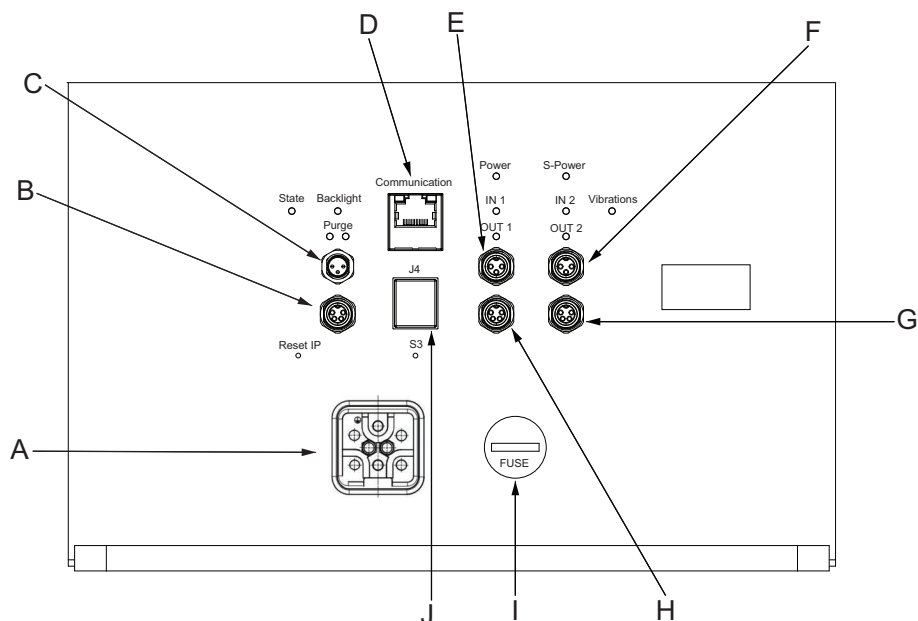


Item	Description
A	Power connector
B	Communication (RJ45)
C	Backlight synchronization
D	Digital Input 1
E	Digital Input 2
F	Output 2
G	Output 1

Electrical Interface for iPF-380 and iPF-530

Use the figure below to identify the electrical interface connectors for the iPF-380 and iPF-530 Part Feeders.

Refer to *1-2-3 Part Feeder Connectors* on page 1-7 for more information.



Item	Description
A	Power
B	Purge Connector
C	Backlight synchronization
D	Communication (RJ45)
E	Digital Input 1
F	Digital Input 2
G	Output 2
H	Output 1
I	Fuse
J	Programming connector (RJ12)

1-2-3 Part Feeder Connectors

This section describes all the connectors and ports on the part feeder. Refer to *3-6-1 Connecting the Part Feeder Electrically* on page 3-13 for more information.

Power

The Power connector is used to supply 24 VDC to the part feeder.



Precautions for Correct Use

Before supplying power to the part feeder, check that your distribution voltage is the same as the nominal voltage. Use PELV (protected extra-low voltage) nominal voltage. Incorrect wiring of 0 V and 24 V would cause irreparable damage and void the warranty. It is recommended to supply each part feeder with a dedicated power supply.

Refer to *2-2-1 Part Feeder Power Supply Specifications* on page 2-13 and *3-6-1 Connecting the Part Feeder Electrically* on page 3-13 for more information.

Communication

The RJ45 Communication port is used for communicating with the part feeder through a standard Ethernet cable. Refer to *Automated Control Environment (ACE) Version 4 User's Manual (Cat. No. I633)* for more information about setting up the IP address of the part feeder. Refer to *5-3 Reset IP Address* on page 5-4 for more information about restoring the default IP address.

Backlight Synchronization

The Backlight Synchronization connector is reserved for future use.

In 1 and In 2

For the iPF-240 Part Feeder, the digital Input 1 connector is reserved for future use and digital Input 2 connector is used for connecting the purge gate sensor to the part feeder. Both digital Inputs 1 and 2 connectors are reserved for future use in the iPF-380 and iPF-530 Part Feeders.

Out 1 and Out 2

The Output 1 and 2 connectors provide output signals to one or two hoppers for the part feeder.



Additional Information

- For the iPF-240 Part Feeder, Output 2 connector is used for connecting the purge actuator to the part feeder.
- For the iPF-240 Part Feeder, if the purge feature is enabled, only one hopper can be connected to Output 1 connector (as Input 2 and Output 2 connectors are used for the purge system). Therefore, dual hopper configuration is not possible if purge is enabled.

Purge

The Purge connector in the iPF-380 and iPF-530 Part Feeders is used for transmitting signals from the part feeder to the purge system. This connector is not available in the iPF-240 Part Feeder.

Fuse

The iPF-380 and iPF-530 Part Feeders are equipped with a 16 A fuse to protect the internal components. The fuse connector is not available in the iPF-240 Part Feeder.



Precautions for Correct Use

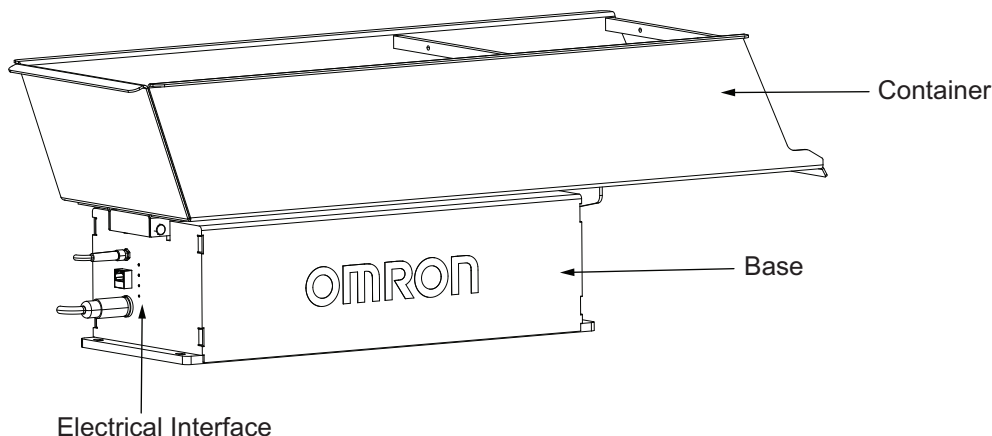
Switch off the system and disconnect the power supply before opening the fuse holder.

1-2-4 Hopper Components

A hopper is a recommended accessory to the part feeder. The hopper provides bulk part loading area and efficiently dispenses small amounts to the part feeder unit. The hopper consists of an actuator base, a container, cables, and electrical interfaces for power, input, and communications.

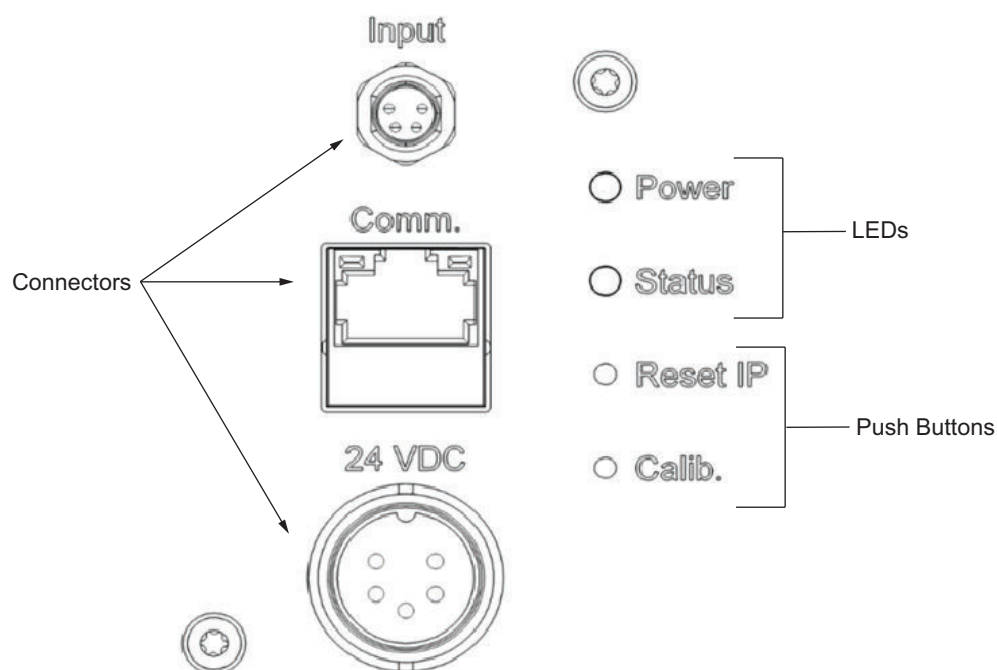
Mechanical Components

Use the image below to identify the hopper's mechanical components.



Electrical Interfaces for the Hopper

Use the figure below to identify the electrical interface connectors for the hopper. Refer to *1-2-5 Hopper Connectors* on page 1-9 for more information.



1-2-5 Hopper Connectors

This section describes all the connectors on the hopper.

24 VDC

The Power connector is used for supplying 24 VDC voltage to the hopper. Refer to *3-6-2 Connecting the Hopper Electrically* on page 3-16 for more information.

Comm.

The Communication port is reserved for future use.

Input

The Input connector is used for connecting the hopper to the part feeder. The amplitude of the hopper's vibration and the start and end of the vibration can be controlled through the ACE software. Refer to *Automated Control Environment (ACE) Version 4 User's Manual (Cat. No. I633)* for more information.

Reset IP

The Reset IP push button is reserved for future use.

Calib.

The Calibration push button is used for calibrating the hopper. Refer to *3-6-3 Hopper Calibration* on page 3-17 for more information.

1-2-6 Purge System Components

A purge system is a recommended accessory to the part feeder. It allows for quick and automatic removal of parts through the purge gate thus reducing changeover time while avoiding operator intervention during production. The purge system consists of a purge frame (for the iPF-530 and iPF-380) or a purge platform (for iPF-240) with an integrated purge gate and flap to purge parts to the left or right. The system also includes an electric actuator, a sensor to enable proper closure of the gate, and cables. The mechanism is controlled directly by the part feeder.

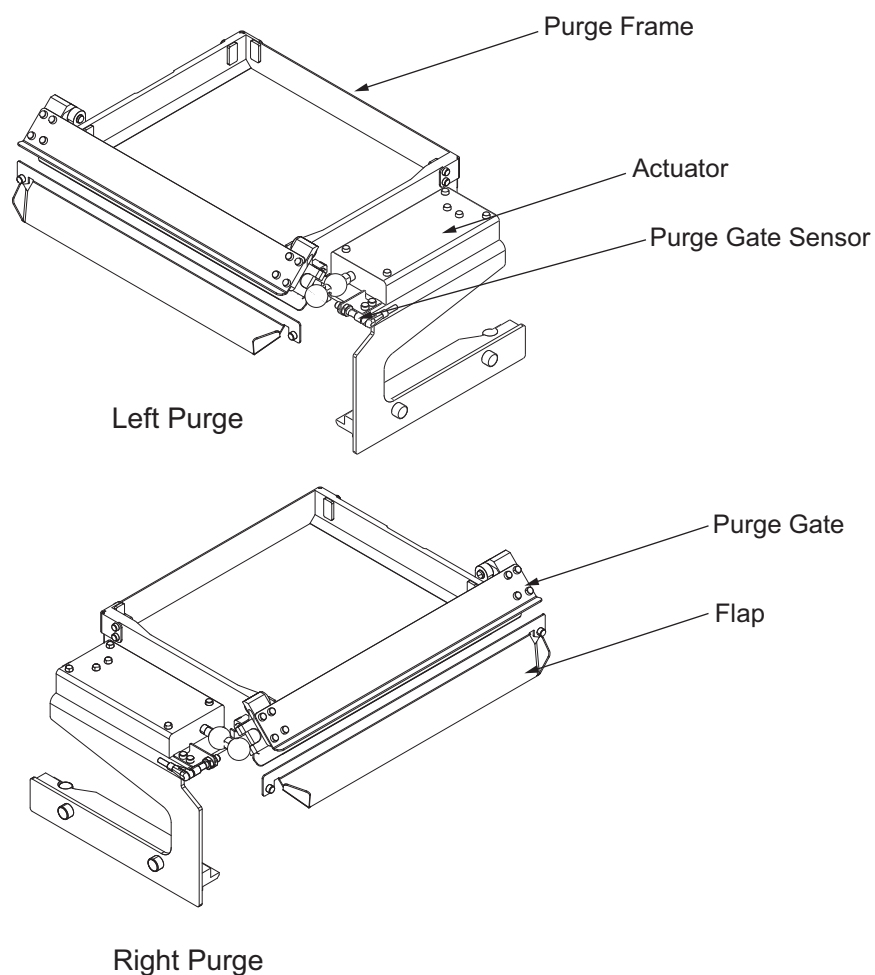


Additional Information

The left or the right side of the purge mechanism cannot be reconfigured after purchase.

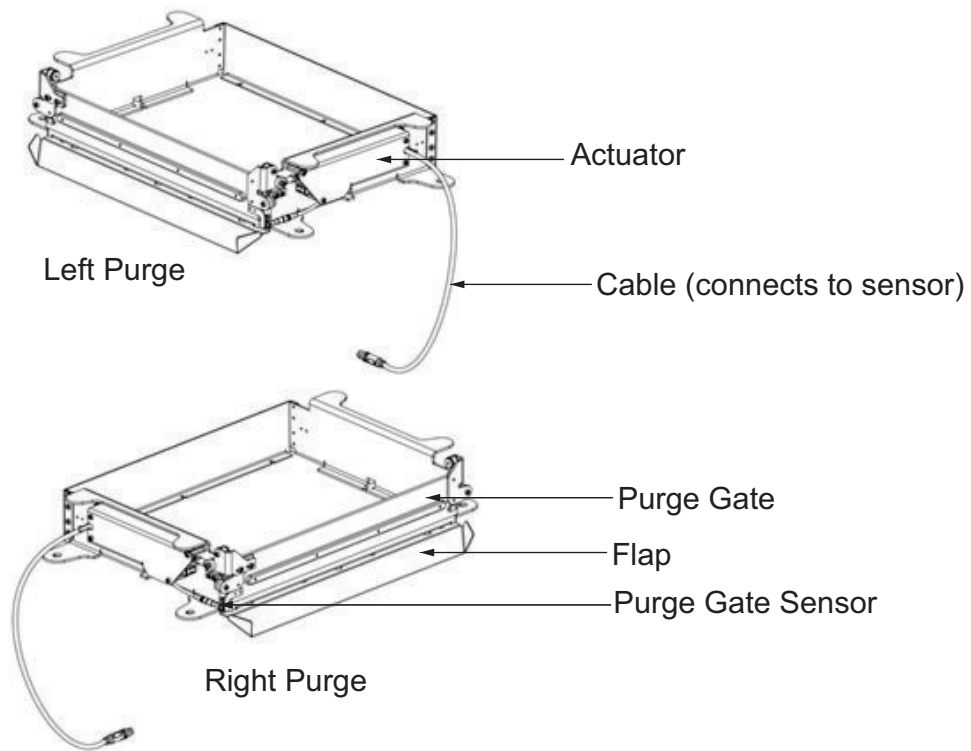
iPF-240 Purge System

Use the images below to identify the purge system's mechanical components for the iPF-240 Part Feeder.



iPF-380 and iPF-530 Purge System

Use the images below to identify the purge system's mechanical components for iPF-380 and iPF-530 Part Feeders.

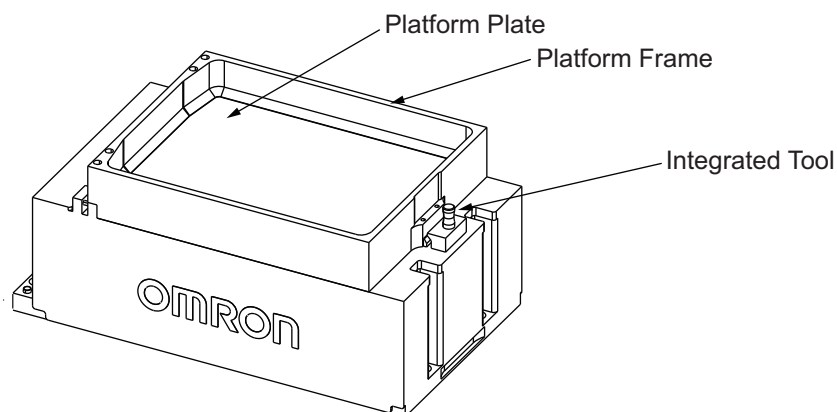


1-3 Part Feeder System Configurations

The iPF Part Feeder is offered in a variety of configurations suitable for feeding parts and components in a range of sizes.

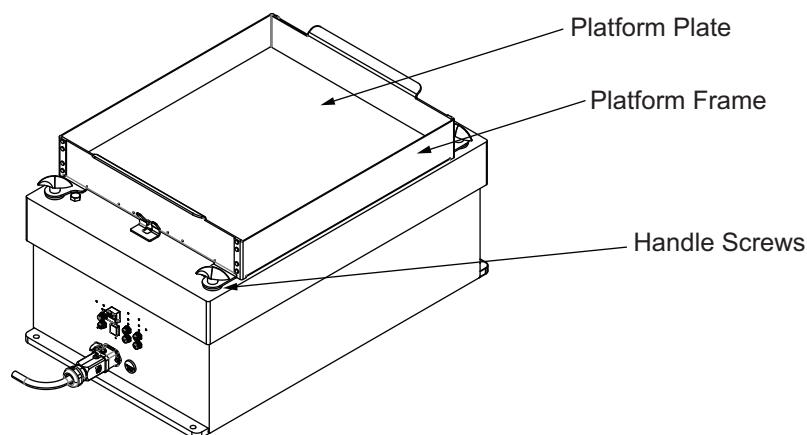
1-3-1 iPF-240 Part Feeder

The iPF-240 Part Feeder can feed parts ranging from 5 – 40 mm in size.



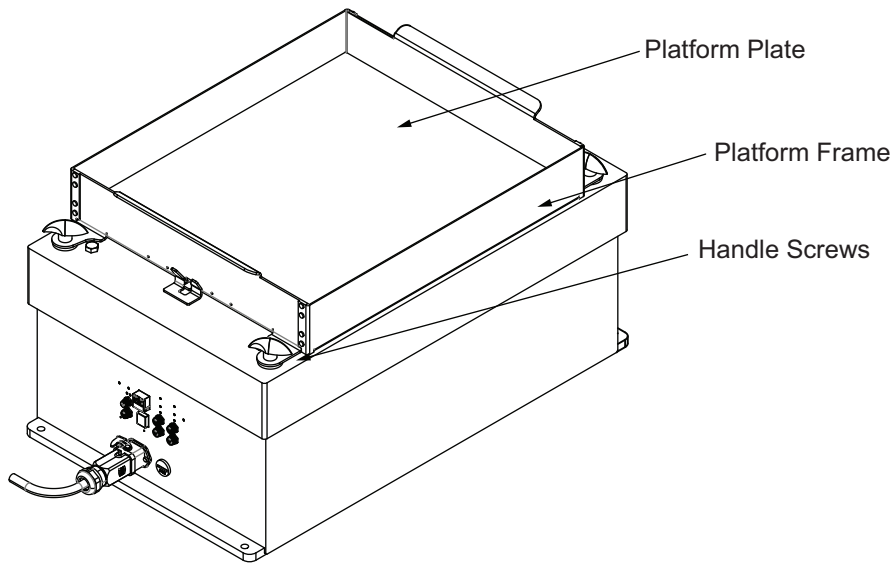
1-3-2 iPF-380 Part Feeder

The iPF-380 Part Feeder can feed parts ranging from 15 – 60 mm in size.



