1 Product Overview

SIMATIC VS 710 is a highly compact stand-alone image processing system in which the camera, computer, and peripherals are integrated in a single unit.

SIMATIC VS 710 has the following advantages to offer users who require an all-in-one image processing system for inspection, monitoring of production, and parts identification:

- Top-quality image representation and resolution for static and moving images
- High clock speed for networked decentralized automation solutions
- Continuous remote parts inspection
- Video image can be shown on SVGA monitors
- Digital I/O to programmable controller
- PROFIBUS DP slave functionality with a transmission speed of up to 12 Mbps
- Can be configured by host PC via a serial port or PROFIBUS DP
- Flexible configuration to accommodate new inspection criteria
- ProVision system software is easy to configure, user-friendly and also offers complete functionality for inspection and recognition applications.

1.1 Applications

SIMATIC VS 710 is suitable for use in all areas, including the electrical, engineering, electronics, automobile, pharmaceuticals, cosmetics, food, and packaging industries. The system has a wide range of applications in product monitoring, quality control, and parts identification.

1.2 Contents of the Consignment

VS 710 is available in two versions. The versions differ only in what is included along with the basic product.

VS 710 OEM	VS 710
6GF1710-2AA	6GF1710-3AA
Configurable using customized C/C++ programs	Configurable using ProVision 6GF8007-1AA0 software package and higher

VS 710 Package

- VS 710 basic unit with ProVision-run-time software
- Tool diskette 1 with MS-DOS 6.22 [1])
- Standard software licence agreement
- Mounting bracket and two M4 fixing screws
- 2 Ferrite sleeves
- This hardware manual
- Product Information bulletin

VS 710 OEM Package:

- VS 710 OEM basic unit
- Tool diskette 1 with MS-DOS 6.2.2 [1])
- Standard software licence agreement
- 2 Ferrite sleeves
- Product Information bulletin

1) The package does not include a complete DOS version.

2 VS 710 Hardware

2.1 Hardware Components

VS 710 is made up of the following hardware components:

- Metal casing (dimensions: 65x80x130, color: black) with multiple mounting options. All ports for communication located on the back panel of the casing.
- C-mount standard lens socket.
- High-resolution CCD chip (782x582) with square pixels, pixel identical scanning, offset setting.
  used CCD-Chip size: 6.5 mm (H) x 4.8 mm (V)
- Restart-reset, full frame shutter with an exposure range of 1/50 - 1/10000s, half-image and full-image modes.
- Parameter assignment for image formats up to 768x512.
- 100 MHz 80486 CPU (AMD) with direct image buffer access
- 16 Mbyte main memory DRAM module (SO-DIMM)
- 16 Mbyte IDE flashdisk (see Section 2.9)
- 256 Kbyte flash EPROM as BIOS memory
- 2 Mbyte image buffer

2.2 Mounting the VS 710

The VS 710 can be mounted in many different ways, making it highly versatile and convenient to use.

A number of fixtures (1/4” support socket, M4 screw threads) for mounting attachments are located on the underside of the metal casing.

Choose whichever mounting option best suits your needs:

- Directly onto the casing using the M4 screw threads
- To the support socket on the casing
- Using the mounting bracket supplied (not included in the VS 710 OEM package)

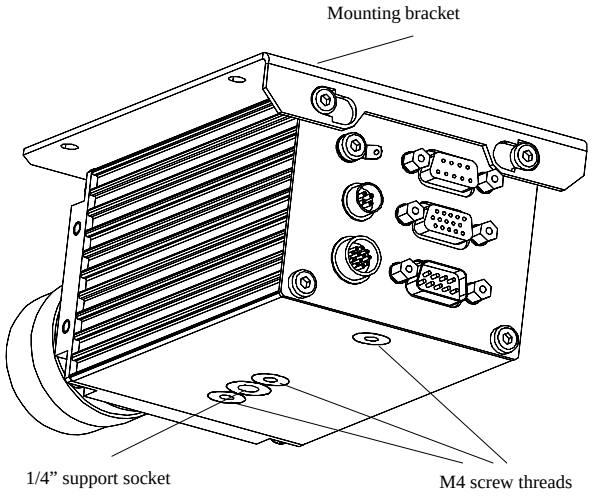


Figure 1 Mounting Fixtures on the VS 710

2.3 Hardware Interfaces

The SIMATIC VS 710 has ports on the back panel for connecting up peripherals (DP PROFIBUS, VGA, RS232, digital I/O) and the 24 volt power supply. A terminal screw is in place for grounding.

The VS 710 has five interface ports.

- Round 4-pin plug for power supply (24 V, 500 mA) with a voltage range of 20.4 to 28.8 V
- Round 12-pin plug with two 24-volt digital input points (including two interrupt controllers), and four 24-volt digital optocoupler output points (including a flash controller)
- 9-pin subminiature D connector PROFIBUS DP interface with a data transmission rate of up to 12 Mbps.
- 3-row 15-pin subminiature D connector (SVGA monitor port)
- 9-pin subminiature D connector, RS232 interface, with a data transmission rate of up to 115 Kbps.

