



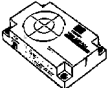








### Non-contact Data Communications System

- Superior environmental resistance
- High memory capacity of 8K bytes for Built-in-battery Data Carriers and 254 bytes for Battery-less Data Carriers
- Built-in-battery Data Carriers have a battery life detecting function
- Data of battery-less Data Carriers can be overwritten 300,000 times
- Thin, compact, and low-cost Data Carriers are available
- Transmission distance of 100 mm max.









### Ordering Information

#### ■ Data Carriers

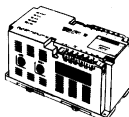
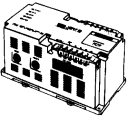

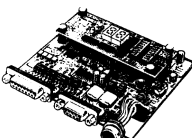

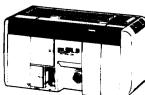
| Item                    | Part number   |   | Specifications/Design                              |           |
|-------------------------|---------------|---|--|-----------|
| Built-in-battery DCs    | V600-D8KR12   |  | Compact<br>65 × 40 × 15 mm                         | 8k bytes  |
|                         | V600-D8KR13   |  | Thin<br>86 × 54 × 10.3 mm                          | 8k bytes  |
|                         | V600-D8KR04   |  | Intermediate-range<br>86 × 54 × 20 mm              | 8k bytes  |
| Replaceable-battery DCs | V600-D2KR16   |  | Compact<br>65 × 40 × 5 mm                          | 2k bytes  |
| Battery-less DCs        | V600-D23P71   |  | Card-type<br>86 × 54 × 1.5 mm                      | 254 bytes |
|                         | V600-D23P72   |  | Half-size card-type<br>50 × 34 × 1.5 mm            |           |
|                         | V600-D23P66   |  | Rectangular<br>34 × 34 × 3.5 mm                    |           |
|                         | V600-D23P66SP |  | Rectangular package with PFA<br>95 × 36.5 × 6.5 mm |           |
|                         | V600-D23P61   |  | Compact<br>32 × 24 × 6 mm                          |           |
|                         | V600-D23P53   |  | Round super-compact<br>8 dia. × 5 mm               |           |
|                         | V600-D23P54   |  | Round compact<br>12 dia. × 6 mm                    |           |

## ■ READ/WRITE HEADS

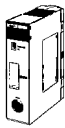





| Item                    | Part number        |   | Specifications/Design  |   |                             |
|-------------------------|--------------------|---|--|---|-----------------------------|
| Rectangular             | V600-H07 (0.5 m)   |   |   | Dimensions: 100 × 100 × 30 mm   | 0.5-m cable                 |
|                         | V600-H07 (2 m)     |   |  |   | 2-m cable                   |
|                         | V600-H07 (5 m)     |   |  |   | 5-m cable                   |
|                         | V600-H07 (10 m)    |   |  |   | 10-m cable                  |
|                         | V600-H11 (0.5 m)   |   |   | Dimensions: 53 × 40 × 23 mm   | 0.5-m cable                 |
|                         | V600-H11-R (0.5 m) |   |  |   | 0.5-m cable                 |
|                         | V600-H11 (2 m)     |   |  |   | 2-m cable                   |
|                         | V600-H11 (5 m)     |   |  |   | 5-m cable                   |
|                         | V600-H11 (10 m)    |   |  |   | 10-m cable                  |
|                         | Cylinder type      | V600-H51 (0.5 m)  |  |  | Dimensions: 22 dia. × 80 mm |
| V600-H51 (2 m)          |                    | 2-m cable   |  |   |                             |
| V600-H51 (5 m)          |                    | 5-m cable   |  |   |                             |
| V600-H51 (10 m)         |                    | 10-m cable  |  |   |                             |
| V600-H52 (0.5 m)        |                    |  | Dimensions: 22 dia. × 85 mm  | 0.5-m cable   |                             |
| V600-H52 (2 m)          |                    |   |  | 2-m cable   |                             |
| V600-H52 (5 m)          |                    |   |  | 5-m cable   |                             |
| V600-H52 (10 m)         |                    |   |  | 10-m cable  |                             |
| Separate-amplifier type | Amplifier section  | V600-HA51 (2 m)   |   | 73.8 × 22.6 × 36.5 mm, with 2-m cable   |                             |
|                         |                    | V600-HA51 (5 m)   |  | 73.8 × 22.6 × 36.5 mm, with 5-m cable   |                             |
|                         |                    | V600-HA51 (10 m)  |  | 73.8 × 22.6 × 36.5 mm, with 10-m cable  |                             |
|                         | Sensor section     | V600-HS51   |  | 12 dia. × 36.5 mm deep, with 2-m cable  |                             |
|                         |                    | V600-HS61   |  | 30.5 × 18 × 10 mm, with a 2-m cable   |                             |

**Note:** Refer to *Model Changes* on page NO TAG for details regarding substitute models for the V600-D□KR01/D□KR02/D□KR03 Built-in-battery Data Carriers and the V600-H06-□ R/W Heads that are no longer in production.