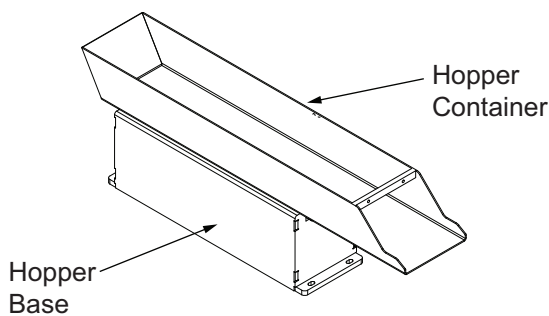
1-3-3 iPF-530 Part Feeder

The iPF-530 Part Feeder can feed parts ranging from 30 – 150 mm in size.



1-3-4 3 L Container with Medium Hopper Base

The 3 L Container accommodates 3 liters capacity to store and dispense parts to the part feeder. The Medium hopper base can be used for both the 3 L and the 7 L containers

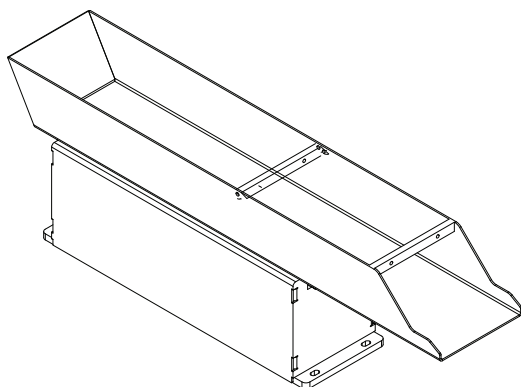


Additional Information

Either the 3 L and the 7 L containers can be mounted over the Medium hopper base. The 14 L container requires the Large hopper base.

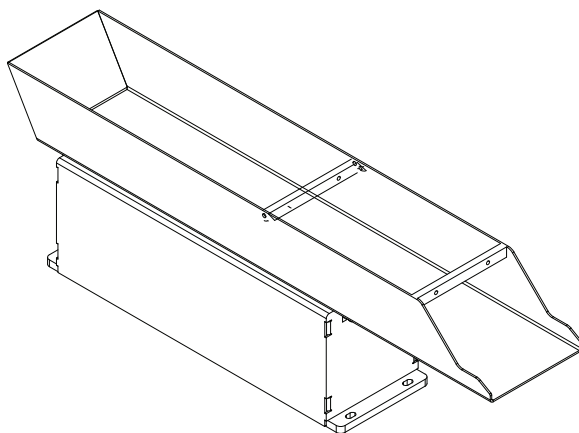
1-3-5 7 L Container with Medium Hopper Base

The 7 L Container accommodates 7 liters capacity to store and dispense parts to the part feeder. The Medium hopper base can be used for both the 7 L and the 3 L containers.



1-3-6 14 L Container with Large Hopper Base

The 14 L Container accommodates 14 liters capacity to store and dispense parts to the part feeder. The large hopper base should be used for the 14 L container.



1-3-7 Dual Hopper Configuration

The iPF Part Feeders support dual feeding or dispensing of two different parts that are fed to the same part feeder by two separate hoppers mounted parallelly or on opposite sides of the part feeder.



Additional Information

When choosing the dual feeding option, it is highly recommended that you perform a few preliminary tests with the parts, since both parts will be dispensed using the same vibration settings. A very heavy and large part combined with a light and small one might not yield satisfying results.

The following table lists the recommended combinations of part feeder and hopper models with single or dual feeding options.

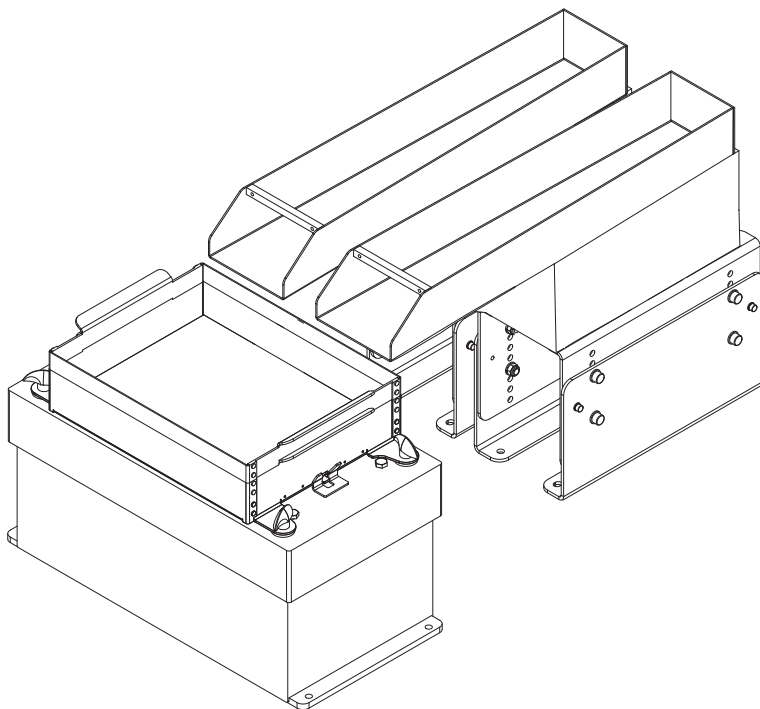
Models	iPF-240	iPF-380	iPF-530
3 L Medium Hopper	Single	Single/Dual	Single/Dual
7 L Medium Hopper	Single* ²	Single/Dual* ¹	Single/Dual
14 L Large Hopper	Not compatible	Single* ²	Single/Dual* ¹

*1. Dual feeding on opposite sides of the part feeder only.

*2. Single feeding along the length of the part feeder only.

Parallel Dual Feeding

The following illustration shows parallel dual feeding configuration.

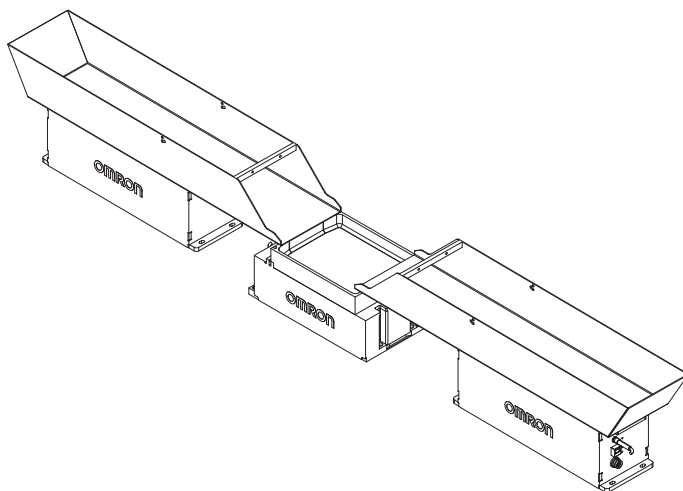


Additional Information

- For parallel dual feeding configurations, a minimum distance must be maintained between the two hoppers. 40 mm between two 3 L Medium Hoppers for iPF-380 Part Feeder and 55 mm between two 7 L Medium Hoppers for the iPF-530 Part Feeder.
- For the iPF-240 Part Feeder, dual hopper configuration is not possible if the purge system is also enabled.

Dual Feeding on Opposite Sides

The following illustration shows dual hoppers mounted on opposite sides to dispense parts to the part feeder.



1-4 Model Number

Model numbers for the part feeder are provided below.

Model Number	Description
iPF-240-BR	iPF-240 Part Feeder with red backlight.
iPF-240-BW	iPF-240 Part Feeder with white backlight.
iPF-240-BI	iPF-240 Part Feeder with infrared backlight.
iPF-240-BN	iPF-240 Part Feeder with no backlight.
iPF-380-BR	iPF-380 Part Feeder with red backlight.
iPF-380-BW	iPF-380 Part Feeder with white backlight.
iPF-380-BI	iPF-380 Part Feeder with infrared backlight.
iPF-380-BN	iPF-380 Part Feeder with no backlight.
iPF-530-BR	iPF-530 Part Feeder with red backlight.
iPF-530-BW	iPF-530 Part Feeder with white backlight.
iPF-530-BI	iPF-530 Part Feeder with infrared backlight.
iPF-530-BN	iPF-530 Part Feeder with no backlight.

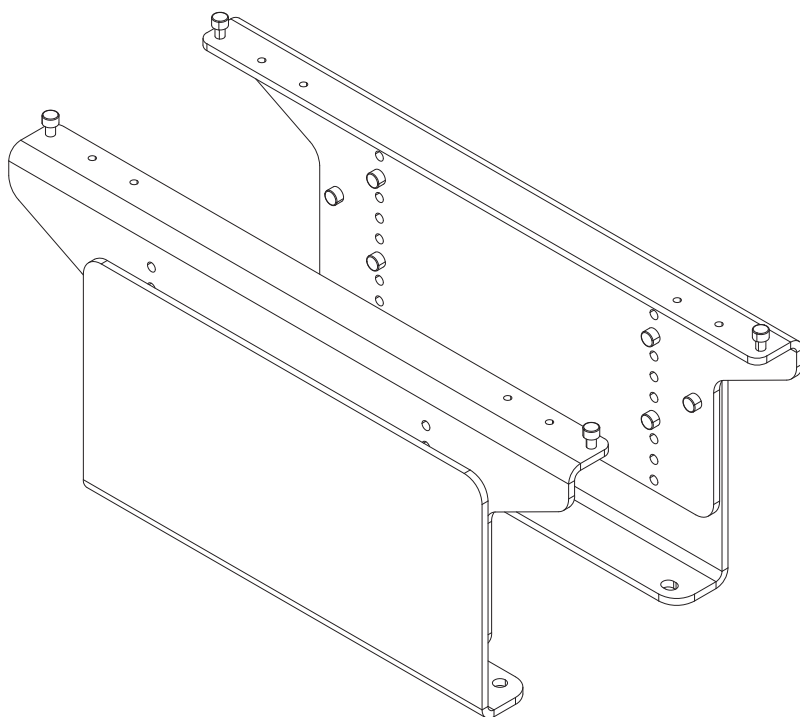
1-5 Optional Hardware

The following optional hardware is available for the hopper.

Refer to *A-2 Spare Parts List* on page A-3 for a list of available spare parts for the part feeder system.

1-5-1 Modular Fixation Kit

The Modular Fixation kit allows the hopper to be mounted at the optimal height with respect to the part feeder for dispensing parts. This kit is required for all hoppers when mounted with the iPF-380 or iPF-530 Part Feeders.



Refer to *2-1-10 Modular Fixation Kit Dimensions* on page 2-10 for modular fixation kit specifications.

Specifications

This section provides specifications for the Part feeder system's hardware, performance, electrical connections, installation environment, and other technical aspects of the system.

2-1	Physical Specifications	2-2
2-1-1	Part Feeder Dimensions	2-2
2-1-2	Part Feeder Weights	2-5
2-1-3	Part Feeder Mounting Structure Characteristics	2-5
2-1-4	Part Feeder Platform Vibration Displacement	2-6
2-1-5	Part Feeder Backlight Color Wavelength	2-6
2-1-6	Maximum Permissible Force on Platform	2-6
2-1-7	Hopper Dimensions	2-6
2-1-8	Hopper General Characteristics	2-9
2-1-9	Hopper Vibration Amplitude	2-10
2-1-10	Modular Fixation Kit Dimensions	2-10
2-1-11	Purge Platform Specifications	2-10
2-2	Electrical Specifications	2-13
2-2-1	Part Feeder Power Supply Specifications	2-13
2-2-2	Hopper Power Supply Specifications	2-13
2-3	Environmental Specifications	2-14
2-3-1	Part Feeder Specifications	2-14
2-3-2	Hopper Specifications	2-14
2-4	Other Specifications	2-15
2-4-1	Connector and Port Specifications	2-15
2-4-2	Mounting Screws and Torques	2-15
2-4-3	Part feeder Vibration Isolators Specifications	2-16

2-1 Physical Specifications

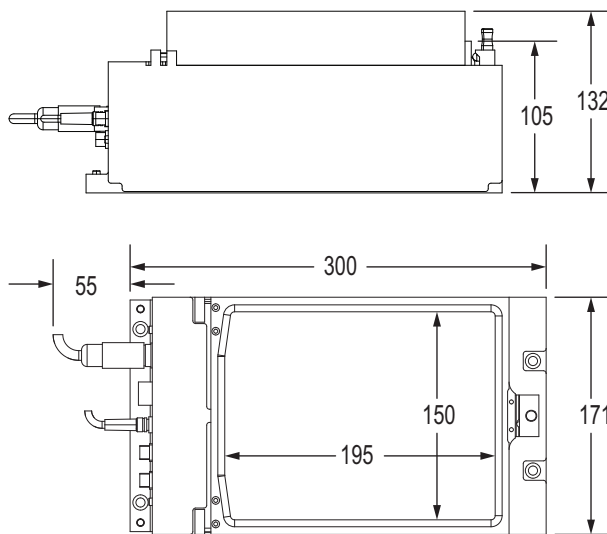
This section provides physical specifications for the part feeder and the hopper.

2-1-1 Part Feeder Dimensions

Use the diagrams below to understand the part feeder's overall physical dimensions.

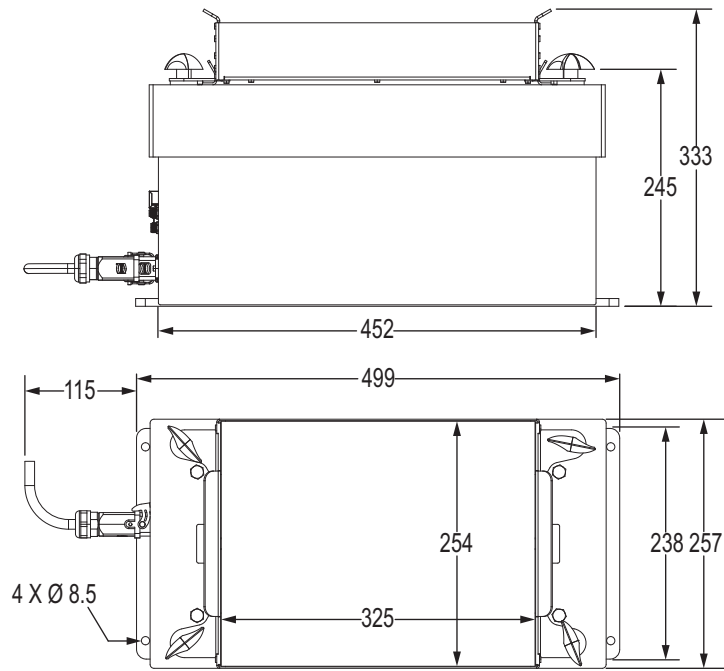
iPF-240 Dimensions

Overall dimensions for the iPF-240 Part Feeder are provided below.



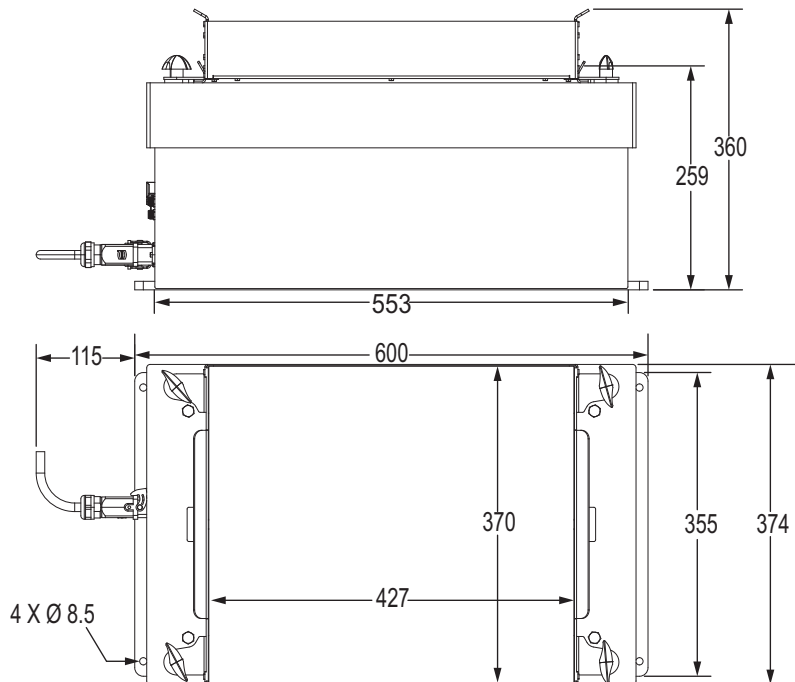
iPF-380 Dimensions

Overall dimensions for the iPF-380 Part Feeder are provided below.



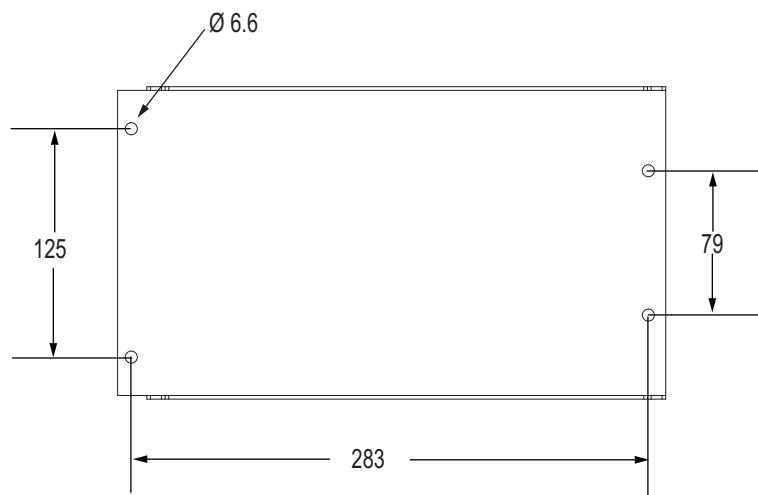
iPF-530 Dimensions

Overall dimensions for the iPF-530 Part Feeder are provided below.



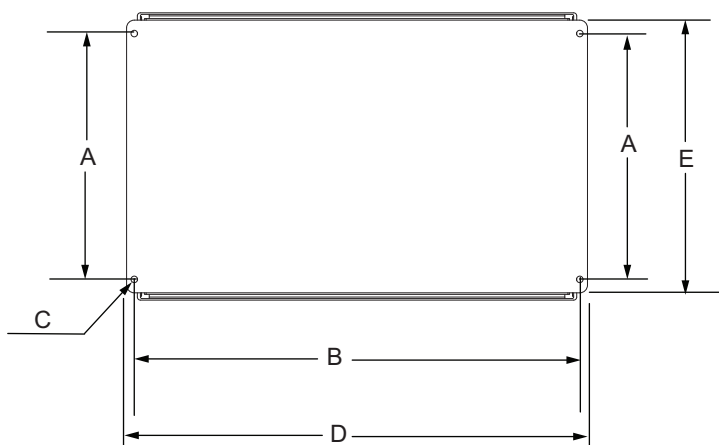
iPF-240 Mounting Flange Dimensions

The mounting flange dimensions for the iPF-240 Part Feeder are provided below.



iPF-380 and iPF-530 Mounting Flange Dimensions

The mounting flange dimensions for the iPF-380 and iPF-530 Part Feeders are provided below.



Item	iPF-380	iPF-530
A	200 mm	320 mm
B	480 mm	580 mm
C	Ø 8.5 mm	Ø 8.5 mm
D	498.50 mm	600 mm
E	257 mm	374 mm

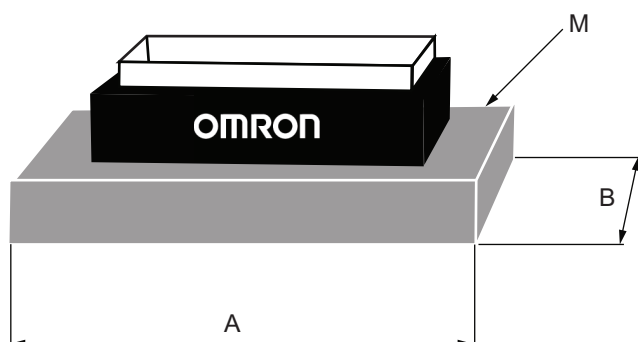
2-1-2 Part Feeder Weights

Weights for different part feeder models are provided in the following table.

iPF Model	Weight
iPF-240	7.8 kg
iPF-380	20 kg
iPF-530	31 kg

2-1-3 Part Feeder Mounting Structure Characteristics

The thickness of the mounting structure, Mass (M) for the part feeder must be calculated based on the minimal mass requirements shown in the following illustration and table.