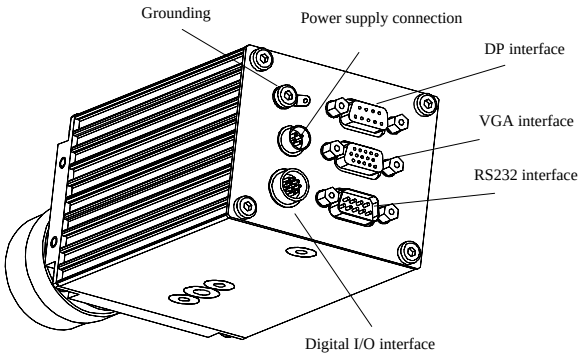


Figure 6 Hardware Interfaces

2.4 Power Supply - Connector Pinout

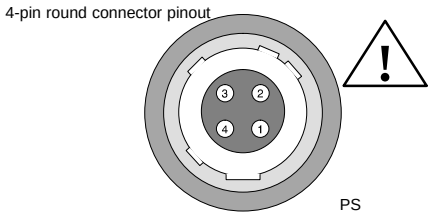


Figure 7 Power Supply - Connector Pinout

Note

The pin numbers are as seen on the rear casing with the unit in an upright position.

Warning

V_N = 24 VDC / 500 mA

(Voltage range: 20.4 to 28.8 volts)

The power supply connector has the following pinout:

Pin	Signal
1	24 volts
2	24 volts
3	Ground
4	Ground

Maximum current per pin = 1 A.

The connector acts as a means of isolation from the 24-volt power supply.

2.5 Digital Input / Output - Connector Pinout

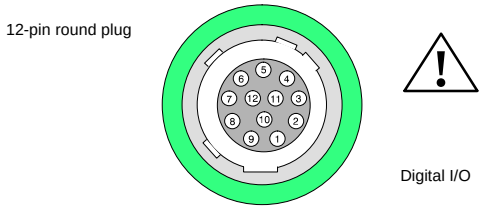


Figure 8 Digital Input / Output - Interface

Pin	Signal	Pin
1	24 volts	L+
2	Ground 24 volts	M
3	Digital output point 0	DO 0
4	Digital output point 1	DO 1
5	Digital output point 2	DO 2
6	Digital output point 3 [1)]	DO 3
7	Digital input point 0 [2)]	DI 0
8	Not assigned	
9	Not assigned	
10	24 volts	L+
11	Ground 24 volts	M
12	Digital input point 1 [2)]	DI 1

[1] Simultaneous flash signal under ProVision

[2] Triggering interrupt

- Maximum cable length 10 m, shielded
- 2 input points, optically isolated. All input points are referenced to a common ground. Rated voltage: DC 24V
- 4 output points, optically isolated. All output points are referenced to a common ground. Output current: 0.5 A. Rated load voltage DC 24 V
- Maximum current per pin = 1 A.

Warning
DI and D0 are galvanically coupled by ground pins 2 and 11.
DI 2x 24 VDC
DO 4x 24 VDC/0.5 A, P.D./RES, 5 W tungsten

2.6 DP Connector Pinout

9-pin subminiature D connector

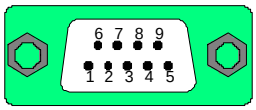


Figure 13 DP Interface

Pin	Signal	Function	Input/Output
1	Not assigned	-	-
2	Not assigned	-	-
3	LTG_B	Signal line B	Input/output
4	RTSAS	Request to send (PLC) [1])	Output
5	$M5_{ext}$	GND (isolated) [2])	Output
6	$P5_{ext}$	+5V (isolated) [3])	Output
7	Not assigned		
8	LTG_A	Signal line A	Output
9	Not assigned	-	-
Shield		On connector casing	

[1]) Control signal for received data flow
The control is "1" active when the programmable controller is sending
[2]) 0 V line of the 5 V power supply
[3]) $P5_{ext}$ power supply (+5 V) of the 5 V power supply (powers bus terminator)

The DP interface operates on the slave principle and is designed as a floating interface. It has a maximum data transfer rate of 12 Mbps.

When using a point-to-point connection with a transmission rate of 12 Mbps, a line length of 100 m may be used.

3 Connecting the VS 710

3.1 Safety Recommendations

Qualified Personnel

Only **qualified personnel** should be allowed to install and work on this equipment. Qualified persons in the context of this Quick Reference Guide are defined as persons who are authorized to commission, to ground, and to tag equipment, systems, and circuits in accordance with established safety standards and regulations.

Correct Usage

Note the following:



Warning

This device may only be used for the applications described in the catalog or the technical description, and only in connection with devices or components from other manufacturers which have been approved or recommended by Siemens.

This product can only function properly and safely if it is transported, stored, set up, and installed correctly, and operated and maintained as recommended.

Cleaning the Unit

To clean the unit, use a soft cotton cloth and a mild, non-abrasive detergent. Do not allow cleaning fluid or any other liquid to get inside the casing.

Note

The CCD sensor orifice must always be closed, either by the lens mounted on top or by applying the dust cap supplied along with the product.

This precaution is necessary to avoid damaging the sensitive sensor surface.

5 Technical Specifications

This table contains the complete technical specifications for the VS 710.

5.1 General Specifications

Characteristic	**Technical Specifications**
VS 710	
Order Number	SIMATIC VS 710: 6GF 1710-3AA SIMATIC VS 710 (OEM): 6GF 1710-2AA
Dimensions	65 x 80 x 130 mm (W x H x D) with no mounting bracket attached
Weight	Approx. 0.750 kg (without lens)
Interfaces to S7/M7/C7 to PC	 RS485 (12 Mbps) RS232 (115 Kbps)
Power Supply	
Supply voltage (V_N)	24 VDC; (20.4 to 28.8 VDC, safety extra low voltage, SELV). The VS 710 has no integrated protection against high-energy surge pulses in the µs range (surge pulse). See EMC for external measures.
• Input voltage protected against polarity reversal	Yes
• Voltage interruption (can be jumpered)	≥ 20 ms
Current consumption (I_N)	I=480 mA (typ)/600 mA (max.)
Starting current	I_1 max. 10 A; 1 ms