PE-700



All-In-One Mold Protection Device

Digital color, high definition image processing technology... reduces costly mold damage, production downtime, and prevents the outflow of defective parts.

Comet's PE-700, our newest model for mold protection, is now *four* camera compatible. As molds become larger, and more complex and refined, the demand for product inspection and monitoring for defective parts, parts trapped in the mold, jammed or broken core pins, shorts and flash is essential. Digital color processing using four cameras improves the accuracy of detecting, and consistently finding, defects missed by a visual inspection from the machine operator.

Even Faster

Full color, high definition (2-million pixels) images are digitally processed and calculated at a speed of 0.012 seconds, and are adaptable for high speed injection molding with cycle times below one second or molds for large products.

Even More Accurate

Digital color image analysis technology reduces machine stops by detecting errors and stopping the machine before any hazardous force can be put on the mold using non-contact vision technology.

Even Easier to Use

The large 10.4 inch touch-panel clearly displays HD images in full color. The intuitive interface has been redesigned and dramatically improved allowing quick, detailed monitoring area settings. Automated functions such as position correction and filtering improve monitoring precision and save presetting time.

Even More Cameras

The PE-700 answers the demand for multi-monitoring in one process. Four cameras plus digital color image processing makes it possible to monitor and inspect complicated molds, and is ideal for high cycle or large tonnage molding.

Even More Labor Savings

When using the PE-700 with a molding machine that has a take-out robot, the PE-700 accurately checks and evaluates the product being picked for defects and stops the molding process to protect your expensive mold from being damaged or broken. Early detection and removing defective parts shortens the production process and reduces operator burden.

- Residue on the mold.
- Broken core pins & plugs
- Insert loading errors
- Molded parts left in the cavity

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- Metal die casting errors
- Both positions of the slide core and top pin centering

Monitoring the Image When the Product is Removed





PE-700 Mold Monitoring Features

Basic Function

Image Recording



When an error is detected, the monitoring image of the "before/after" is recorded for five seconds. This enables the error to be investigated quickly. The recorded image is storable, if needed.

Alarm



When a monitoring result is determined to be **NG** (abnormal), an alarm sounds and the molding operation stops.

Removing Defective Products



When a molding defect is detected, a signal is sent to a peripheral device, like a take-out robot and the defective product is removed.

Functions to Enhance Monitoring Precision

Four Monitoring Cameras



One PE-700 with four cameras enables higher definition monitoring as well as large component monitoring.

Reference Image Capture in One Cycle



Judgement with the captured image is only once a cycle making the whole cycle quicker.

Flexible Shape Monitoring



Setting the monitoring area is key. Excluding unnecessary monitoring areas prevents errors often caused by the influence of ambient light for fast, accurate monitoring. Intuitively draw, stretch or move an area to shorten setup time. Simple icons help easily access necessary functions.

30 Area Settings Available



Easy, direct area settings, using the touchpanel, allow you to create a maximum of 30 areas including shapes like circles, polygons, or even a 20-sided shape. There are a variety of options to select the shape and surroundings necessary for more accurate monitoring.

Masking Non-Monitored Areas



Masking unnecessary areas to monitor minimizes the monitoring area to prevent accidental stops.



Auto Adjustment



The PE-700 is equipped with a user support function for stable monitoring. For example, Auto Adjustment corrects the mold open position and will adjust the filtering function.

Link With a Molding Machine



The registered setting is adjustable with a signal from an injection machine. For example, the PE-700 will select a setting along the mold type.

Testing



After the reference image is captured, the testing function displays the results with the sensitivity function. This will shorten the time for adjustment.

IoT Function



The USB 3.0 interface is integrated to enable connection to an internal network so the user can remotely check the PE-700 monitoring. *This feature will be supported for future software upgrades.*

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PE-700 Mold Monitoring Benefits



Use the PE-700 to monitor your molding process to detect residue or ejector pin failures that cause the mold to break. In this case, molding stops.

- Reduce mold repair costs
- Prevent delays due to line shutdown

Oycle Up Production Line

The PE-700 monitors anything remaining after ejection. When nothing remains in the mold, the following step "re-eject" is skipped, and shortens the cycle time.

- Productivity improvement
- Shorten cycle time

Prevent Short-Shot or Burr

When the PE-700 detects "short-shots or burrs, it stops the injection machine. This helps remove the defective product during production and prevents overflow material from leaking out of the part cavity (flash). In addition, the PE-700 can be used for an exterior check.

- Use for exterior inspection
- Improve product quality

🎒 Labor Savings

Combine a PE-700 with a take-out robot operating to check the product being picked up by the robot. If the product is defective, it will be detected by the PE-700 and removed, eliminating the need for an exterior visual check. Incorporating a PE-700 with a take-out robot eliminates the three process operation (pick up, carry, and product check) to only one process thus shortening the whole operation.

- Reduce the burden on the operator
- Shorten the production process

Cost Savings

The PE-700 covers both multi-monitoring and product check when using four cameras. The user does not need any further investment for these processes.

- No further capital investment needed
- Saves money and time

Accurate Color Identification to Protect Your Mold.

In general, mold monitoring analyzes the luminance of the monochrome image. The PE-700 full color monitor analyzes whether the RGB color value is the same color.

Full color, high definition digital monitoring analyzes and identifies whether the RGB resin color value is the same color (sometimes mistaken with monochrome monitoring).

The image shown to the right indicates just after the product is formed in the mold. For human eyes, it is easy to identify the color green or blue.

Digital full color monitoring using the PE-700 accurately identifies the differences in color and shape to reduce machinery stops caused by detection errors.



Even if the RGB color is different, monochrome monitoring shows the same color value K56





Monitoring Flow on a Molding Line

The PE-700 judges "OK" or "NG" by comparing the RGB value differences between the reference image and the image taken at every mold cycle. In cases where ambient light affects error detection, setting the error tolerance is an efficient way to achieve stable monitoring.



Injection Molding

Vertical Insert Molding





PE-700 Specifications

Resolution	1920 x 1080 pixels
Processing Speed	0.012 seconds
Display	10.4" XGA color LCD touch-panel
Synchronous Input/ Output Signal	No voltage contact signal
Re-ejection Circuit	Standard
Four-Camera Monitoring Function	Standard
Input Power	24V DC single phase
Power Consumption	36W
Ambient Temperature	32 ~ 93° F <i>(</i> 0 ~ 45°C)
Ambient Humidity	85% max. without condensation
External Dimensions (in)	8.25h x 11.75w x 2d excluding projections
Weight	3 lbs. (1.4kg)





Configuration

Standard	Options
PE-700 Main Unit	Lens (wide & zoom)
CMOS Camera	Filters
Camera Cable & Stand	Light Fixtures
Camera Mounting Shaft	Lamps (LED, Infrared, Halogen)
Interface Cable	Flood Light
I/O Unit & Cable	USB Memory
Stylus Pen	Camera Stand (L)



Main Unit PE-700



CMOS Camera



Camera Stand



I/O Unit



Lens (Wide/Zoom)



Lighting Fixture (lamp is excluded)





Flood Light



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