Part Feeder	M (kg)	A (mm)	B (mm)
iPF-240	≥40	≤600	≤350
iPF-380	≥200	≤1000	≤500
iPF-530	≥250	≤1200	≤750

2-1-4 Part Feeder Platform Vibration Displacement

When the part feeder vibrates, there is displacement of the platform. The platform displacement values along the x, y, and z axes are listed in the following table.

Part Feeder	X (max.)	Y (max.)	Z (max.)
iPF-240	± 1.5 mm	± 2 mm	± 1.5 mm
iPF-380	± 8 mm	± 10 mm	± 6 mm
iPF-530	± 8 mm	± 10 mm	± 8 mm

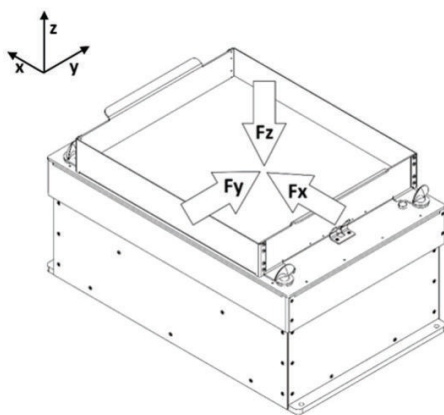
2-1-5 Part Feeder Backlight Color Wavelength

The backlight color wavelength specifications for all part feeder models are shown in the following table.

Color	Specification
Infrared	850 nm
Red	645 nm
White	6500 K

2-1-6 Maximum Permissible Force on Platform

The maximum permissible external force on any point of the platform plate is shown in the illustration and table below.



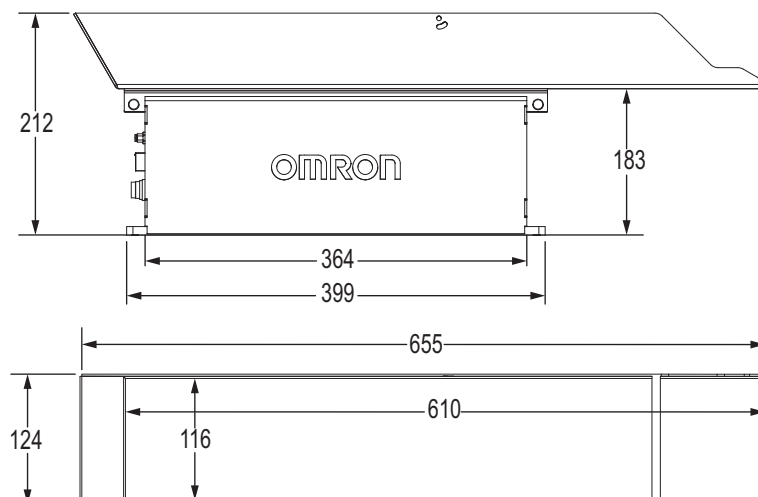
Part Feeder	F_x	F_y	F_z
iPF-240	10 N	10 N	20 N
iPF-380/iPF-530	10 N	10 N	30 N

2-1-7 Hopper Dimensions

Use the diagrams below to understand the hopper's overall physical dimensions.

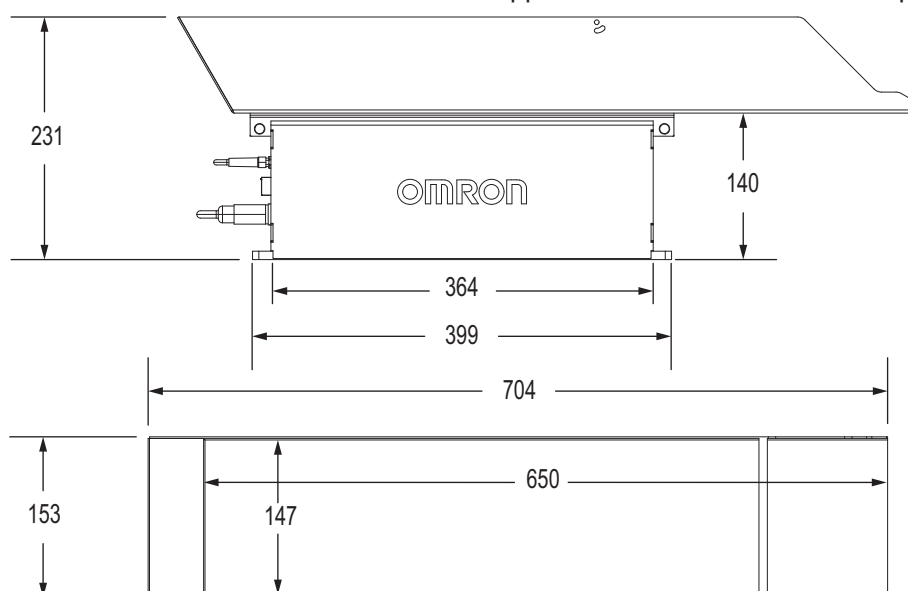
Medium Hopper Base with 3 L Container Dimensions

Overall dimensions for the Medium Hopper base with 3 L container are provided below.



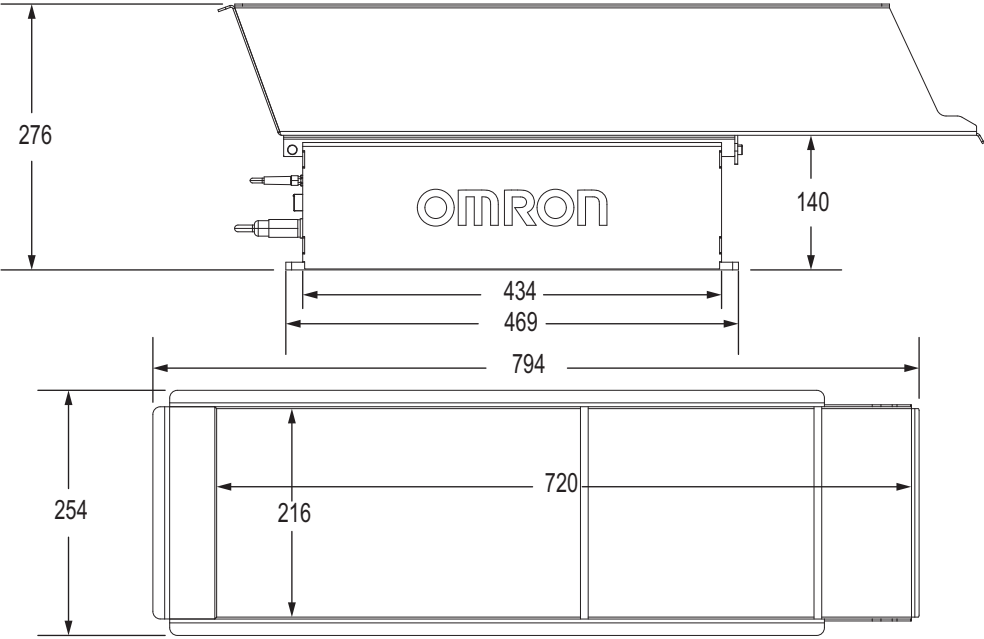
Medium Hopper Base with 7 L Container Dimensions

The overall dimensions for the Medium Hopper base with 7 L container are provided below.



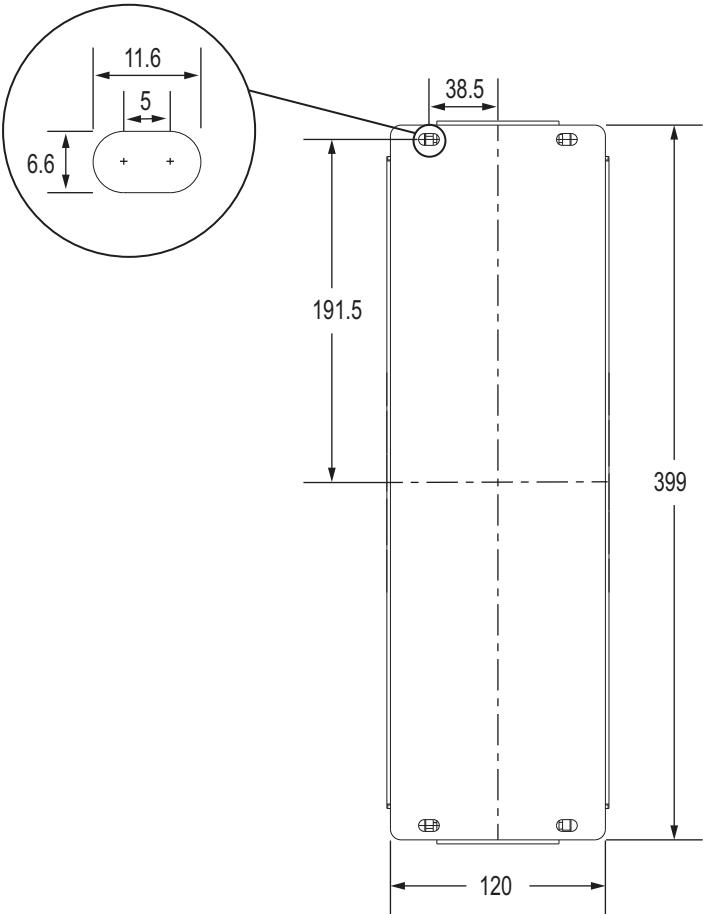
Large Hopper Base with 14 L Container Dimensions

Overall dimensions for the Large Hopper base with 14 L container are provided below.



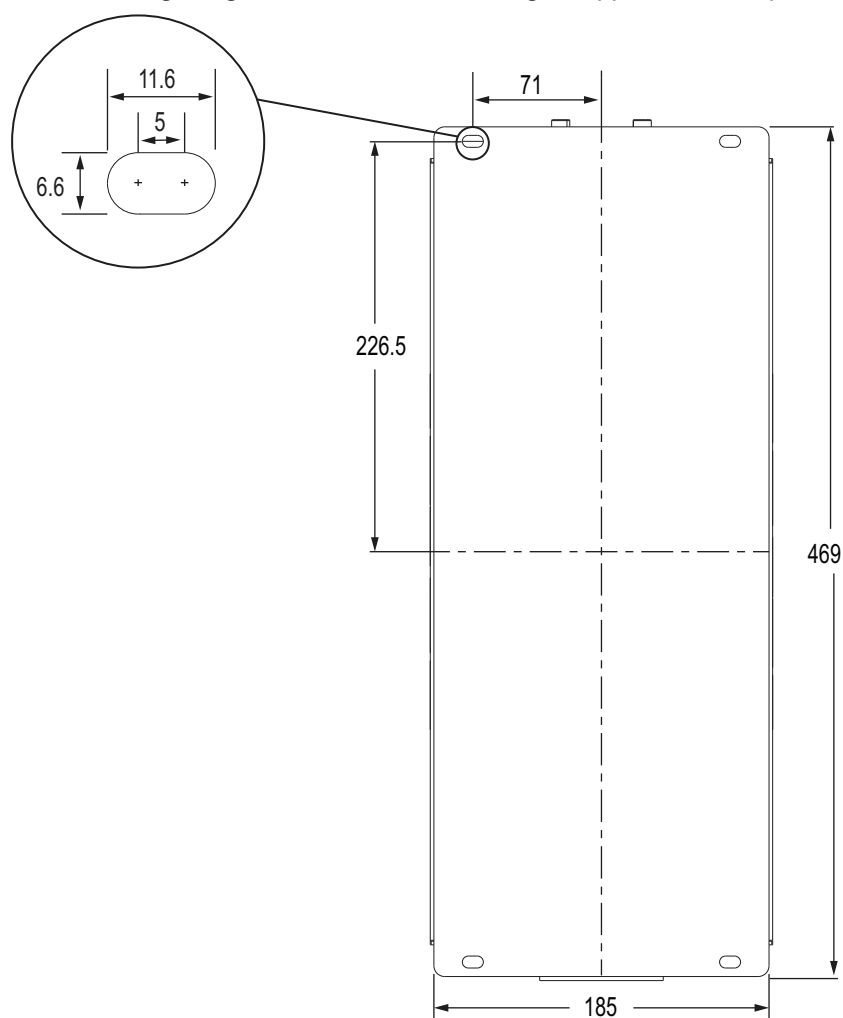
Medium Hopper Base Mounting Flange Dimensions

The mounting flange dimensions for the Medium Hopper base are provided below.



Large Hopper Base Mounting Flange Dimensions

The mounting flange dimensions for the Large Hopper base are provided below.



2-1-8 Hopper General Characteristics

The general characteristics of each hopper model is listed in the following table.

Item	3 L Hopper	7 L Hopper	14 L Hopper
Dimensions	655 x 124 x 212 mm	704 x 153 x 231 mm	794 x 254 x 276 mm
Container Volume, Total / Usable	4.5 / 3 L	8 / 7 L	20 / 14 L
Weight (base + container)	12	12	20
Total Supported Load Weight (inside container)	12 kg	12 kg	19.5 kg



Additional Information

The above table lists nominal dimensions for the hoppers in (mm). Small dimensional deviations on real components are possible due to the manufacturing process.

2-1-9 Hopper Vibration Amplitude

The hopper is able to vibrate at a constant amplitude because it is equipped with a sensor that enables the regulation of the vibration amplitude. The maximum recommended vibration amplitudes for the Medium Hopper base with 3 L or 7 L container are listed in the following table.

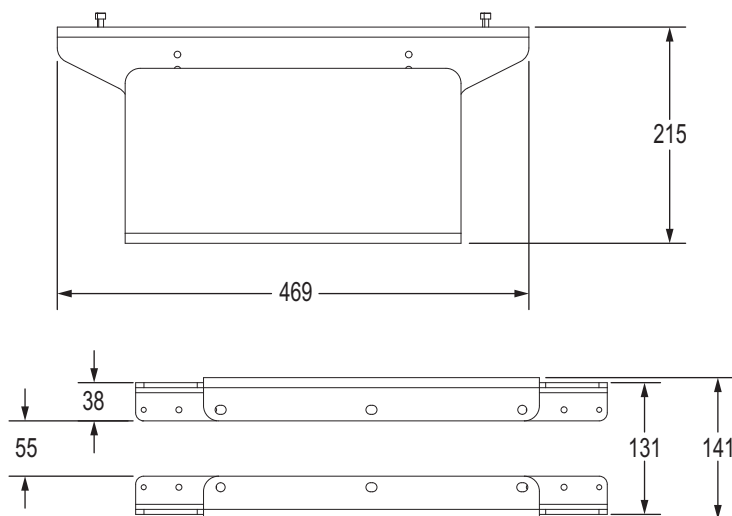
Total Load	Recommended Amplitude (max)
< 3 kg	Up to 100%
< 6 kg	Up to 75%
< 9 kg	Up to 50%
< 12 kg	Up to 25%

The maximum recommended vibration amplitudes for the Large Hopper base with 14 L container are listed in the following table.

Total Load	Recommended Amplitude (max)
< 5 kg	Up to 100%
< 10 kg	Up to 75%
< 15 kg	Up to 50%
< 20 kg	Up to 25%

2-1-10 Modular Fixation Kit Dimensions

Overall dimensions of the Modular Fixation kit for the hopper are provided below.

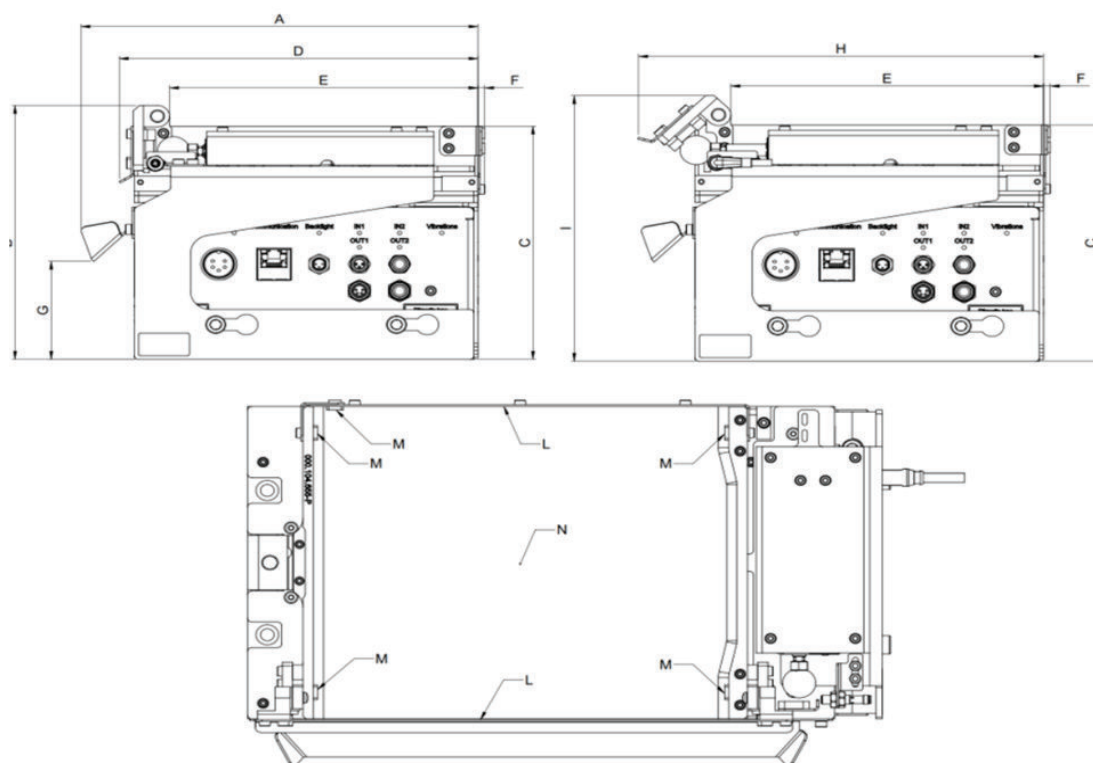


2-1-11 Purge Platform Specifications

The purge platform dimensions and specifications are listed below.

iPF-240 Purge Platform

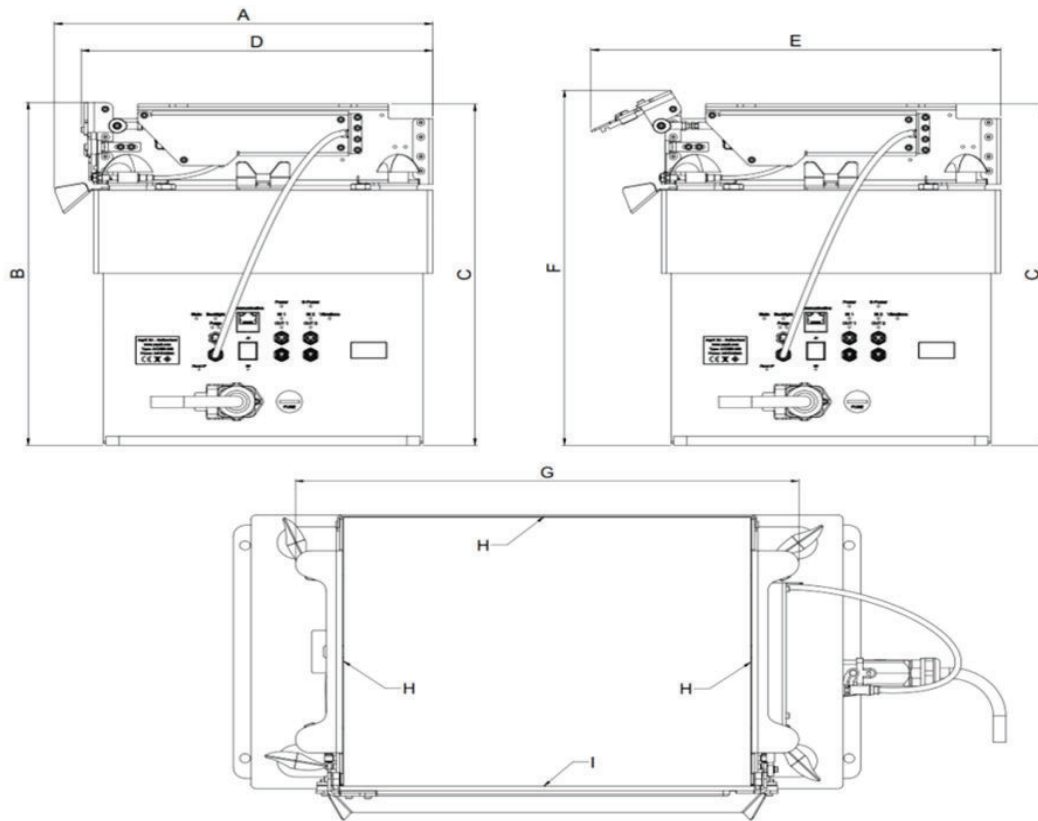
The purge system dimensions for the iPF-240 Part Feeder are shown in the illustration and table below.



