OMRON ®

Intelligent Flag I

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 mm)
- 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

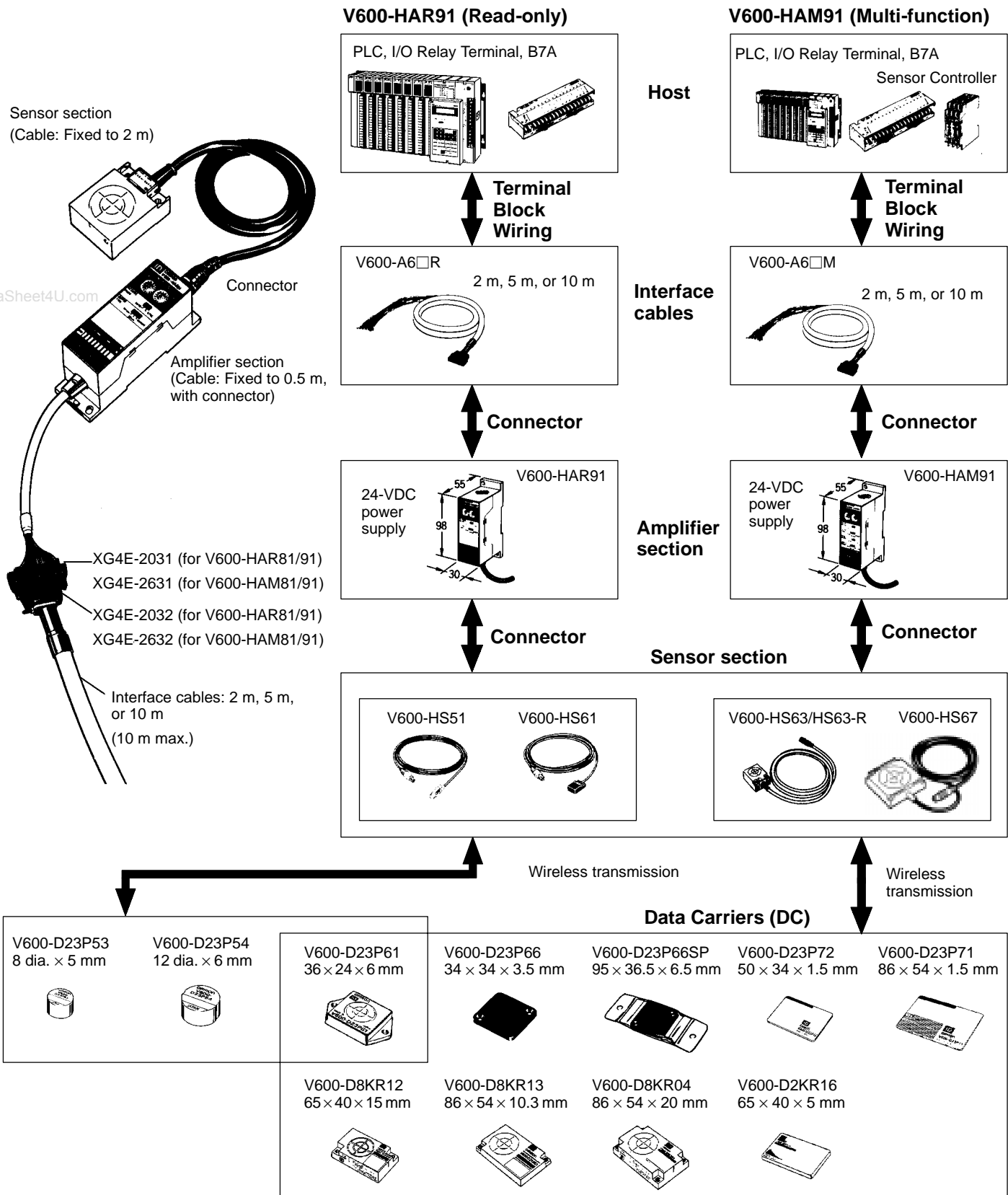| Item	Read-only Model	Multi-function Model	Read-only Model	Multi-function Model
	V600-HAR81	**V600-HAM81**	**V600-HAR91**	**V600-HAM91**
Functions	Reading	Read, write and verify	Reading	Read, write and verify
Power supply voltage	24 VDC ±10% (including ripple)			
Power consumption	240 mA max.		130 mA 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 kΩ 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 kΩ 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 MΩ 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			
GroundCable 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 MΩ 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

V600-HAR91 (Read-only)

V600-HAM91 (Multi-function)

PLC, I/O Relay Terminal, B7A

PLC, I/O Relay Terminal, B7A

Sensor Controller

Host

Sensor section
(Cable: Fixed to 2 m)

Connector

Amplifier section
(Cable: Fixed to 0.5 m,
with connector)

**Terminal
Block
Wiring**

**Terminal
Block
Wiring**

V600-A6□R

2 m, 5 m, or 10 m

**Interface
cables**

V600-A6□M

2 m, 5 m, or 10 m

Connector

Connector

XG4E-2031 (for V600-HAR81/91)
XG4E-2631 (for V600-HAM81/91)

XG4E-2032 (for V600-HAR81/91)
XG4E-2632 (for V600-HAM81/91)

24-VDC
power
supply

55

V600-HAR91

98

30

24-VDC
power
supply

55

V600-HAM91

98

30

**Amplifier
section**

Interface cables: 2 m, 5 m,
or 10 m
(10 m max.)

Connector

Connector

Sensor section

V600-HS51   V600-HS61

V600-HS63/HS63-R   V600-HS67

Wireless transmission

Wireless
transmission

Data Carriers (DC)

V600-D23P53
8 dia. × 5 mm

V600-D23P54
12 dia. × 6 mm

V600-D23P61
36 × 24 × 6 mm

V600-D23P66
34 × 34 × 3.5 mm

V600-D23P66SP
95 × 36.5 × 6.5 mm

V600-D23P72
50 × 34 × 1.5 mm

V600-D23P71
86 × 54 × 1.5 mm

V600-D8KR12
65 × 40 × 15 mm

V600-D8KR13
86 × 54 × 10.3 mm

V600-D8KR04
86 × 54 × 20 mm

V600-D2KR16
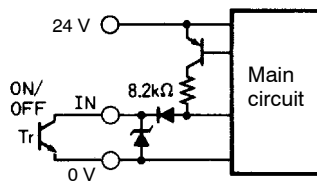65 × 40 × 5 mm

www.DataSheet4U.com
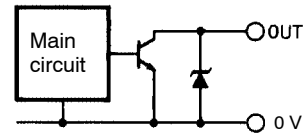
Circuit Configuration

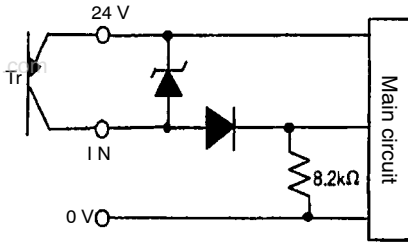### Input Circuit (V600-HAR91)
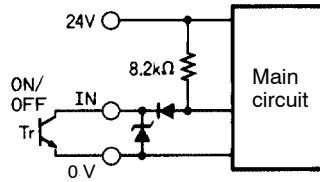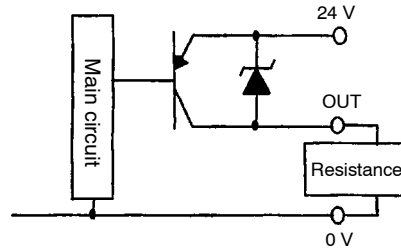

Input Circuit (V600-HAM91)

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.