

# CVS-700 VISION SYSTEM

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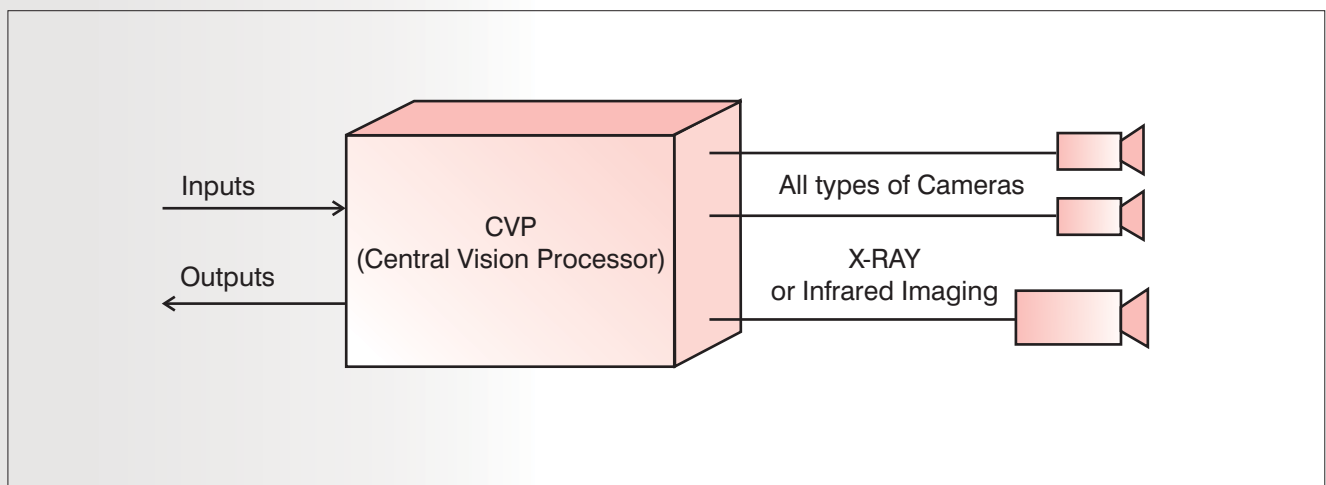


**The CVS-700 family includes nearly every imaginable separate-camera machine vision system configuration. They range in size from small single camera Fire Cube Jr. Units to large 32 camera color cameras.**

Whether it be a small single-camera FireCube Jr. System or a unit with 32 color cameras, the CVS-700 family offers a cost-effective system built, tested and supported by our Lombard, IL factory.

FSI has been a trusted manufacturer of factory automation products for over 46 years (since 1959). We bring our factory floor expertise and experience to bear to design, build, apply and support systems that truly meet our customer's needs.

### **Major components of a typical CVS-700:**



### **The NeuroCheck Concept + FSI CVS-700 Architecture = Customer Benefits**

This concept utilizes cross-platform standardization using a universal machine vision software engine, providing these capabilities and benefits:

#### **Powerful**

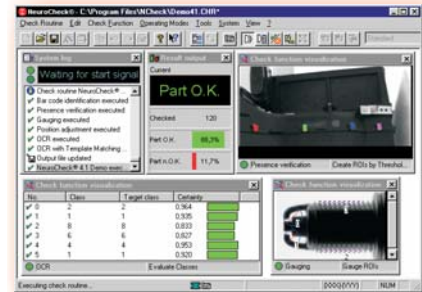
- Includes nearly every known machine vision tool, including many unique to this product
- Available in nearly every imaginable hardware configuration. 32 cameras, area scan, line scan, infrared & X-Ray, 128 I/O.
- Extensive factory-floor administrative and deployment tools
- Extensive interconnectivity including full PC architecture ports and data objects
- Extensibility through plug-in support, OLE automation, and open system documentation
- Includes an additional set of administrative and interconnectivity tools inherent to its PC / Windows architecture, plus removable mass storage media, and a wide choice of economical peripherals.
- Internal storage for 50,000 images or programs.

## Standardized

- Machine vision tools are the same in all versions
- Scalability is provided without violating standardization
- Single product that spans hardware configurations and time

## Trustworthy

- Worldwide standard with thousand of industrial deployments.
- NeuroCheck, with 12+years of factory-floor deployment
- FSI, a trusted manufacturer of factory automation products for over 46 years



## Friendly

- Genuinely user friendly. All functions fully integrated for automatic passage of results between functions.
- Fully integrated at a single graphic user interface, with dialog boxes for all configuration of all tools and functions.

## Scalable

- Commercially scales from 1-piece Smarter Camera™ system through high power 32-camera and line-scan CVS-700 systems in ways that do not affect the engine or tool set.

## Protection Against Obsolescence

- PC architecture rides the wave of PC technology evolution instead of becoming obsolete.
- Hardware advances do not obsolete the software.
- Familiar Windows user interface and administration reduces and protects learning curve investment
- 12 + year proven track record of leading-edge evolution without obsolescence

## Customer Selectable Features + Options

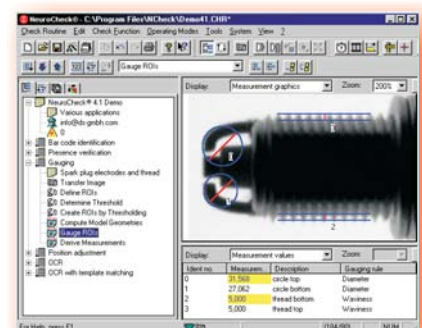
The CVS-700 Specifying and Ordering Guide offers customer-driven selection of all major system attributes. Certain choices may not apply for X-Ray + IR Imaging. Full details are available in that publication, but here are some of selections offered:

## NeuroCheck® Version

- Run Time
- Professional
- Premium

## Operating System

- FSI choice
- Windows 2000
- Windows XP



### CVP (Central Vision Processor) Power

FSI varies processor speed, type, architecture, and quantity, memory and cache sizes and types, internal bus speeds and architectures, and other attributes based on the selection. Hardware notes are for typical design to meet FSI benchmarks for the selection. The descriptions are relative to FSI CVS-700 standards; even the “slowest” selection has approximately 18 times the processing power of a typical smart camera. The slowest versions are generally used only for high density sealed CVP’s.