Dimension	Value
A	199 mm
B \pm stroke	144 \pm 2 mm
C	132 \pm 2 mm
D	180 mm
E	152 mm
F	4 mm
G	54 mm
H	201 mm
I \pm stroke	149 \pm 2 mm
L	Stainless steel 1.4301
M	Stainless steel 1.4301
N	POM

iPF-380 and iPF-530 Purge Platform

The dimensions for the iPF-380 and the iPF-530 Part Feeder purge platforms are shown in the illustration and table below.



Dimensions	iPF-380	iPF-530
Frame Height	H = 60 mm	H = 100 mm
A	287 mm	404 mm
B ± stroke	307 ±6 mm	361 ±6 mm
C ± stroke	306 ±6 mm	359 ±6 mm
D	264 mm	381 mm
E	311 mm	463 mm
F ± stroke	316 ±6 mm	370 ±8 mm
G	400 mm	506 mm
H	Stainless steel 1.4301	
I	POM-C (FDA)	



Additional Information

- When plugging in the purging frame, the motor will seek its origin position, hence emitting some noise. That noise may be heard while operating too, under certain circumstances.
- If the sensor does not detect that the flap is closed (jammed parts), the actuator opens the flap after a timeout of 4000 ms (default value, configurable) and generates an alarm message.

2-2 Electrical Specifications

Electrical specifications are provided in the sections below.

2-2-1 Part Feeder Power Supply Specifications

Specifications for the 24 VDC power supply are provided below.

Item	iPF-240	iPF-380	iPF-530
Voltage	24 VDC \pm 5%	24 VDC \pm 5%	24 VDC \pm 5%
24 VDC current consumption	5 A	4 A	6 A
24 VDC S-current consumption	3 A	16 A	14 A

2-2-2 Hopper Power Supply Specifications

Specifications for the hopper 24 VDC power supply are provided below.

Characteristic	Medium/Large Hopper
Voltage	24 VDC \pm 5%
Recommended power supply rating	10 A
RMS current at 100% amplitude and max load	4 A
Peak current (10 ms) at the start of vibration at 100% amplitude	9 A

2-3 Environmental Specifications

Environmental specifications are provided below.

2-3-1 Part Feeder Specifications

Environmental specifications for the part feeder are provided below.

Item	Specification
Operating temperature	5 to 40° C
Storage temperature	5 to 40° C
Humidity	During operation: 30 to 80% (non-condensing) During storage and transportation: 75% or less (non-condensing)
Ingress protection	IP20



CAUTION

In case of humidity and temperature variation, note that it might affect the global performances of the part feeder and cause electrical hazard.



2-3-2 Hopper Specifications

Environmental specifications for the hopper are provided below.

Item	Specification
Operating temperature	5 to 40° C
Storage temperature	5 to 40° C
Humidity	During operation: 30 to 80% (non-condensing) During storage and transportation: 75% or less (non-condensing)
Ingress protection	IP20



CAUTION

In case of humidity and temperature variation, note that it might affect the global performances of the product.



2-4 Other Specifications

Other specifications are provided below.

2-4-1 Connector and Port Specifications

Part Feeder connector specifications are provided below.



Additional Information

Refer to *3-1 Part Feeder System Installation Procedure* on page 3-2 for more information about connector wiring and pin diagrams.

Connector	iPF-240	iPF-380	iPF-530
Power	M16, 5 poles, male	Harting 09 12 005 3004	Harting 09 12 005 3004
Communication	Standard RJ45 port	Standard RJ45 port	Standard RJ45 port
Default IP Address	192.168.127.254	192.168.127.254	192.168.127.254
Default subnet mask	255.255.255.0	255.255.255.0	255.255.255.0
Port	4001	4001	4001
MAC address	Can be read by ARP request	Can be read by ARP request	Can be read by ARP request
Backlight Synchronization	M8, 3P, male Reserved for future use	M8, 3P, male Reserved for future use	M8, 3P, male Reserved for future use
Digital Inputs 1 and 2	M8, 3P, female	M8, 3P, female	M8, 3P, female
Outputs 1 and 2	M8, 4P, female	M8, 4P, female	M8, 4P, female
Purge Connector	—	M8, 4P, female	M8, 4P, female
Fuse	—	16 A, time-delay fuse	16 A, time-delay fuse

Hopper Connectors

Hopper connector specifications are provided below.

Connector	Specifications
Input	M8, 4 poles, female
Communication	Reserved for future use
Power	M16, 5 pin, female

2-4-2 Mounting Screws and Torques

Part Feeder Mounting Screws

The following screw type and torque are required for mounting the part feeder.

Part Feeder	Screw	Quantity	Torque
iPF-240	M6	4	9 N-m
iPF-380	M8	4	9 N-m
iPF-530	M8	4	9 N-m

Hopper Mounting Screws

The following screw type and torque are required for mounting the hopper.

Hopper	Screw	Quantity	Torque
3 L/7 L Hopper	M6	4	9 N-m
14 L Hopper	M6	4	9 N-m

2-4-3 Part feeder Vibration Isolators Specifications

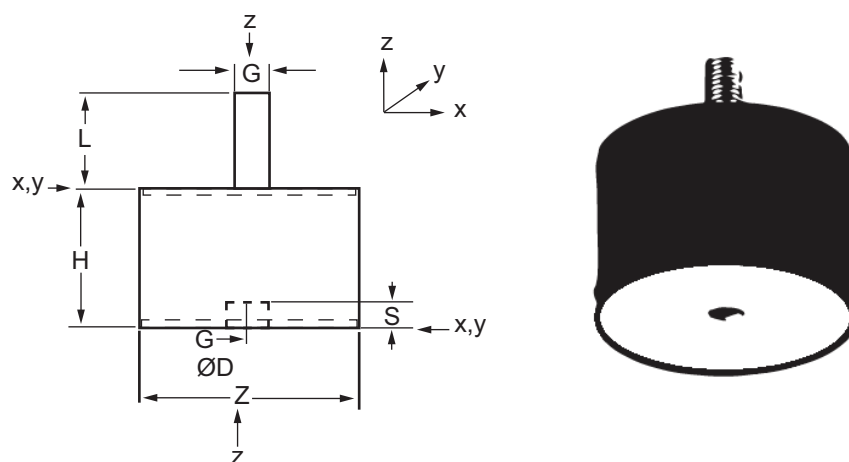
The following tables and illustration list specifications for the OMRON recommended vibration isolators (round/rubber buffers) from third-party vendors.

For Angst + Pfister isolators, visit <https://www.apsoparts.com>, refer to section, Antivibration Technology; APSOvib.

Item	Description	iPF-240	iPF-380	iPF-530
APSO Ref.		12.2034.0103	12.2034.0293	12.2034.0353
Quantity		4	4	4
ØD [mm]	Diameter of round buffer APSOvib	16	40	40
H [mm]	Height of round buffer APSOvib	20	40	50
G [mm]	Thread diameter	M5	M8	M10
L [mm]	Thread depth / male	12	25	25
s [mm]	Thread depth / female	3	8	8
cz [mm]	Spring constant of round buffer APSOvib; compression in Z direction (axial direction)	50	180	190
Ez [N]	Max. allowed compressive force of round buffer APSOvib	120	690	1000

For Elessa isolators, visit <https://www.elesa.com/>, refer to section, Rubber buffers.

Item	Description	iPF-240	iPF-380	iPF-530
ELESA Ref.		411771 DVA.2-15-20- M4-10-55	412021 DVA.2-50-45- M10-28-55	412021 DVA.2-50-45- M10-28-55
Quantity		4	4	4
ØD [mm]	Diameter of round buffer APSOvib	15	50	50
H [mm]	Height of round buffer	20	45	45
G [mm]	Thread diameter	M4	M10	M10
L [mm]	Thread depth / male	10	28	28
s [mm]	Thread depth / female	4	10	10
cz [mm]	Spring constant of round buffer; compression in Z direction (axial direction)	47	182	182
Ez [N]	Max. allowed compressive force of round buffer	234	2046	2046



Precautions for Correct Use

Ensure that the total mass of the part feeder along with its accessories does not exceed the maximum allowed compressive force of the round buffers (F_z).

3

Installation

This section provides information about installing the part feeder and other necessary equipment.

3-1	Part Feeder System Installation Procedure	3-2
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3-1 Part Feeder System Installation Procedure

The basic installation steps are provided below.



CAUTION

Never modify the product. Unauthorized modification may cause the product to malfunction, resulting in injury, electric shock, fire, etc.



Additional Information

Ensure to allocate additional space behind the part feeder and hopper to provide room for cables.

- 1** Mount the part feeder.
Refer to *3-2 Part Feeder Installation* on page 3-3 for more information.
- 2** Mount the hopper.
Refer to *3-3 Hopper Installation* on page 3-5 for more information.
- 3** Install the purge system.
Refer to *3-4 Installing the Purge System* on page 3-8 for more information.
- 4** Verify part feeder system installation.
Refer to *3-5 Verifying Installation* on page 3-12 for more information.
- 5** Connect the part feeder and hopper electrically and calibrate the hopper.
Refer to *3-6 Connecting the Part Feeder System* on page 3-13 for more information.
- 6** Configure Ethernet communication and connect to the ACE software.
Refer to *3-6-5 Setting up Part Feeder for Operation* on page 3-19 for more information.

3-2 Part Feeder Installation

Use the information in the following sections to install the part feeder.

CAUTION

Do not use the product in a place where the main unit or controller may come in contact with water or oil droplets.



Before beginning the mounting procedure, have the following tools and resources available.

- A torque wrench for proper tightening of the mounting screws.
- Assistance if necessary, to maneuver the part feeder into the mounting position.
- Four socket-head cap screws with flat washers and hex nuts (through hole mounting only). Refer to *2-4-2 Mounting Screws and Torques* on page 2-15 for more information.

3-2-1 Part Feeder Mounting Surface

The part feeder must be mounted on a smooth, level, and flat surface that is rigid enough to prevent vibration and flexing during operation. The mounting surface must be designed to support the weight of the part feeder with payload and absorb the vibrations generated by it.

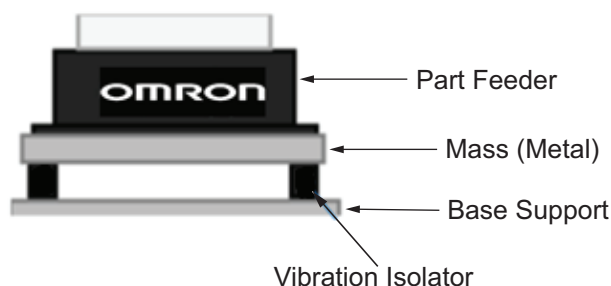
CAUTION

The part feeder must be mounted on a smooth, flat, and strong surface. Ensure that the part feeder is not submitted to mounting flexure. Failure to do so would degrade the part feeder's performance and cause mechanical hazard.



3-2-2 Vibration Decoupling

When several moving devices such as the part feeder, hopper, camera, and robot have to be mounted in close proximity, it is recommended to provide individual support structure for each device. If it is not possible to provide this, it is important to ensure that no single device causes vibration interference with the other devices. In order to decouple the vibrations, vibration isolators or round buffers must be installed. Refer to *2-4-3 Part feeder Vibration Isolators Specifications* on page 2-16 for more information.





Precautions for Correct Use

- Vibration isolators should be mounted outside of the part feeder's foot print. Using a Mass between the part feeder and the vibration isolators is mandatory. Not following this practice could irreparably damage the part feeder and would void the warranty.
- It is highly recommended not to mount the part feeder and the camera on the same support structure. If the vision system is disturbed by residual vibrations, the coordinates sent to the robot will not be reliable, thus compromising the precision of the whole system.



Additional Information

- Refer to *2-1-3 Part Feeder Mounting Structure Characteristics* on page 2-5 for more information on the Mass to be used for each part feeder.
- Increasing the mass of the base support to avoid using vibration isolators does not guarantee that the vibrations will be completely eliminated.

3-2-3 Part Feeder Mounting Procedure

Use the following procedure to mount the part feeder.



Precautions for Correct Use

The mounting surface should be clean and prepared according to the information provided in *3-2-1 Part Feeder Mounting Surface* on page 3-3 before attempting to mount the part feeder.

- 1** Drill four holes on the mounting surface to accommodate the M-8 screws. Four holes are provided in the mounting flange for guidance. Refer to *iPF-240 Mounting Flange Dimensions* on page 2-4 or *iPF-380 and iPF-530 Mounting Flange Dimensions* on page 2-4 for more information.
- 2** Maneuver the part feeder into position on the mounting surface.
- 3** Align the holes in the mounting flange with the prepared mounting holes on the mounting surface.
- 4** Insert all four screws with washers to secure the part feeder to the mounting surface.
- 5** Torque the mounting screws until the required torque of 9 N-m is achieved.
- 6** After all four screws have been tightened to the specified torque, the mounting procedure is complete.

3-3 Hopper Installation

Use the information in the following sections to install the hopper.

Before beginning the mounting procedure, have the following tools and resources available.

- Four M6 screws and washers.
- Hex wrench for proper tightening of the mounting screws.
- Assistance if necessary, to maneuver the hopper and container into the mounting position.
- The modular fixation kit, if required.

3-3-1 Hopper Mounting Surface

The hopper must be mounted on a smooth, level, and flat surface that is rigid enough to prevent vibration and flexing during operation. The mounting surface must be designed to support the weight of the hopper with payload and absorb the vibrations generated by it. Refer to *2-1-8 Hopper General Characteristics* on page 2-9 for more information.

CAUTION

The hopper must be mounted on a smooth, flat, and strong surface. Ensure that the hopper is not submitted to mounting flexure. Non-compliance with these rules may affect the performances.



Precautions for Correct Use

Never attach the hopper directly to vibration isolators, the hopper already has integrated vibration isolators in its housing. Using external vibration isolators would cause the inside of the hopper to vibrate more than the container itself and could damage the electronic controller irremediably.

3-3-2 Installing the Modular Fixation Kit Procedure

Use the following procedure to install the modular fixation kit. The height for the fixation kit can be adjusted from 180 to 255 mm in increments of 15 mm.



Additional Information

The Modular Fixation kit allows the hopper to be mounted at the optimal height with respect to the part feeder for dispensing parts. This kit is required for all hopper models when mounted with the iPF-380 and iPF-530 Part Feeders.

- 1 Choose the correct height and fasten the first half with two M5 screws.
- 2 Secure by fastening the four M8 screws with nuts.
- 3 Repeat the above two steps for the second half.
- 4 Fasten the modular fixation kit on the surface and then mount the hopper on it.
- 5 After all screws have been tightened, the installation procedure is complete.

3-3-3 Hopper Mounting Procedure

Use the following procedure to mount the hopper.



Precautions for Correct Use

- The mounting surface should be clean and prepared according to the information provided in *3-3-1 Hopper Mounting Surface* on page 3-5 before attempting to mount the hopper. OMRON recommends mounting the hopper on the same strong support as the part feeder.
- The hopper must be mounted at the optimal height with respect to the part feeder for dispensing parts. The Modular Fixation kit allows the hopper's height to be adjusted from 180 to 255 mm in increments of 15 mm. This increase in height is required for all hopper models when mounted with the iPF-380 and iPF-530 part feeders.
- While vibrating, the container displacement does not exceed ± 1 mm in X and Z axes. However a minimal margin of 10 mm must be considered in all axes (X/Y/Z) when mounting the hopper.

- 1** Drill four holes on the mounting surface to accommodate the M-6 screws. Four holes are provided in the base plate for guidance. Refer to *Medium Hopper Base Mounting Flange Dimensions* on page 2-8 or *Large Hopper Base Mounting Flange Dimensions* on page 2-9 for more information.
- 2** Maneuver the hopper into position on the mounting surface.
- 3** Align the holes in the base plate with the prepared mounting holes on the mounting surface.
- 4** Insert all four screws with washers to secure the hopper to the mounting surface.
- 5** Torque the mounting screws until the required torque of 9 N-m is achieved.
- 6** After all four screws have been tightened to the specified torque, the mounting procedure is complete.

3-3-4 Installing the Container

Use the following procedure to install the hopper container.

CAUTION

Risk of pinching. Do not place your fingers between the container and the hopper base.



Precautions for Correct Use

- When installing the container, first install all the screws loosely. After the holes are aligned and the screws are in place, tighten the screws with a torque of 9 N-m.
- For the Large Hopper, you must tighten the front screws first. Failure to follow this instruction could cause the hopper to malfunction and damage the system.



Precautions for Correct Use

If modifications to the container are considered, it should be done at the user's responsibility. The following are considered modifications to the container:

- Removing material by machining or cutting the container must be avoided, it can impact the rigidity of the system and its proper functioning.
 - If modifications are to be undertaken, the container **MUST** be removed from the hopper base before any drilling operations.
-

Installing the Hopper Container Procedure

- 1** Place the container on the hopper base.
- 2** Align the holes on the container with the base and insert all four screws.
- 3** Tighten the screws with a torque of 9 N-m to the hopper base.
- 4** After all four screws have been tightened to the specified torque, the installation procedure is complete.

3-4 Installing the Purge System

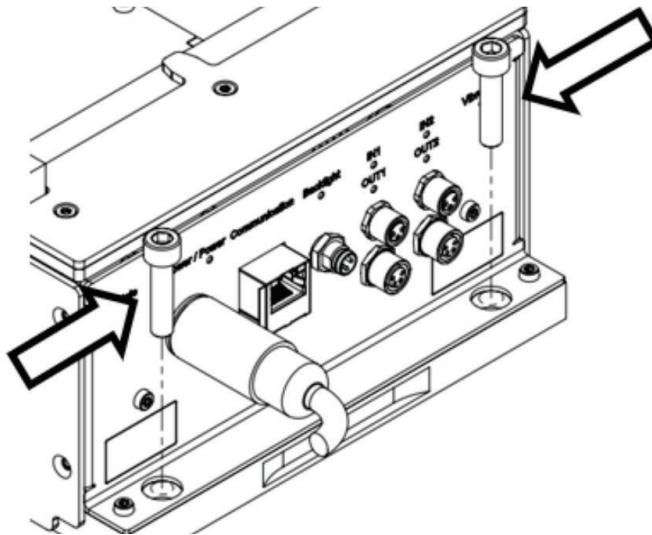
This section provides information about installing the purge system on the part feeder. Before beginning the installation procedure, have the following tools available.

- A star key size 10.
- Hex keys (Allen wrench) size 5 (5 mm) and size 12.5.

