

Intelligent Flag (8-bit, Electronic) with Sensor Capability Using ID Control — a Revolutionary Improvement over Mechanical Flags

- Does not require programming and uses sensors
- Small investment enables a rich product manufacturing line
- Space-saving design
- Can be installed in tough environmental conditions. (Communications distance of up to 65 m)
- Verification function is provided



Ordering Information

Part number	Description	Interface cable	Cable length
V600-HAR81	8 bit reader; PNP output; 20 pin connector	V600-A60R	2 m
		V600-A61R	5 m
		V600-A62R	10 m
V600-HAR91	8 bit reader; NPN output; 20 pin connector	V600-A60R	2 m
		V600-A61R	5 m
		V600-A62R	10 m
V600-HAM81	8 bit read/write/verify; PNP output; 26 pin connector	V600-A60M	2 m
		V600-A61M	5 m
		V600-A62M	10 m
V600-HAM91	8 bit read/write/verify; NPN output; 26 pin connector	V600-A60M	2 m
		V600-A61M	5 m
		V600-A62M	10 m

Note: Connectors on extension cables are not water-resistant. If the connector may be subjected to water, keep the connectors in a control box. The maximum cable extension length is 10 m.

Functions

V600-HAR81/-HAR91 (Read Only)

Reads 8-bit (1-byte) data from the set address and outputs to the 8 data output lines.

V600-HAM81/-HAM91 (Multi-function)

The multi-function model has three basic functions as follows:

1. Reading
Reads 8-bit (1-byte) data from the set address and outputs to the 8 data output lines.
2. Writing
Writes the designated 8-bit (1-byte) data via the 8 data input lines to specified addresses.
3. Verifying
Reads 8-bit (1-byte) data of the set address, compares to the 8-bit (1-byte) verification input data, and outputs the verification result.





Specifications

■ Amplifier Section

Item	Read-only Model	Multi-function Model	Read-only Model	Multi-function Model
	V600-HAR81	V600-HAM81	V600-HAR91	V600-HAM91
Functions	Reading	Read, write and verify	Reading	Read, write and verify
Power supply voltage	24 VDC \pm 10% (including ripple)			
Power consumption	240 mA max.		130 mA max.	
Input specification	Transistor output or contact output OFF voltage: 0 to 5 VDC ON voltage: 15 to 30 VDC Applied voltage: 30 VDC max. Input impedance: 8.2 k Ω Short-circuit current: 3 mA (IN terminal and 24 V short-circuit)		Transistor output or contact output OFF voltage: 15 to 30 VDC ON voltage: 0 to 5 VDC Applied voltage: 30 VDC max. Input impedance: 8.2 k Ω Short-circuit current: 3 mA (IN terminal and OV short-circuit)	
Output	PNP open collector output: 20 mA max. at 30 VDC, residual voltage: 2 V max.		NPN open collector output: 20 mA max. at 30 VDC, residual voltage: 2 V max.	
Diagnostic functions	Checks for CPU errors and transmission errors			
Insulation resistance	50 M Ω min. at 500 VDC between power terminals and case, between I/O terminals and case, or between the power supply terminals and I/O terminals			
Dielectric strength	500 VAC, 50/60 Hz for 1 min between the points listed above			
Vibration resistance	10 to 150 Hz, 1.5 mm double amplitude for 8 min each in X, Y, and Z directions			
Shock resistance	294 m/s ² (approx. 30G) 3 times each in X, Y, and Z directions (18 times total)			
Ambient temperature	Operating: -10° to 55°C (with no icing) Storage: -25° to 65°C			
Ambient humidity	Operating: 35% to 85% (with no condensation)			
Protection rating	IP40 IEC 60529			
Ground Cable length	Standard, 0.5 m with connector attached			
Material	ABS resin (case)			
Weight	Approx. 170 g			