1. Basic, minimum power
2. Mid, lower range
3. Mid range
4. **Fast** FSI Standard 2.6 Ghz architecture
5. Very Fast
6. Fastest. Dual core 64 bit with hyper threading

### Quantity of Cameras/Imaging Systems

- Specify 2-digit quantity of cameras, including leading zero if applicable. Examples: 01 = 1 camera 32 = 32 cameras Etc.

### Imaging Type / Imaging Requirements

- Area Scan, interlaced\*
- Area scan, progressive scan (non-interlaced)\*
- Line Scan\*
- \* Visible Light
- X-Ray
- Infrared

### Image Sequencing

- Not Applicable (Single camera)
- Simultaneous image capture never required. (Program driven sequence)
- All cameras capture image at the same time

- Totally independent image capturing and storage capability provided for each camera.

### Imaging Resolution. At least:

- 640 x 480 if area scan, 1000 if line scan
- 740 x 560 if area scan, 2000 if line scan
- 1000 x 800 if area scan, 4000 if line scan
- 1200 x 1000 if area scan, 8000 if line scan

### Camera: Gray/Scale or Color

- Grayscale (monochromatic)
- Color

### Camera Enclosure

- NEMA 1
- NEMA 12
- NEMA 4
- NEMA 4X
- NEMA 4X Stainless Steel

### CVP (Central Vision Processor) Enclosure

- **FireCube™** style enclosure for field setting on enclosure shelf or other horizontal surface. A FireCube™ (standard), FireCube Jr™ or a FireCube Max™ is selected during manufacture based on selected features. (see option for base mounting or documented bolt pattern)
- **Style 17** vertical / wall mount ventilated (NEMA 1). When specified features will not fit in a Style 17 enclosure, a different larger style will be provided
- **Rack Mount.** Ventilating (NEMA 1), a bracket kit (specified and sold separately) is available for wall/surface mounting. I/O and aux supplies may be separate.

- **NEMA 12** vertical/wall mount.
- **NEMA 4 (&12)** vertical/wall mount
- **NEMA 4X (& 4, 12)** stainless steel vertical/wall mount.

### Discrete Input Type

- 24 VDC std [.002 sec. (max) on time, .010 sec. (max) off time]. (Includes more noise filtering than the next choice.)
- 24 VDC high speed
- 120 VAC
- 240 VAC

### Quantity of Discrete inputs

- Specify quantity. Example: 02 = 2 inputs  
Popular choices 4 or 8

### Discrete Output Type

- Universal DC output (a “DC switch”)
- 24 VDC output
- 120 VAC rated solid-state “contact” output
- 240 VAC rated solid-state “contact” output
- Dry contact

### Quantity of Discrete outputs

- Specify quantity. Example: 02 = 2 outputs  
Popular choices **01** through **12**

### Other Options

- Ethernet Port
- Profibus Port (discrete I/O on Profibus)
- Two ¼” -20 mounting holes (15mm centers) on camera in lieu of standard. One ¼” -20 hole (generally applies to NEMA 1 cameras)

- Direct hardware trigger input(s) to imaging electronics. (Bypasses software) Quantity in accordance with “Image sequencing” model code choice. Specify 1 standard input (in addition to this) per trigger if this option is chosen.
- CD burner with software in lieu of CD drive

### Features & Design For Standard CVS-700's

Standard construction includes the following, (Modifications are available under custom systems):

All CVS-700's are powered by NeuroCheck<sup>®</sup> software, a world-standard for machine vision software. A complete spectrum of highest-end machine vision capabilities unified into a standardized, time-tested, and user-friendly software engine. Consult other FSI publications for information on NeuroCheck<sup>®</sup> software.

All CVS-700's manufactured and supported by FSI. FSI has a 46-year record of manufacturing and supporting products for industrial automation customers.

80 GB (or larger) hard drive included

3 ½” floppy drive included (removable media)

CD-ROM drive included (removable media)

Color imaging is based on single chip design.

**CVP - CENTRAL VISION PROCESSOR**

**EXAMPLES OF CONSTRUCTION STYLES:**



RACK MOUNT



FIRE CUBE



FIRE CUBE MAX



FIRE CUBE JR



STYLE 17

## Camera + Imaging Examples:



**STANDARD (NEMA 1)**



**NEMA 4X STAINLESS STEEL**

**NEMA 12, NEMA 4 and NEMA 3R (not pictured)**

The CVS-700 family's versatility means that it offers a configuration for nearly every imaginable application. This enables plant-wide standardization on the benefits of the NeuroCheck/ CVS-700 concept.

Our APS™ (Assured Path to Success™) program has a 100% success rate on machine vision applications in a field where the norm is approximately one half of that. This holistic approach treats core unit (such as the CVS-700) as (only) a major component of the solution; to be combined with other equipment, methods and services to deliver an economical, successful solution. We have publications that provide an overview of FSI Machine Vision's offerings as well as an overview of the APS™ program.

Please contact us or your FSI Machine Representative to put us to work on your application, or to obtain additional information on any of our products and services.

All right reserved. All photos are examples, actual construction will vary.



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