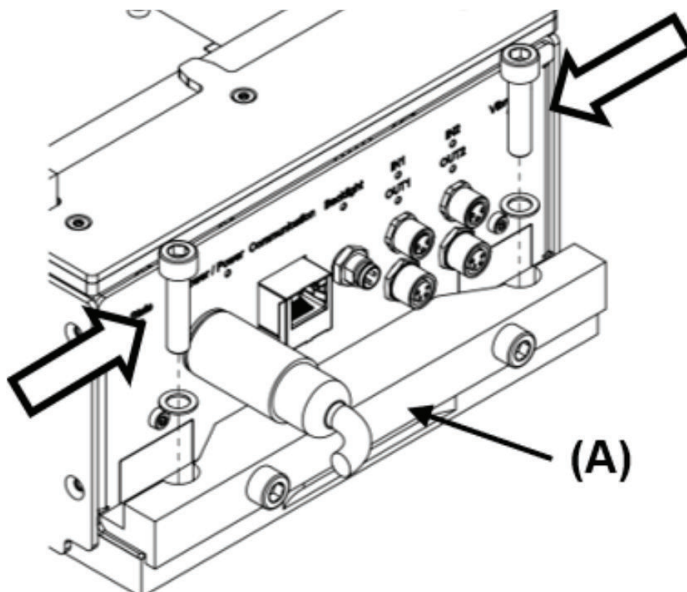
3-4-1 Install the Purge Kit for iPF-240 Procedure

Use the following procedure to install the purge kit.

- 1** Unscrew the two screws on the connector side base of the part feeder using the hex key size 5.

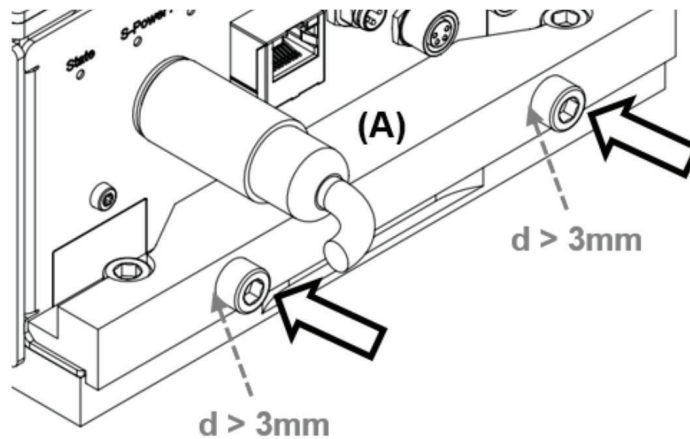


- 2** Position the support A and ensure it is flush against the side of the part feeder.

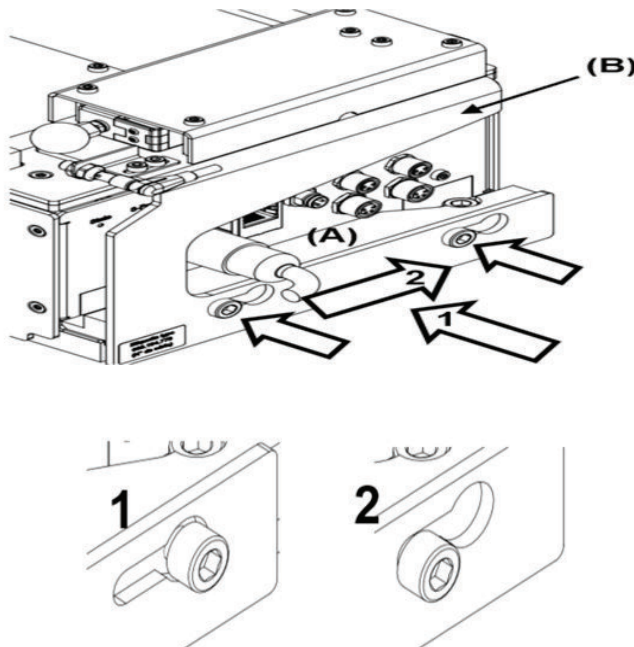


- 3** Insert the two screws on the base and tighten them using the hex key size 5.

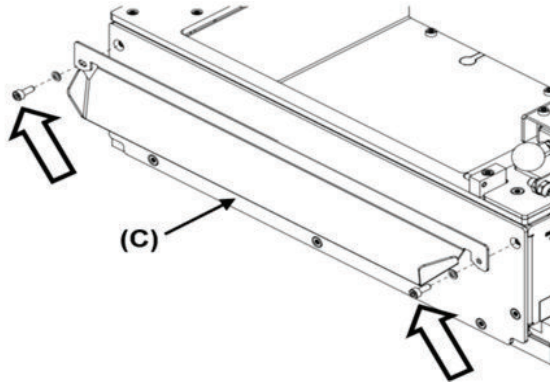
- 4** Loosen the screws of the support to ensure a distance greater than 3 mm between the surface of the support A and the head of the screws.



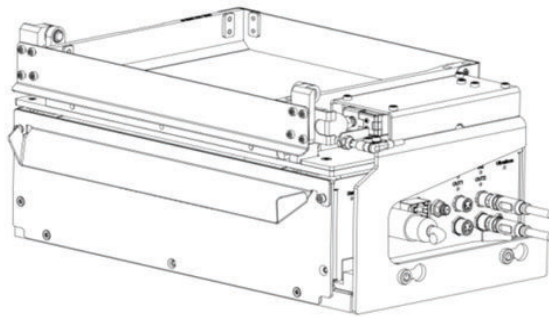
- 5** Position the purge kit B and tighten the hex screws of the support A to a torque of 4.5 N-m.



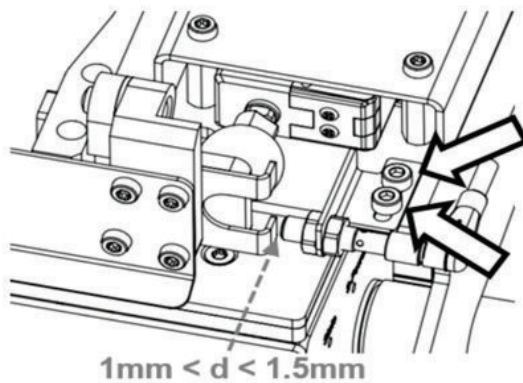
- 6** Slide the purge kit B.
- 7** Remove the two screws from the side plate of the part feeder using the star key size 10.
- 8** Secure the purge spout on the base of the part feeder, reinstall the screws and tighten to a torque of 1.2 N-m.



- 9** Position the purge platform on the part feeder.



- 10** Unscrew the sensor holder screws using the hex key size 12.5 and set the sensor at a distance between 1 mm and 1.5 mm from the sensor plate.

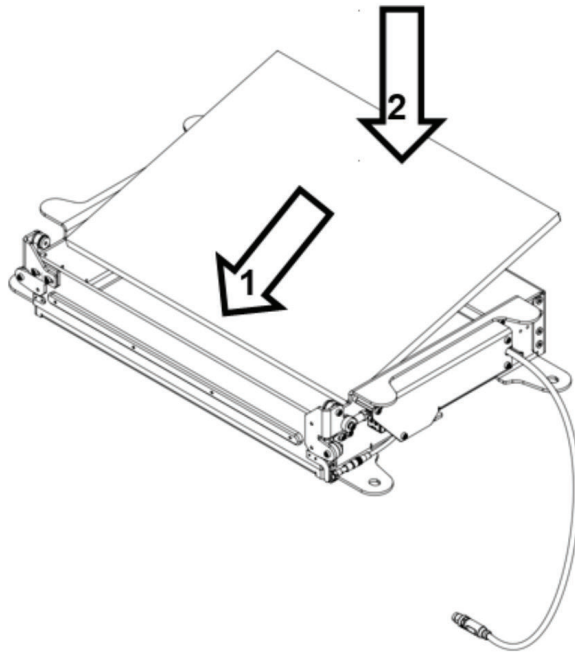


- 11** Tighten the two screws of the sensor holder to a torque of 1.2 N-m.
- 12** To connect the purge kit to the part feeder, use the connectors IN 2 and OUT 2.
- 13** After all screws have been tightened, the installation procedure is complete.

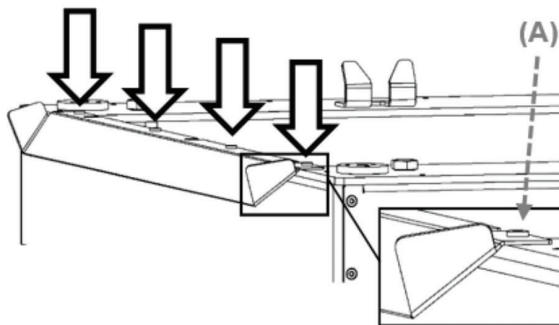
3-4-2 Install the Purge Platform for iPF-380 and iPF-530 Procedure

Use the following procedure to install the purge platform.

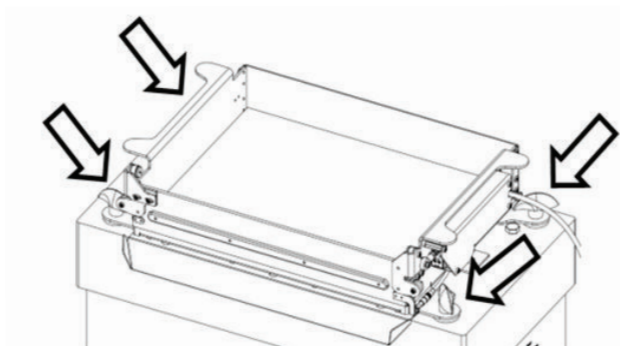
- 1** Place the platform plate in the purge frame and tighten the eight screws using the star key size 10 to a torque of 0.8 N-m.



- 2** Position the purge spout on the side of the part feeder and tighten the four screws using the star key size 8 to a torque of 0.6 N-m.



- 3** Position the purge platform assembly on the part feeder and tighten the four large handle screws.



- 4** To connect the purge system to the part feeder, use the Purge connector.
- 5** After all screws have been tightened, the installation procedure is complete.

3-5 Verifying Installation

After initial installation or if any modifications are made to the part feeder system any time, make the following checks before operation.

3-5-1 Mechanical Checks

Make the following mechanical checks after initial installation or after any hardware adjustments have been made to the system.

- Check that the part feeder mounting surface is secure and adequate.
- Check all mounting bolts and other fasteners for proper torque.
- Check if the hopper mounting surface is secure and adequate.
- Check if the purge system that is mounted to the part feeder is securely fastened.

3-5-2 System Cable Checks

Make the following system cable checks after initial installation or after any adjustments have been made to cable connections.

- Check all cables and connectors to ensure that they are securely fastened and free of damage.
- Check the system ground and power supply connections to make sure that they are connected properly.
- Check that all cables are adequately supported and not strained near the connectors.

3-6 Connecting the Part Feeder System

Use the information below to make all power supply connections to the part feeder and for setting up the part feeder through the ACE software.

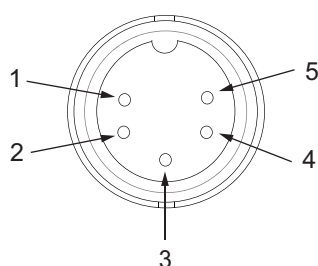
3-6-1 Connecting the Part Feeder Electrically

Use the following illustration and table for the part feeder power connector pin assignments.

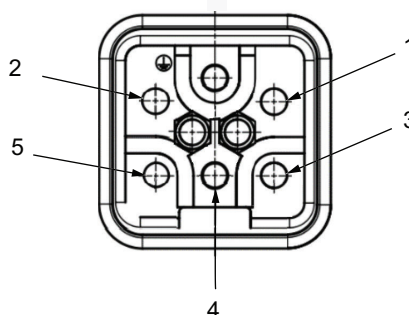


Precautions for Correct Use

Before supplying power to the part feeder, check that your distribution voltage is the same as the nominal voltage. Use PELV (protected extra-low voltage) nominal voltage. Incorrect wiring of 0 V and 24 V would cause irreparable damages and void the warranty. It is recommended to supply each part feeder with a dedicated power supply.



iPF-240



iPF-380/iPF-530

Connector type: M16, 5 poles, male

Connector type: Harting 09 12 005 3004

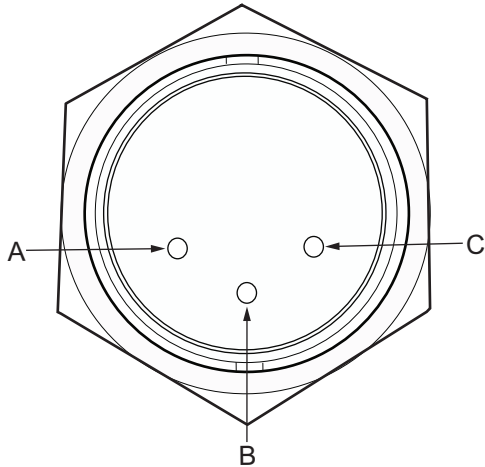
Pin	Signal Description	Cable
1	24 VDC PELV S-Power	1
2	0 V GND S-Power	2
3	24 VDC PELV Power	3
4	0 V GND Power	4
5	Earth	PE



Additional Information

- Refer to 2-2-1 *Part Feeder Power Supply Specifications* on page 2-13 and 2-4-1 *Connector and Port Specifications* on page 2-15 for information about power supply requirements and other wiring details.
- Both Power and S-Power can be connected to a single power supply or to two different power supplies. The 0 V-GND and Earth signals of the two supplies are connected inside the part feeder.
- Use a 20 A power supply with a current reserve of 150% for 3 seconds. OMRON recommends using OMRON S8VK-S48024 24VDC/20A (480 W) power supply.

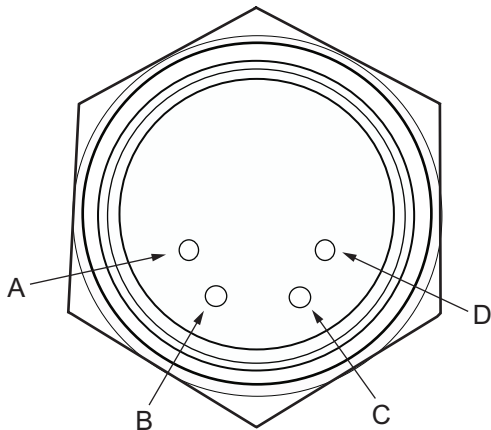
Use the following illustration and table for the part feeder Digital Inputs 1 and 2 connector pin assignments.



Item	Pin	Description
A	1	+24 V DC OUT (power supply for iPF-240 purge gate sensor)
B	3	0 V GND
C	4	Input (+24 V DC)

The connector type is an M8, 3 pin, female connector.

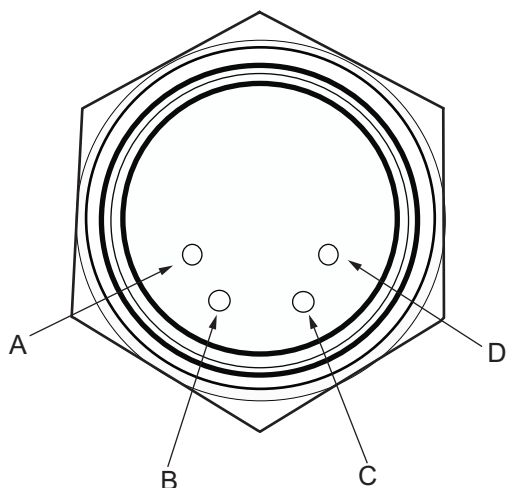
Use the following illustration and table for the part feeder Outputs 1 and 2 connector pin assignments.



Item	Pin	Description	Hopper
A	1	0 V GND	Analog output 1
B	2	0 to 10 VDC	
C	3	0 V GND	Digital output 1
D	4	+24 V DC 500 mA	

Connector type: M8, 4 pin, female.

Use the following illustration and table for the part feeder Purge (only for iPF-380 and iPF-530 Part Feeders) connector pin assignments.

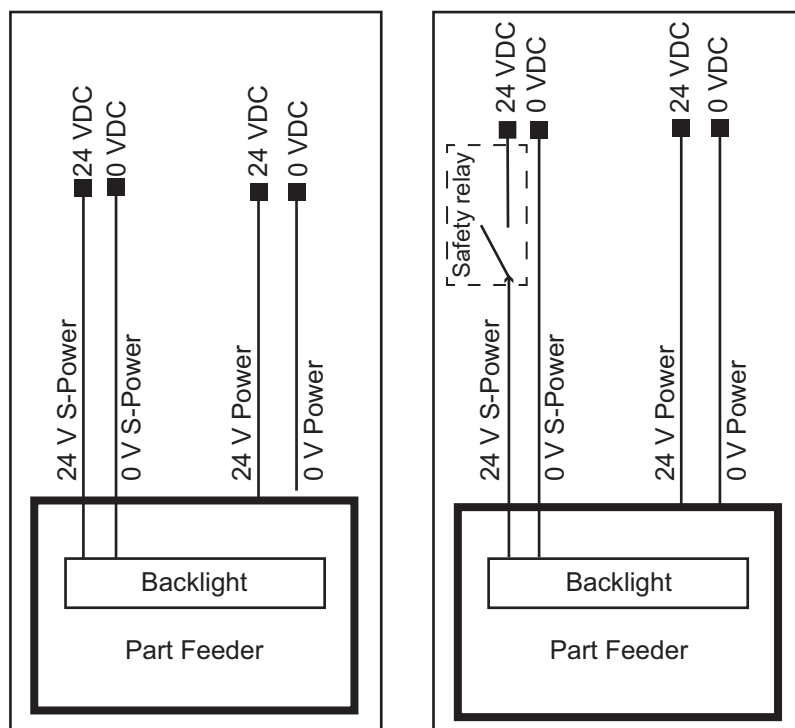


Item	Pin	Description
A	1	24 VDC
B	2	Digital input 24 VDC
C	3	0 V GND
D	4	Digital output 24 V DC 500 mA

Connector type: M8, 4 pin, female.

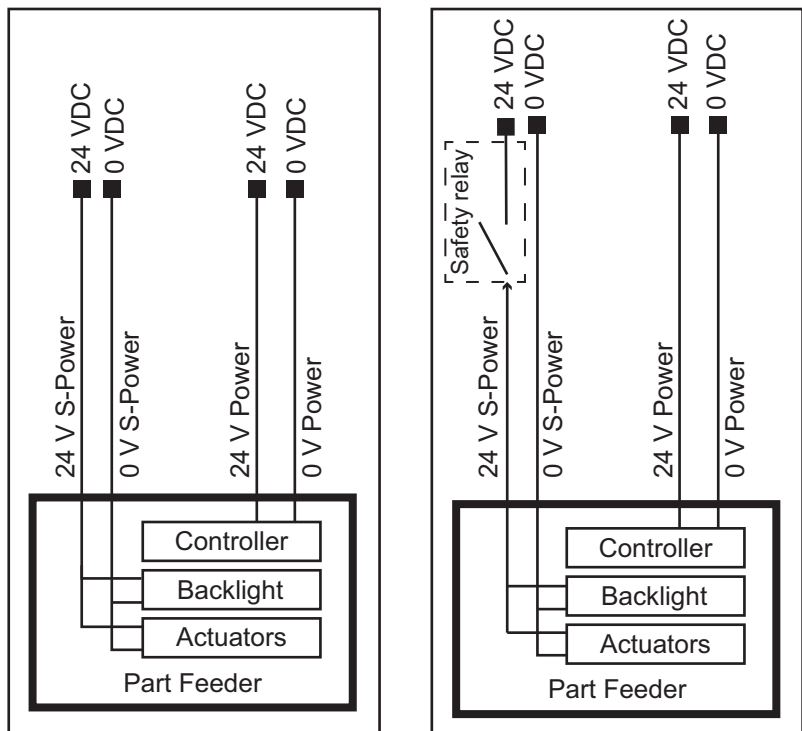
iPF-240 Power Connection with Safety Relay

S-Power is the safety power for the backlight. Removing S-Power ensures that the backlight stays off (for instance as a safety measure to avoid over exposure to infrared backlight). The following connection schematic shows the way to connect the part feeder if the user application requires an external relay to ensure that the backlight is safely switched off. However, both Power and S-Power have to be supplied for using the backlight.



iPF-380/iPF-530 Power Connection with Safety Relay

S-Power is the safety power for the backlight and the actuators. Removing S-Power ensures that the backlight stays off (for instance as a safety measure to avoid over exposure to infrared backlight). Switching off this safety power deactivates the digital hopper outputs and the digital purge output. However, both Power and S-Power have to be supplied for using the backlight. The following connection schematic shows the way to connect the part feeder if the user application requires an external relay to ensure that the backlight is safely switched off.