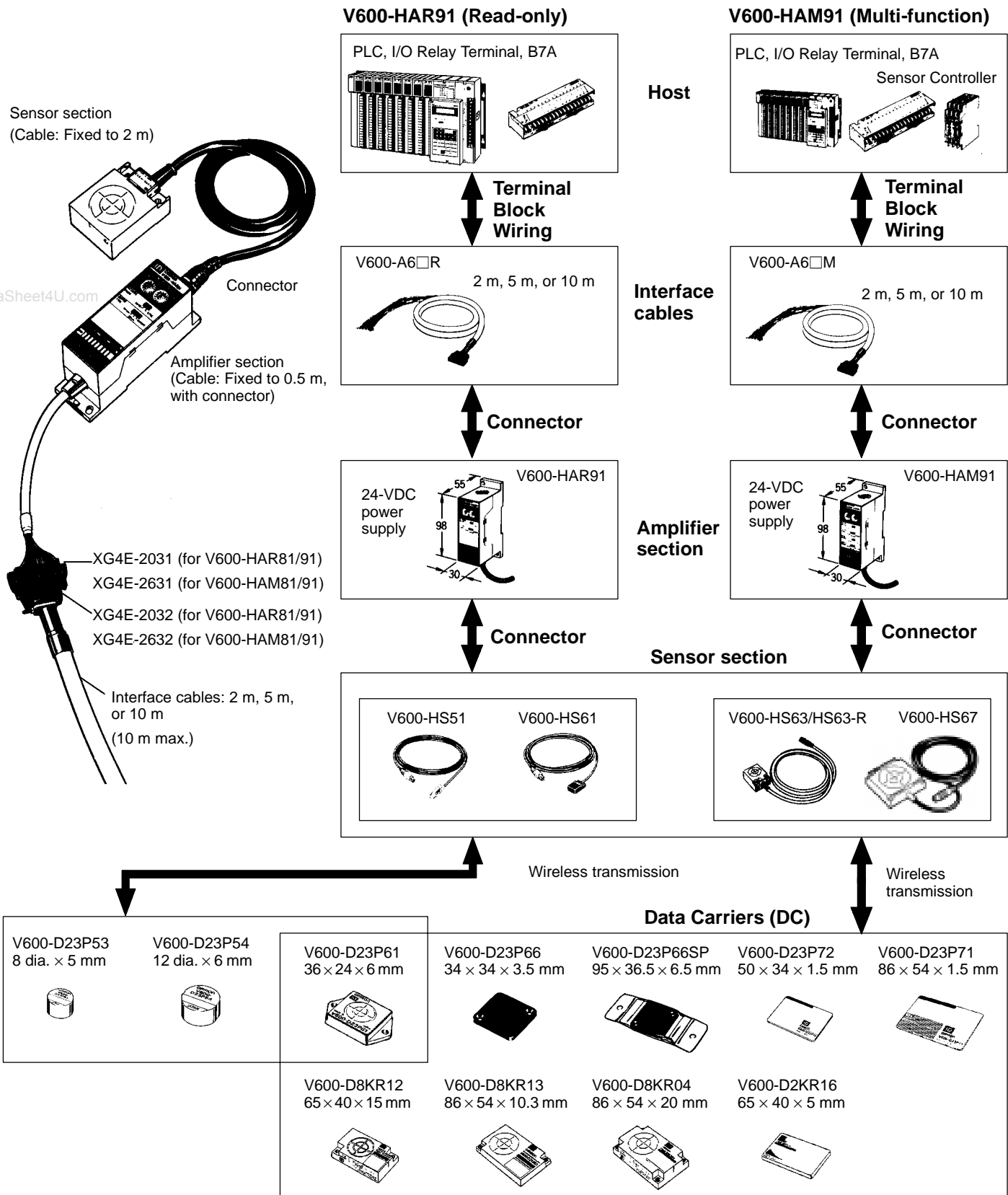
Note: The connector is not water-resistant. If the connector may be subjected to water, keep the connectors in a control box. Always use with Interface Cables (sold separately).

■ Sensor Section

Item	V600-HS51	V600-HS61	V600-HS63/HS63-R	V600-HS67
				
Transmission frequency	530 kHz			
Ambient temperature	Operating: -10° to 60°C Storage: -25° to 75°C		Operating: -10° to 70°C Storage: -25° to 75°C	
Ambient humidity	Operating: 35% to 95%			
Insulation resistance	50 M Ω min. (at 500 VDC) between cable terminal and case			
Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between cable terminal and case			
Protection rating	IEC: IP67; JEM: IP67G			
Vibration resistance	Destruction: 10 to 500 Hz, 2-mm double amplitude, with 3 sweeps of 11 min each in 3 directions		Destruction: 10 to 2,000 Hz, 3-mm double amplitude, with 2 sweeps of 15 min each in 3 directions	
Shock resistance	Destruction: 981 m/s ² (approx. 100G), 3 times each in 3 directions (18 times total)		Destruction: 490 m/s ² (approx. 50G), 3 times each in 3 directions (18 times total)	
Cable length	2 m (fixed)		2m or 3m	2m
Wireless transmission error detection	16-bit CRC (Cyclic Redundancy Check) in both directions			
Indicators	---		Power: green	
Weight	Approx. 70 g		Approx. 190 g	Approx. 540 g

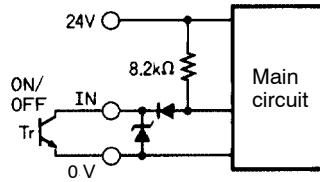
Note: V600-HS63-R includes High-Flex Cable for robotic applications.

System Configuration

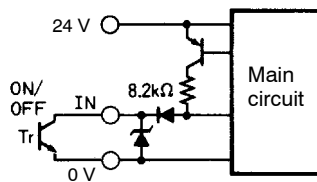


Circuit Configuration

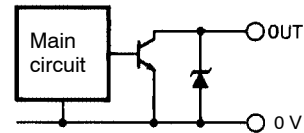
Input Circuit (V600-HAR91)



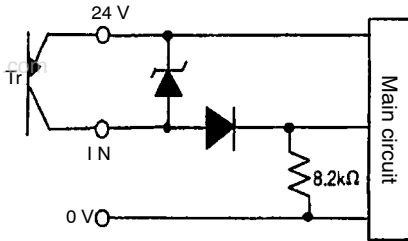
Input Circuit (V600-HAM91)



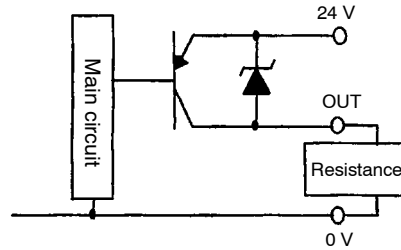
Output Circuit (V600-HAM 91/-HAR-91)



Input Circuit (V600-HAR81/-HAM81)



Output Circuit (V600-HAR81/-HAM81)



NOTE: DIMENSIONS SHOWN ARE IN MILLIMETERS. To convert millimeters to inches divide by 25.4.

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