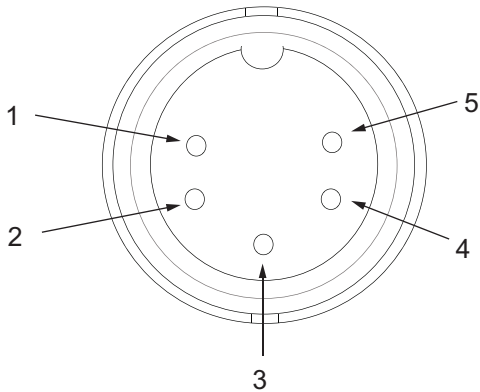
3-6-2 Connecting the Hopper Electrically

Use the following illustration and table for the hopper power connector pin assignments. A standard M16 five pins female cable powers the hopper.



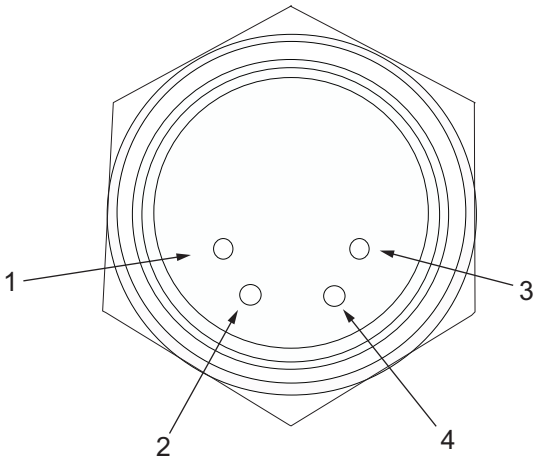
Precautions for Correct Use

Before supplying power to the hopper, check that your distribution voltage is the same as the nominal voltage. Use PELV (protected extra-low voltage) nominal voltage. Check the correct polarity of your 24 VDC power plug before connection. It is recommended to supply each hopper with a dedicated power supply.



Pin	Signal Description	Cable
1-3	24 VDC	1-3
2-4	GND	2-4
5	Earth	PE

Use the following illustration and table for the hopper Input connector pinout information. The vibration is controlled through the analog 0 to 10 VDC signal this interface. This signal controls the amplitude of the vibration.



Pin	Signal Description
1	GND
2	Digital 24 VDC (reserved for future use)
3	GND
4	Analog 0 to 10 VDC

3-6-3 Hopper Calibration

The hopper integrates a sensor that enables the regulation of the vibration amplitude. To ensure proper functioning, the hopper must be calibrated.



Precautions for Correct Use

The hopper must be calibrated before initial use.

The hopper will also require recalibration after:

- A container is exchanged for another container of different size.
- A custom accessory is added to the container such as a spout or slide.
- The container is modified. Refer to *3-3-4 Installing the Container* on page 3-6 for more information.
- The desired vibration amplitude cannot be reached, indicated by the Status LED. Refer to *4-2-3 LED indicators for the Hopper* on page 4-5 for more information.

Calibration Procedure

Use the following procedure to calibrate the hopper.



Precautions for Correct Use

Before triggering a calibration, ensure the following:

- Remove all parts from the container.
- Make sure the hopper is correctly fixed as described in *3-3-3 Hopper Mounting Procedure* on page 3-6.
- Make sure the container is properly fixed to the hopper base.
- Make sure that the container is free to move without interfering with a neighboring element.
- Make sure that there is no nearby equipment that could generate unwanted vibrations.



Precautions for Correct Use

During an ongoing calibration session, ensure the following:

- Do not touch the hopper.
- Do not touch the frame on which the hopper is mounted.

- 1** Locate the Calib. push button on the hopper base.
- 2** Press and hold the Calib. button for 5 seconds.
The calibration process begins, indicated by a blinking blue State LED. Refer to *4-2-3 LED indicators for the Hopper* on page 4-5 for more information. During the calibration, the controller performs two frequency sweeps at different amplitude levels in order to find the optimal drive settings. After about thirty seconds, if the Status LED illuminates solid green for five seconds, the calibration was successful.
- 3** If the Status LED illuminates solid red for five seconds, the calibration attempt has failed. Ensure all the above precautions have been followed and restart the calibration.
- 4** If the problem persists, contact your local OMRON representative.

3-6-4 Connecting the Hopper to Part Feeder

Use the following procedure to connect the hopper to your part feeder.



Additional Information

Refer to *Out 1 and Out 2* on page 1-8 for more information.

- 1** Connect the hopper to a 24 VDC power supply using the power cable (30600-240F).

- 2 Connect the hopper Input interface to either Output 1 or 2 port of the part feeder using an I/O cable (30600-101F).

3-6-5 Setting up Part Feeder for Operation

Use the Automation Control Environment (ACE) software to set up and configure the part feeder, hopper, and purge system functionalities. The ACE software can be accessed from the USB flash drive that is shipped with your part feeder. The USB flash drive also includes the *Automated Control Environment (ACE) Version 4 User's Manual (Cat. No. I633)*.

Before commissioning the part feeder, ensure that your robot with integrated vision system and the Application Manager (IPC) running ACE software are connected through an Ethernet hub and are fully functional.



Additional Information

Refer to *1-1 Intended Use* on page 1-2 for more information.

Use the following procedure to set up and configure your part feeder system before operation.

- 1 Ensure the part feeder is powered on.
- 2 Connect the part feeder's communication port to the Ethernet hub mentioned above using an Ethernet cable.
- 3 Change the IP address settings of the PC running the ACE software to be on the same network as the part feeder. Refer to *2-4-1 Connector and Port Specifications* on page 2-15 for default IP address, subnet mask, and port number of the part feeder.
- 4 Use the ACE software to configure the part feeder system for your application requirements. Refer to *Automated Control Environment (ACE) Version 4 User's Manual (Cat. No. I633)* for more information.
- 5 When the system functionality has been set up with the ACE software, your part feeder system is ready for operation.

4

Operation

This section provides information necessary to operate the part feeder.

4

4-1	Part Feeder Operating Principle	4-2
4-2	LED Indicators	4-4
4-2-1	LED indicators for iPF-240	4-4
4-2-2	LED indicators for iPF-380 and iPF-530.....	4-4
4-2-3	LED indicators for the Hopper	4-5

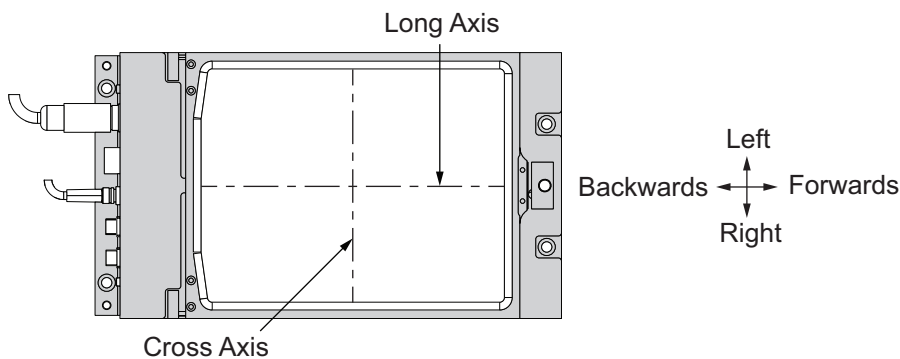
4-1 Part Feeder Operating Principle

The iPF-240, iPF-380, and iPF-530 Part Feeders are equipped with four actuators, one in each corner of the platform. The direction of the movement of the parts on the platform is the result of the combination of the excitation of actuators on the opposite side of the target end position of parts.

The following part feeding operations are possible with the part feeder.

- Feed forward.
- Feed backward.
- Feed left.
- Feed right.
- Flip.
- Center the parts along the long axis.
- Center the parts along the cross axis.
- Dispense parts from one or two hoppers.
- Purge parts from the hopper and part feeder simultaneously.
- Purge parts from the part feeder.
- Wait for a specified amount of time (ms) before proceeding to the next operation.

The illustration below gives directional reference. Refer to *Automated Control Environment (ACE) Version 4 User's Manual (Cat. No. I633)* for more information.



After installation and initial set up of the part feeder system, depending on the user application, four main steps need to be completed before the part feeder system can dispense parts for the robot to pick and place: part feeder platform vibration settings, hopper vibration amplitude settings (after initial calibration), purge settings, and setting a motion sequence. All four steps can be configured using the ACE interface. Refer to *Automated Control Environment (ACE) Version 4 User's Manual (Cat. No. I633)* for more information.



Precautions for Correct Use

When the purge gate is open, do not use any other vibration setting other than left or right. If this restriction is not followed, the mechanism could be irreparably damaged. Since enabling the purge function modifies the vibratory behavior of the part feeder, remember to deactivate it after you remove the purge system.



CAUTION

The sound level of the part feeder during intensive use without components on the platform is less than 72 dB. Depending on the components distributed on the platform, the sound level may be higher. In this case, it is the customer's or integrator's responsibility to implement the necessary measures to meet the safety requirements for operators.

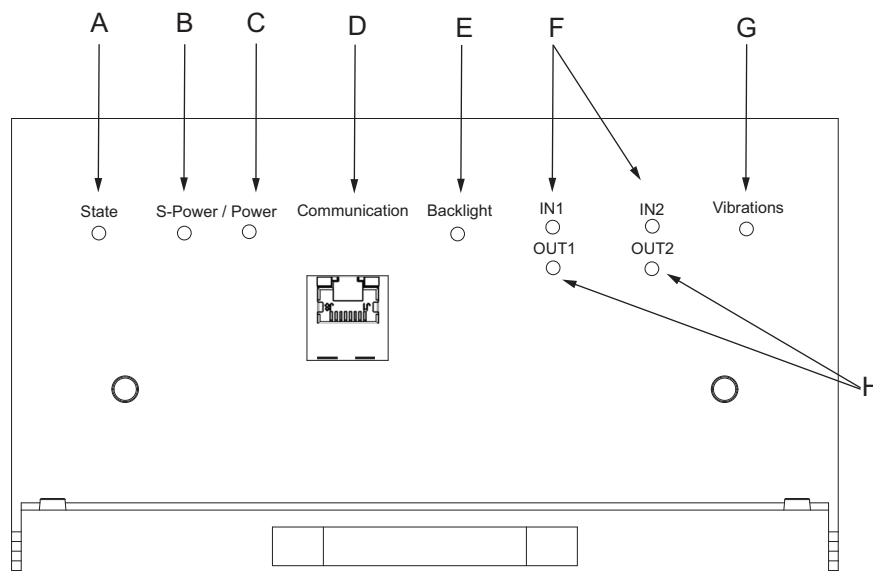


4-2 LED Indicators

The following sections give details about the part feeder's and the hopper's operating visual signals.

4-2-1 LED indicators for iPF-240

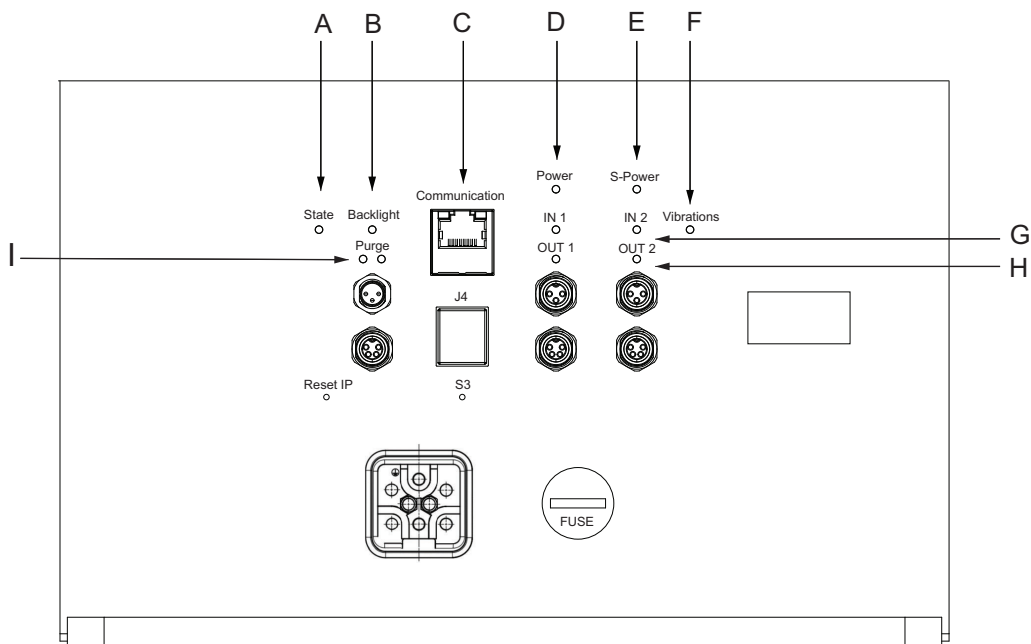
Use the following illustration and table for the iPF-240 Part Feeders.



Item	LED	Status	Color	Description
A	State	900 ms ON 100 ms OFF	Green	System in service
		100 ms ON 900 ms OFF	Green	System in standby
		80 ms ON 80 ms OFF	Green	Saving configuration
		Steady ON	Green	Programming
B	S-Power	ON	Green	24 V on S-Power input
C	Power	ON	Yellow	24 V power input
D	Communication	ON	Green	Connection detected
		Blinking	Yellow	Communication in progress
E	Backlight	ON	Green	Reserved for future use
F	IN 1 or 2	ON	Green	24 V on Input 1 or 2
G	Vibrations	ON	Green	Platform vibrating
H	OUT 1 or 2	ON	Yellow	24 V on Output 1 or 2

4-2-2 LED indicators for iPF-380 and iPF-530

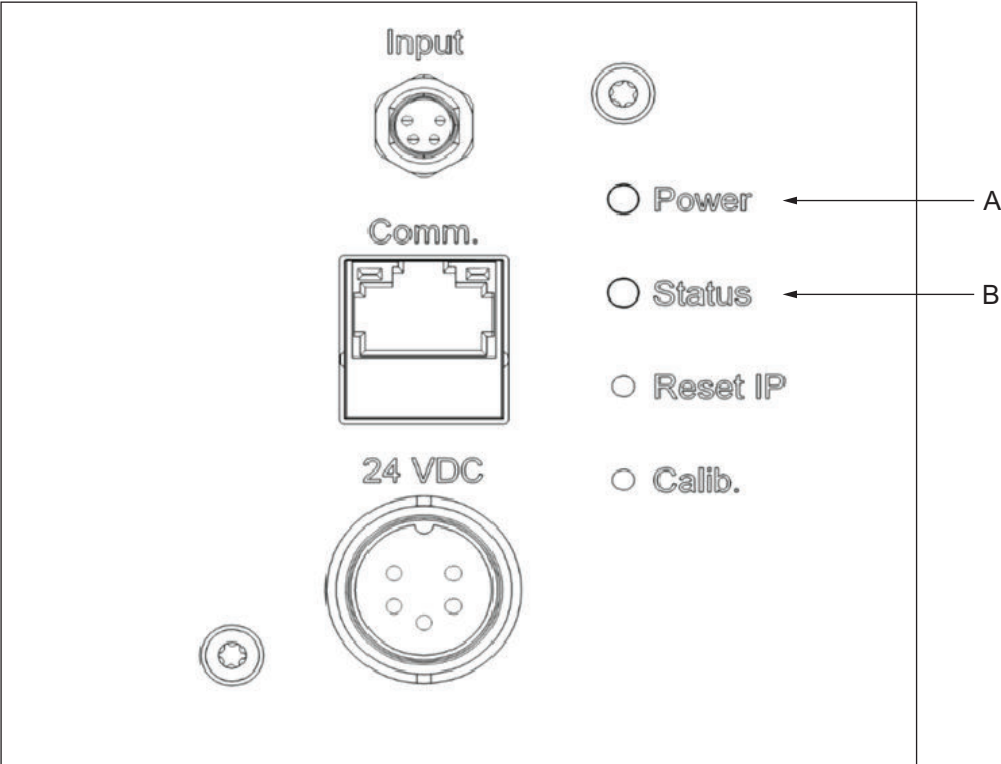
Use the following illustration and table for the iPF-380 and iPF-530 Part Feeders.



Item	LED	Status	Color	Description
A	State	900 ms ON 100 ms OFF	Green	System in service
		100 ms ON 900 ms OFF	Green	System in standby
		80 ms ON 80 ms OFF	Green	Saving configuration
		Steady ON	Green	Programming
B	Backlight	ON	Green	Reserved for future use
C	Communication	ON	Green	Connection detected
		Blinking	Yellow	Communication in progress
D	Power	ON	Green	24 V on power input
E	S-Power	ON	Yellow	24 V S-Power input
F	Vibrations	ON	Green	Platform vibrating
G	IN 1 (or 2)	ON	Green	24 V on Input 1 (or 2). Reserved for future use
H	OUT 1 (or 2)	ON	Yellow	24 V on Output 1 (or 2)
I	Purge	ON	Green	24 V on purge input
		ON	Yellow	24 V on purge output

4-2-3 LED indicators for the Hopper

Use the following illustration and table for the hopper.



Item	LED	Status	Color	Description
A	Power	ON	Green	24 VDC on power input
B	Status	200/800 ms ON/OFF	Green	System ready
		ON	Blue	System vibrates
		200/800 ms ON/OFF	Red	System error
		200/800 ms ON/OFF	Blue	Calibration process ongoing
		ON for 5 s	Green	Calibration done, new parameters applied
		ON for 5 s	Red	Calibration failed

5

Troubleshooting

This section provides part feeder system troubleshooting information.

5-1	Fault Detection	5-2
5-2	Error Messages	5-3
5-3	Reset IP Address.....	5-4
5-3-1	Reset iPF-240 IP Address	5-4
5-3-2	Reset iPF-380/iPF-530 IP Address	5-5
5-4	Realigning Purge Sensor Procedure.....	5-6

5-1 Fault Detection

Part feeder system faults can be detected with the following methods.

- To identify malfunctions in the part feeder system, check the error code displayed under *Run Status* at the top of the *iPF* window in the ACE software interface. The error code information is also logged in the *Event Log* accessed through the *View* menu.
- Use the LED indicators to visually see when a fault is present. Refer to *4-2 LED Indicators* on page 4-4 for more information.

5-2 Error Messages

The following table lists the part feeder system error messages. Use the ACE software to access the part feeder error codes. Refer to *5-1 Fault Detection* on page 5-2 for more information.

Error Code	Error Message	Explanation	Corrective Action
00012	No connection with iPF.	A connection could not be established with the iPF Part Feeder.	Check PC network settings and the Ethernet cable connection.
00013	Error toggling purge.	Purge gate mechanical failure.	<ol style="list-style-type: none"> 1. Check for obstructions in purge area and clear them. 2. Check for loose purge gate parts. 3. Check for damage or misalignment of purge gate sensor. Refer to <i>5-4 Realigning Purge Sensor Procedure</i> on page 5-6 for more information.
00014	Purge gate closure timeout.	Purge gate does not close.	
00015	No S-Power.	S-power supply not detected.	Reconnect S-power and check wiring.
00017	iPF is above maximum allowable temperature.	Excessive heat detected.	<ul style="list-style-type: none"> • Reduce the Flip operation frequency or duration. • Check the ambient operating temperature to ensure it is within the allowable range.



Additional Information

Contact your local OMRON representative for information about other errors not listed in the table above.

5-3 Reset IP Address

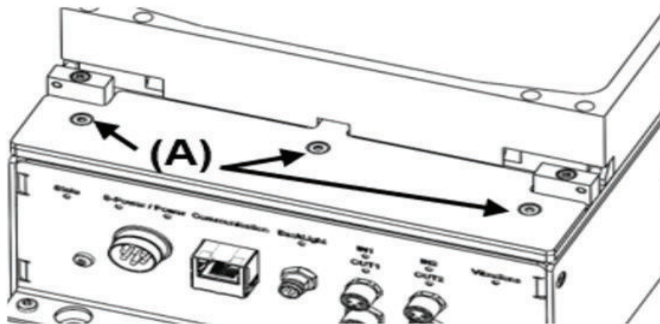
Use the following procedure to reset the IP address of the part feeder using the default IP address. This procedure allows you to connect to the part feeder with default values and then configure a new IP address if the old values are lost.

Before beginning the procedure, have a star key size 10 available.

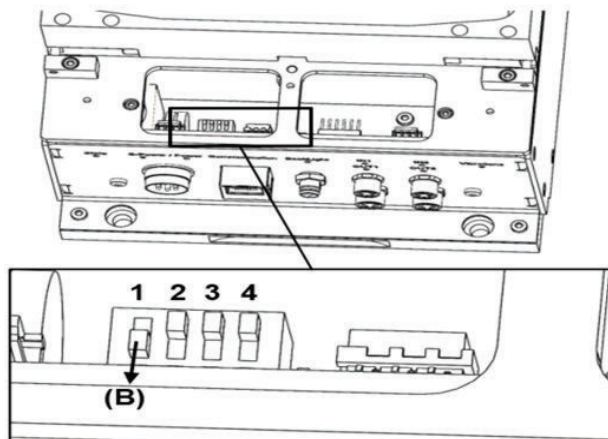
5-3-1 Reset iPF-240 IP Address

Use the following procedure to reset the IP address of the part feeder.

- 1** Turn off power supply to the part feeder.
- 2** Unscrew the three screws on the top cover of the part feeder using a star key size 10.

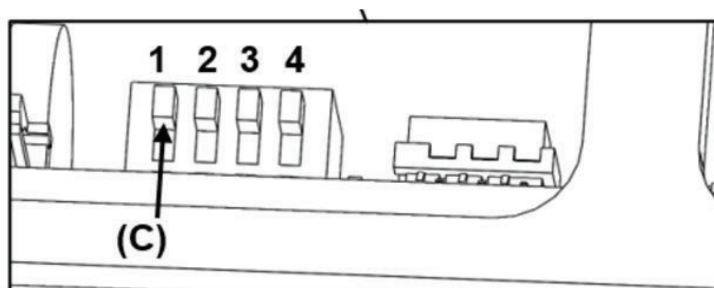


- 3** Remove the cover and move Selector 1 to position B.



- 4** Turn the power back on for the part feeder.
After the part feeder is powered on, the part feeder's communications settings (IP address, subnet mask, and port) revert to default values.
- 5** Use the ACE software interface to connect to the default settings and then configure new settings. Refer to *Automated Control Environment (ACE) Version 4 User's Manual (Cat. No. I633)* for more information.

- 6** Replace Selector 1 back to position C.

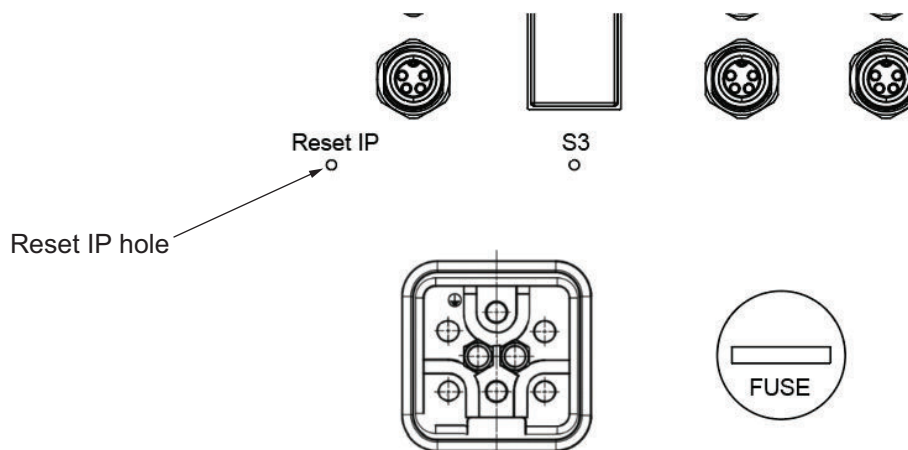


- 7** Turn off power and turn it back on.
The newly defined values will override the default values.
- 8** Replace the cover and tighten the screws to a torque of 0.9 N-m.

5-3-2 Reset iPF-380/iPF-530 IP Address

Use the following procedure to reset the IP address of the part feeders.

- 1** Turn off power supply to the part feeder.
- 2** Locate the Reset IP hole on the rear of the part feeder, insert a pin in the hole, push once, and hold.

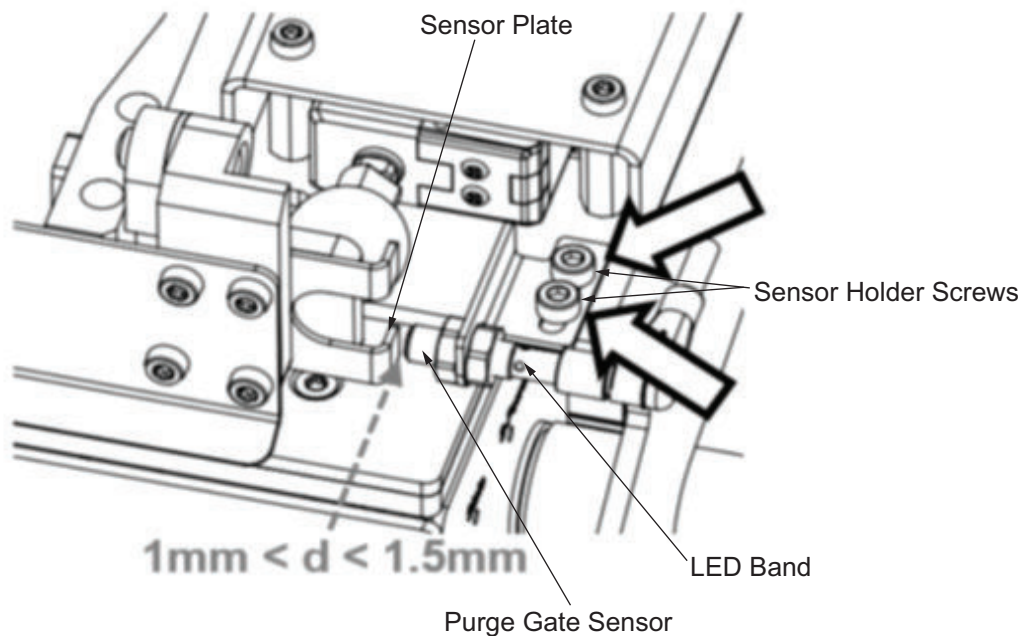


- 3** Turn on power supply to the part feeder while holding the pin in position.
After the part feeder is powered on, the part feeder's communications settings (IP address, subnet mask, and port) revert to default values.
- 4** Use the ACE software interface to connect to the default settings and then configure new settings. Refer to *Automated Control Environment (ACE) Version 4 User's Manual (Cat. No. I633)* for more information.
The newly defined values will override the default values.

5-4 Realigning Purge Sensor Procedure

Use the following procedure to detect and correct the purge gate sensor misalignment.

- 1** Visually inspect the purge gate flap for obstructions and clear them.
- 2** Visually inspect the LED band on the purge gate sensor.
Red LEDs indicate that the sensor can detect the sensor plate and therefore the part feeder can keep the purge gate closed. If the LEDs are off when purge is enabled, continue to the next step.
- 3** Locate the sensor holder screws and adjust them to ensure that the sensor face is at a distance between 1 to 1.5 mm from the sensor plate.



- 4** The above adjustment should correct the misalignment. If the problem persists, contact your local OMRON representative.

6

Maintenance

This section provides information on the maintenance of the part feeder system.

6-1	Periodic Maintenance	6-2
6-1-1	Periodic Maintenance Overview	6-2
6-1-2	Cleaning the Platform	6-3
6-1-3	Replacing Ball Joints Procedure	6-3
6-1-4	Replacing Purge Kit Actuator	6-5
6-1-5	Cleaning the Hopper	6-9
6-2	Non-periodic Maintenance	6-10
6-2-1	Replacing the Backlights	6-10
6-2-2	Replacing Platform Surface.....	6-13

6-1 Periodic Maintenance

This section lists when to perform periodic maintenance on your part feeder system and the steps for checking each item to inspect.

WARNING

Be sure that all power sources and other cables to the unit are disconnected before doing any maintenance action on the product.



Precautions for Correct Use

- For any kind of maintenance, always use spare parts provided by OMRON.
- There are no user serviceable parts inside the product. Contact your local OMRON representative to effect maintenance. In cases of non-compliance, the product guarantee will expire.

6-1-1 Periodic Maintenance Overview

The part feeder and hopper are largely maintenance-free, however, simple inspections should be done at regular intervals to ensure optimum performances, and safe operation of your product.

The following table gives a summary of the periodic maintenance procedures and guidelines on frequency. The frequency of these procedures will depend on the particular system, its operating environment, and the amount of usage. Use the times in the table below as guidelines and modify the schedule as needed.

Part Feeder Maintenance Schedule

The maintenance schedule for the part feeder is given below.

Item	Period	Reference
Visual check and cleaning the platform	Weekly	6-1-2 <i>Cleaning the Platform</i> on page 6-3.
Replacing ball joints	2 years or 4000 hours of vibrations	6-1-3 <i>Replacing Ball Joints Procedure</i> on page 6-3.
Replacing purge kit actuator	20,000 cycles	6-1-4 <i>Replacing Purge Kit Actuator</i> on page 6-5.

Hopper Maintenance Schedule

The maintenance schedule for the hopper is given below.

Item	Period	Reference
Visual check and cleaning the hopper	Weekly	6-1-5 <i>Cleaning the Hopper</i> on page 6-9.
Visual check of electrical harness	Yearly	Ensure all cables are fully inserted into their connectors.

6-1-2 Cleaning the Platform

Clean the platform surface of the part feeder with a lint-free cloth and isopropyl alcohol.

6-1-3 Replacing Ball Joints Procedure

Use the following procedure to replace the ball joints for the iPF-380 and iPF-530 Part Feeders.

Before beginning the installation procedure, have the following tools and material available.

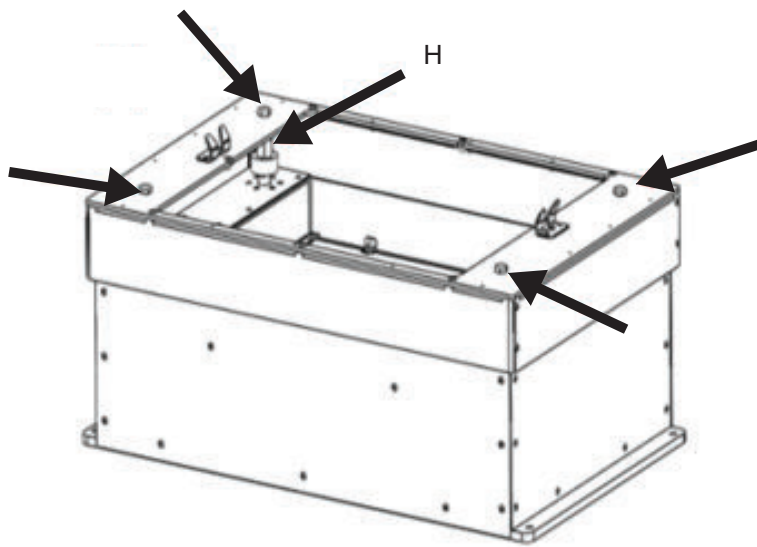
- Open-end wrenches size 10, 13, and 17.
- Loctite 243 or similar thread locking compound.



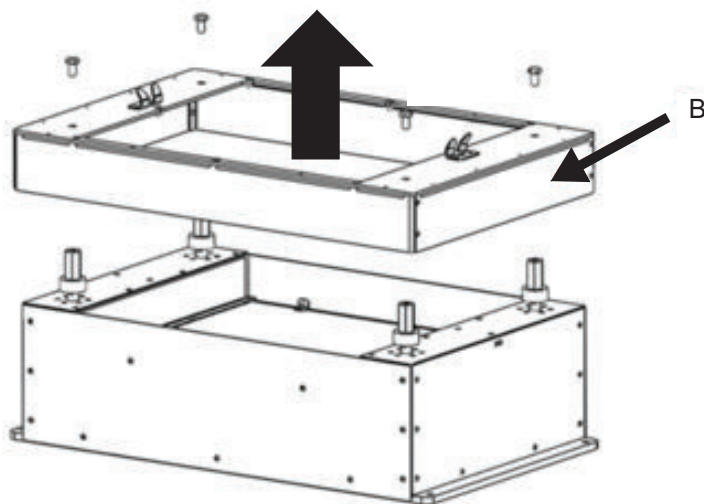
Additional Information

This procedure does not apply to the iPF-240 Part Feeder.

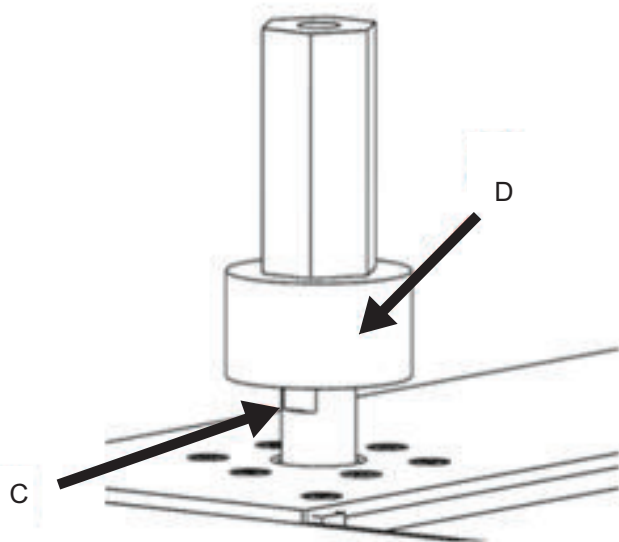
- 1** Remove the platform module. Refer to *iPF-380/iPF-530 Platform Plate Replacement* on page 6-14 for more information.
- 2** While holding the hexagonal extension H, unscrew the four nuts using size 13 and 17 wrenches.



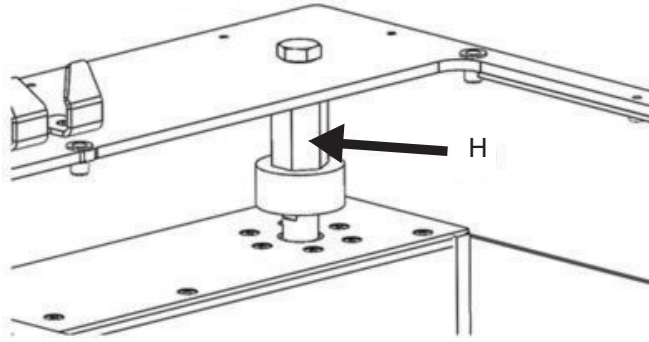
- 3** Remove the upper assembly B.



- 4** Hold the axis (C) with a size 10 open-end wrench while you loosen the ball joint (D) and remove it.



- 5** Apply thread locking compound to the outer thread of the new ball joint.
- 6** Securely tighten the new ball joint D by hand, both mounting bush and extension, while holding the axis C with a size 10 open-end wrench.
- 7** Place the upper assembly B on the 4 ball joints and carefully align the holes.
- 8** Apply a drop of thread locking compound to the nuts and tighten them while holding the extension H with a size 17 open-end wrench.



- 9** Replace the platform module.

6-1-4 Replacing Purge Kit Actuator

Use the following procedure to replace the purge kit actuator.



Precautions for Correct Use

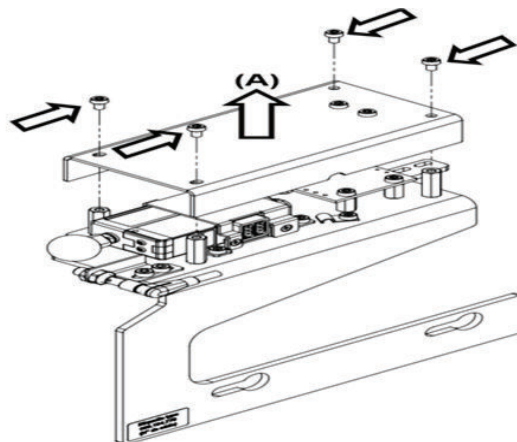
Before replacing the actuator, unplug the purge kit actuator from the part feeder and remove the platform. Reverse the directions in *3-4 Installing the Purge System* on page 3-8.

Before beginning the installation procedure, have the following items available.

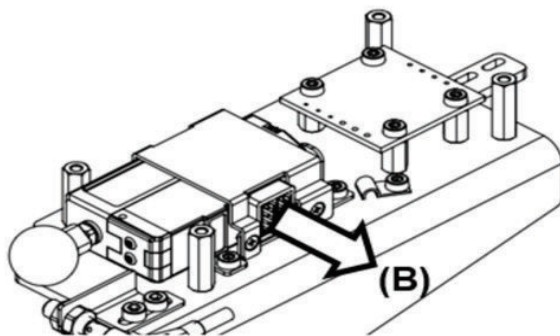
- Star keys size 8 and 10
- A crosshead screwdriver size 0
- Replacement actuator

iPF-240 Purge Kit Actuator Replacement Procedure

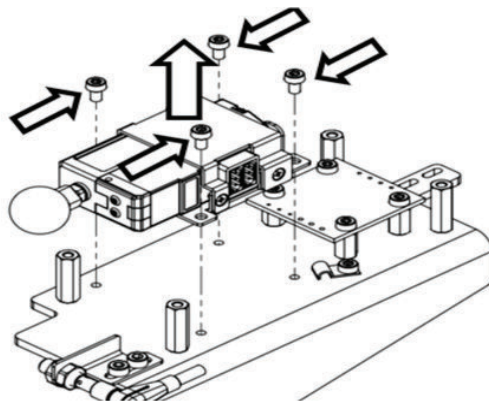
- 1** Remove the protective cover A by unscrewing the four screws using the star key size 10.



- 2** Disconnect the actuator by pulling on the connector and not the cable itself.



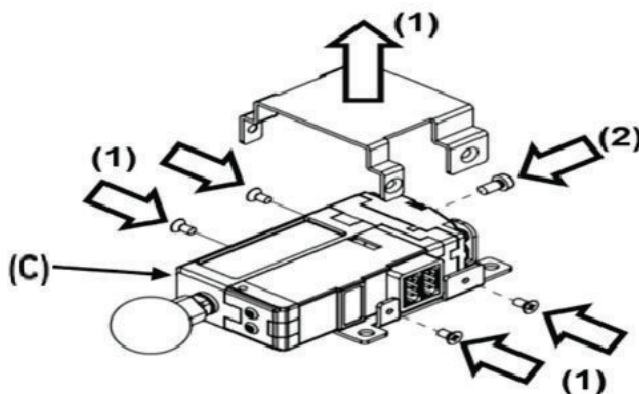
- 3** Unscrew the actuator block using the star key size 10.



- 4** Unscrew and open the support 1 using the crosshead screwdriver size 0.

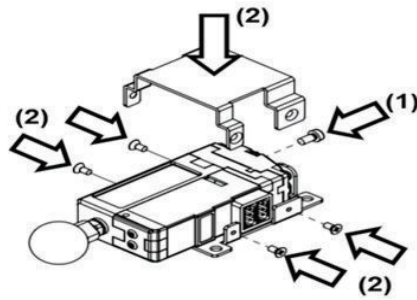
- 5** Unscrew the actuator 2 using the star key size 8.

- 6** Replace the actuator C with a new actuator unit.

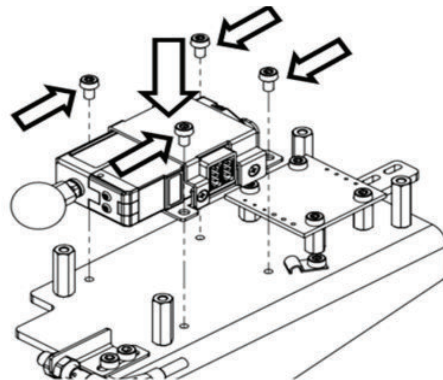


- 7** Screw back the actuator in the support 1 using the star key size 8 to a torque of 0.8 N-m.

- 8** Close and screw support 2 using the crosshead screwdriver size 0 to a torque of 0.6 N-m.

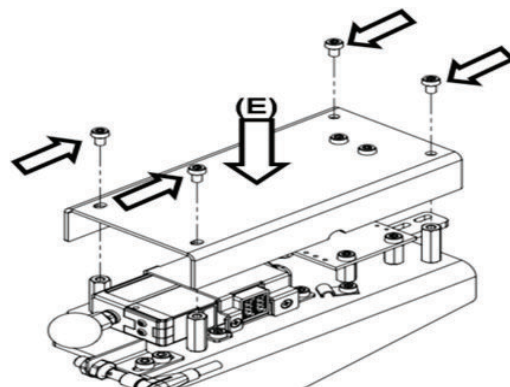


- 9** Screw back the actuator block on the main plate using the star key size 10 to a torque of 1 N-m.



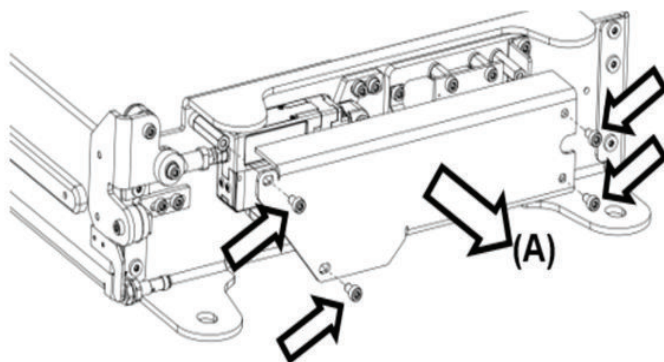
- 10** Plug in the actuator. Refer to step 2 above.

- 11** Screw the protective cover (E) back into position using the star key size 10 to a torque of 0.6 N-m.

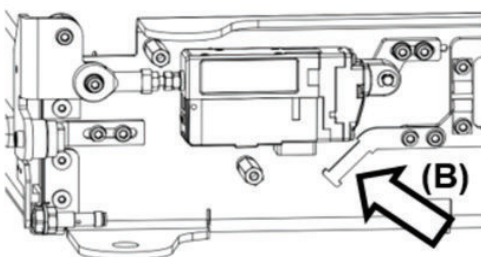


iPF-380/iPF-530 Purge Kit Actuator Replacement Procedure

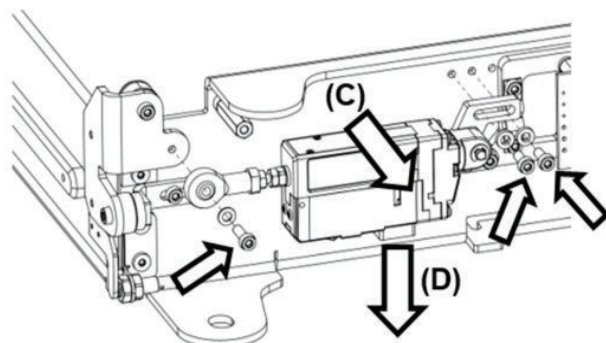
- 1** Remove the protective cover A using the star key size 10.



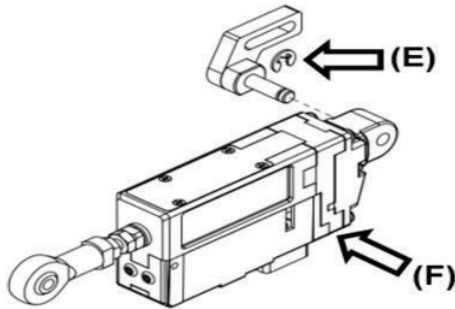
- 2** Cut the cable-tie without damaging the cables.



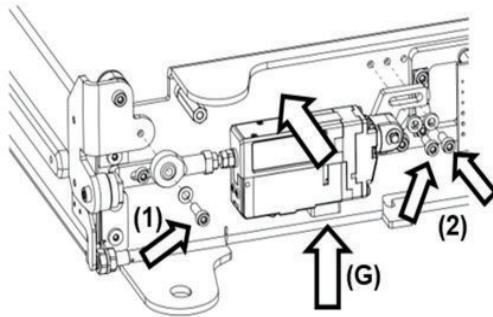
- 3** Unscrew the motor block using the star key size 10; Remove the motor C and disconnect it by pulling on the connector, and not on the cable itself D.



- 4** Remove the retaining-ring E.
- 5** Replace the motor block F with a new unit.
- 6** Reposition the retaining-ring E.



- 7** Plug in the motor block G.
- 8** Tighten the flap screw 1 (hold the flap in the closed position while screwing it in).
- 9** Screw in the bracket 2 with the flap still held in the closed position using the star key size 10 to a torque of 1.2 N-m.



- 10** Tie the cables together with a cable-tie. Refer to step 2 above.
- 11** Screw the protective cover back into position using the star key size 10 to a torque of 0.6 N-m. Refer to step 1 above.

6-1-5 Cleaning the Hopper

Clean the surface of the hopper and the container with a lint-free cloth and isopropyl alcohol.

⚠ CAUTION

Do not pour water onto the product. Spraying water over the product, washing it with water or using it in water may cause the product to malfunction, resulting in injury, electric shock, fire, etc.



6-2 Non-periodic Maintenance

This section provides information about performing maintenance that does not occur at regular intervals.

6-2-1 Replacing the Backlights

Before replacing the backlights, have the following tools and resources available.

- Replacement backlight
- Flat wrench size 5.5
- Star key size 10



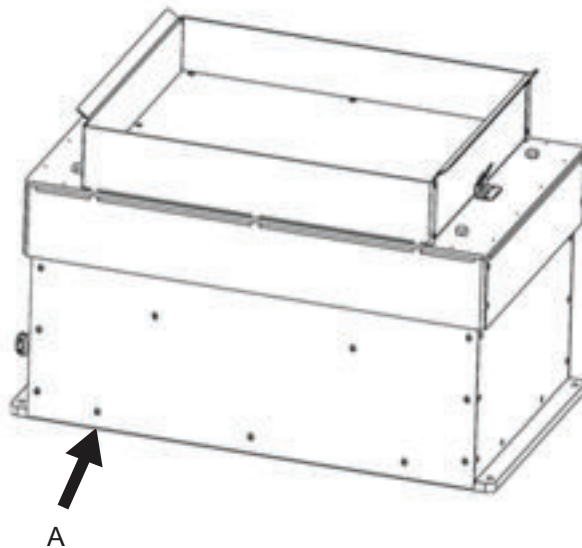
Precautions for Correct Use

Ensure that all power sources and other cables to the unit are disconnected before replacing the backlight.

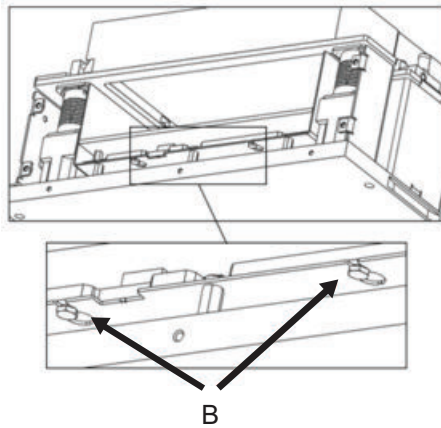
iPF-240 Backlight Replacement Procedure

Use the following procedure to replace the backlight.

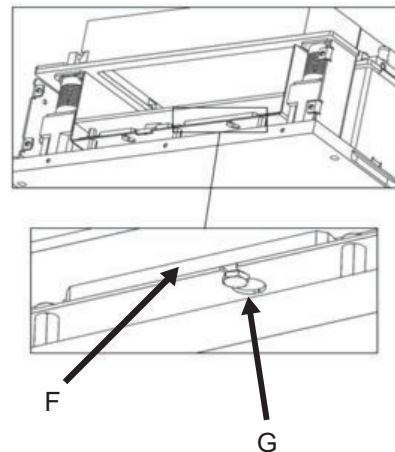
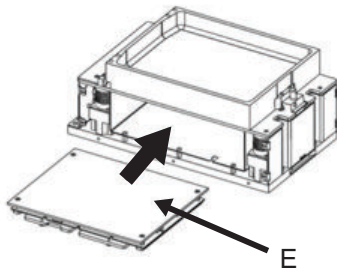
- 1** Unscrew the side cover screws on both sides of the part feeder using a star key size 10 and remove the covers.



- 2** Unscrew the bolts B on both sides using a flat wrench size 5.5.



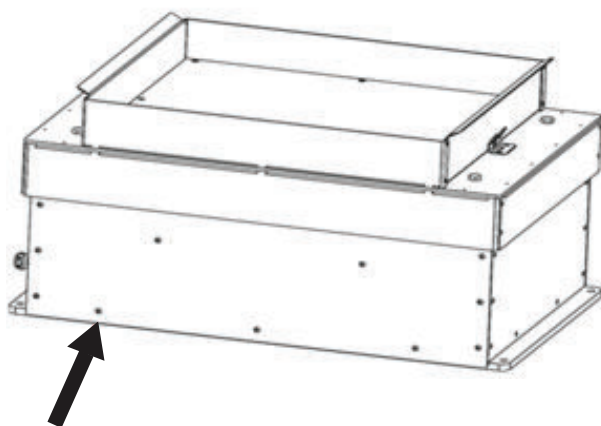
- 3** Unplug the backlight ribbon cable from the connector.
- 4** Remove the backlight module from the unit.
- 5** Insert the replacement backlight module E and align it flush with the mirror support F.



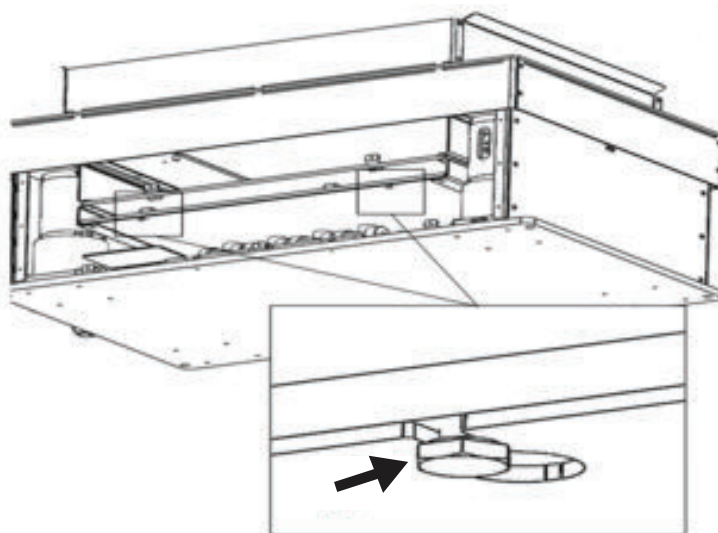
- 6** Tighten the bolts G using a flat wrench size 5.5. Refer to step 2 above.
- 7** Plug the backlight ribbon cable into the connector. Refer to step 3 above.
- 8** Remount the side covers and tighten the screws on both sides.

iPF-380/iPF-530 Backlight Replacement Procedure

- 1** Unscrew the screws on both side covers using the star key size 10 and remove the covers.

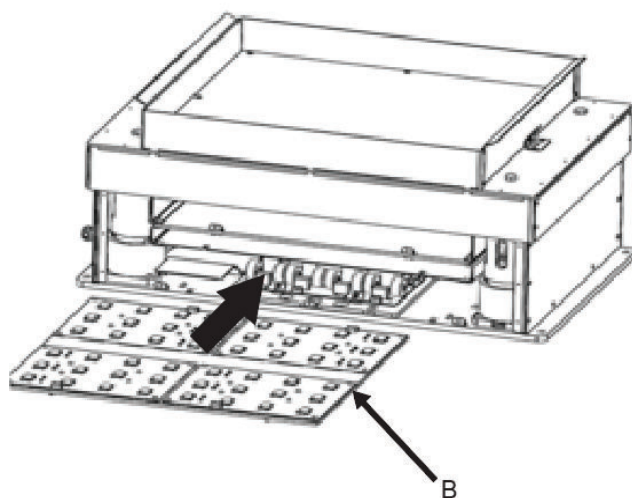


- 2** Unscrew the bolts on both sides using a flat wrench size 5.5.



- 3** Carefully disconnect the connectors from the electronics and remove the backlight.

- 4** Insert the replacement backlight B and align it flush with the mirror support.



- 5** Tighten the four bolts using a flat wrench size 5.5 Refer to step 2 above.

- 6** Connect the backlight connectors to the electronics.
- 7** Remount the side covers and tighten the screws on both sides.

6-2-2 Replacing Platform Surface

Use the following procedure to replace the platform surface. The platform can be unmounted quickly without any special tools.



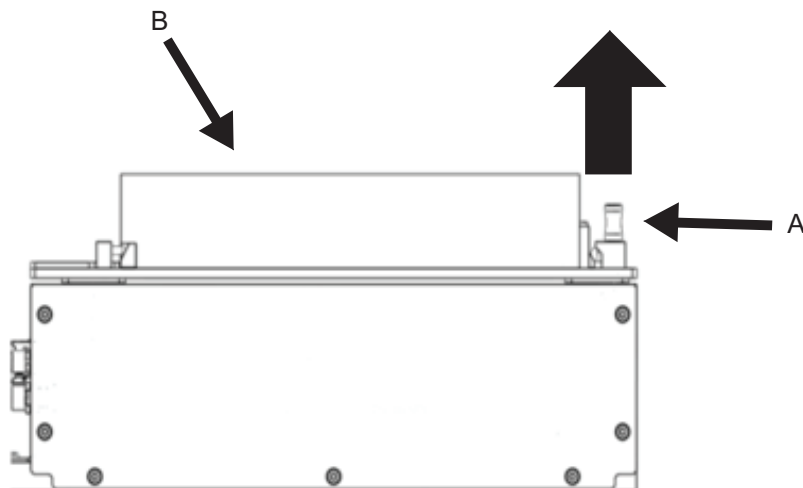
Precautions for Correct Use

Ensure that the backlight is turned off before removing the platform module.

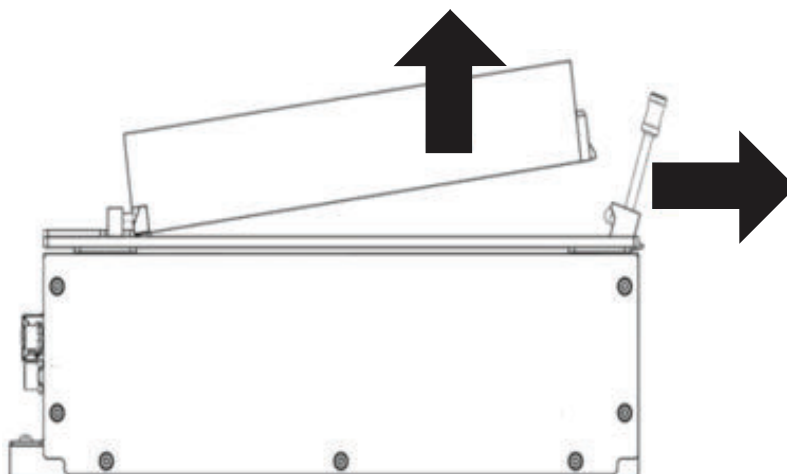
iPF-240 Platform Module Replacement

Use the following procedure to replace the platform module for the iPF-240 Part Feeder.

- 1** Pull out the Integrated Tool and move it away for freeing the platform frame module.



- 2** Remove the platform module from the part feeder.

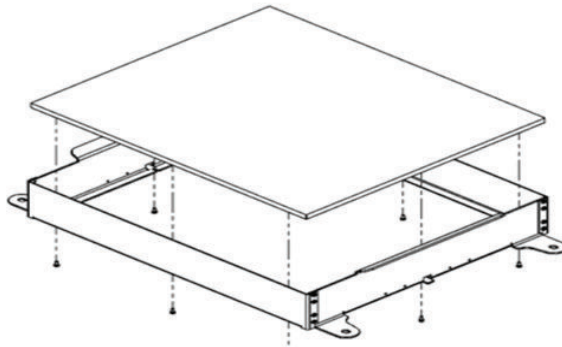


- 3** While holding back the Integrated Tool, position the replacement platform module on the part feeder.
- 4** Release the Integrated Tool to fix the platform module on the part feeder.

iPF-380/iPF-530 Platform Plate Replacement

Use the following procedure to replace the platform plate for the iPF-380 and iPF-530 Part Feeders.

- 1** Unscrew the four large handle screws on the platform using your hand.
- 2** Remove the platform frame from the part feeder.
- 3** Unscrew the eight screws connecting the frame to the platform plate and remove it out of the frame.



- 4** Place the replacement platform plate in the frame and tighten the eight screws.
- 5** Position the platform frame on the part feeder.
- 6** Tighten the four handle screws securely.



Appendix

A-1	Repacking for Transport.....	A-2
A-2	Spare Parts List.....	A-3



A-1 Repacking for Transport

The part feeder and hopper must be carefully packed if they need to be transported. Reuse all original packing containers and materials and follow all safety guidelines detailed in the installation section of this manual. Reverse the installation instructions to repack the part feeder system for transport.



Precautions for Correct Use

- Do not expose the shipping container to excessive shock and vibration. Never place heavy objects on the package. This could damage the part feeder.
 - Be aware of the weight and take care when transporting the system.
-

A-2 Spare Parts List

The following table lists all the spare parts for the part feeder system and their part numbers.

Item	Part Number	Details
5 Meter power cable	30600-380F	Power cable for iPF-380 and iPF-530 Part Feeders.
	30600-240F	Power cable for both iPF-240 Part Feeder and hopper.
Hopper I/O cable	30600-101F	Cable for connecting part feeder to hopper.
Purge system kit for iPF-240 Part Feeder	30240-101F	Left purge system kit with frame, plate, and actuator for iPF-240 Part Feeder; connection cable and screw kit included.
	30240-102F	Right purge system kit with frame, plate, and actuator for iPF-240 Part Feeder; connection cable and screw kit included.
Purge actuator	30240-103F	Purge actuator for iPF-240 Part Feeder.
	30380-101F	Purge actuator for iPF-380/iPF-530 Part Feeders.
Purge platform frame and plate	30240-104F	Left purge platform frame with flat plate (POM-C) for iPF-240 Part Feeder; screw kit included, actuator not included.
	30240-105F	Right purge platform frame with flat plate (POM-C) for iPF-240 Part Feeder; screw kit included, actuator not included.
	30240-106F	Left purge platform frame with anti-static flat plate (ESD) for iPF-240; screw kit included, actuator not included.
	30240-107F	Right purge platform frame with anti-static flat plate (ESD) for iPF-240; screw kit included, actuator not included.
Ball joints	30380-102F	Ball joint set (4 joints) for iPF-380/iPF-530 Part Feeders.
Screw kit for platform frame and plate	30240-108F	Screw kit for iPF-240 platform and frame mounting; frame and plate not included.
Backlight	30240-001F	Red backlight for iPF-240 Part Feeder.
	30240-002F	White backlight for iPF-240 Part Feeder.
	30240-003F	Infrared backlight for iPF-240 Part Feeder.
	30380-001F	Red backlight for iPF-380 Part Feeder.
	30380-002F	White backlight for iPF-380 Part Feeder.
	30380-003F	Infrared backlight for iPF-380 Part Feeder.
	30530-001F	Red backlight for iPF-530 Part Feeder.
	30530-0021F	White backlight for iPF-530 Part Feeder.
	30530-003F	Infrared backlight for iPF-530 Part Feeder.

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