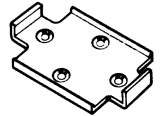
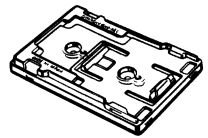


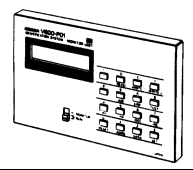
## ■ ID Controllers

| Item         | Part number           | Specifications/Design   |  |  |
|--------------|-----------------------|---|--|--|
| Two Head     | V600-CA1A-V2          |    | 100 to 240 VAC, 50/60 Hz<br>Two R/W Head connectors<br>200 × 100 × 100 mm  | RS-232C host interface                               |
|              | V600-CA2A-V2          |   |  | RS-422 host interface                                |
|              | V600-CA8A-V2          |   |  | Parallel PNP host interface                          |
|              | V600-CA9A-V2          |   |  | Parallel NPN host interface                          |
|              | V600-CA1A-F-V2        |    | 100 to 240 VAC, 50/60 Hz<br>One R/W Head connector<br>200 × 100 × 100 mm<br>FANUC protocol format I/II                                       | FANUC CNC Tool ID protocol<br>RS-232C host interface |
| One Head     | V600-CD1D-V3          |    | 24 VDC<br>R/W Head connectors<br>115 × 68 × 80 mm  | RS-232C host interface                               |
|              | V600-CM1D             |    | 24 VDC, 5 VDC<br>R/W Head connectors<br>Board type   |  |
| Handheld     | V600-CB-US-S<br>(Kit) |   | A Battery Charger, Ni-Cd Battery Pack, Battery Case, and Carrying Belt are included.<br>Dispose of recyclable Ni-Cd batteries appropriately. |  |
| Programmable | IDSC-CIDR-A-E         |  | 100 to 240 VAC, 50/60 Hz<br>Relay contact output type  |  |
|              | IDSC-CIDT-A-E         |   | 100 to 240 VAC, 50/60 Hz<br>Transistor output type   |  |

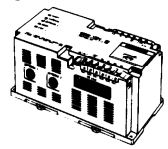
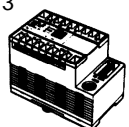
## ■ PLC ID Sensor Modules/ID Adapter

| Part number    | Specifications/Design  |  |
|----------------|--|--|
| C200H-IDS01-V1 | ID Sensor Module<br>  | For the C200H, C200HX, and CS1 PLCs<br>General purpose   |
| C500-IDA02     | ID Sensor Module<br>  | SYSMAC CV 500, CV1000, CVM1, C500 (F), C1000H(F), C2000H PLCs<br>General purpose                                     |
| C500-IDS02-V1  | ID Sensor Module<br>ID Adapter Module<br>  | SYSMAC CV 500, CV1000, CVM1, C500 (F), C1000H(F), C2000H PLCs<br>For placement of R/W Head up to 200 m from PLC rack |
| C500-IDA02     |    | Required when using the C500-IDS02-V1 ID Sensor Unit   |

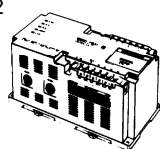
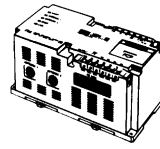
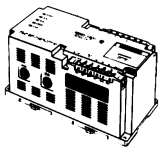
■ Accessories (Order Separately)

| Item   | Part number              |   | Specifications/Design  |            |
|--|--------------------------|---|--|------------|
| R/W Antennas   | V600-A45                 |    | Standard cable<br>Non-water-resistant connectors   | 3-m cable  |
|  | V600-A44                 |   |  | 5-m cable  |
|  | V600-A40                 |   |  | 10-m cable |
|  | V600-A41                 |   |  | 20-m cable |
|  | V600-A42                 |   |  | 30-m cable |
|  | V600-A56                 |    | Robotic cable<br>Non-water-resistant connectors  | 3-m cable  |
|  | V600-A55                 |   |  | 5-m cable  |
|  | V600-A50                 |   |  | 10-m cable |
|  | V600-A51                 |   |  | 20-m cable |
|  | V600-A52                 |   |  | 30-m cable |
| Data Carrier Mounting Brackets                         | V600-A81                 |    | For the V600-D2KR16  |            |
|  | V600-A84                 |    | For the V600-D23P71/D23P72   |            |
| Attachments  | V600-A86                 |    | For the V600-D23P66  |            |
| Data Carrier Battery Replacement Kit (lithium battery) | V600-A82 (5 in each set) |    | For the V600-D2KR16<br>Commercially available CR2016 battery (includes replacement battery, seal, and cover) |            |
| Monitor Unit   | V600-P01                 |  | For the V600-CA□A-□ Controller   |            |

■ RS-232C Cables (Order Separately)








| Part number | Cable length | Compatible ID Controllers   |
|-------------|--------------|---|
| XW2Z-200P   | 2 m          | V600-CA1A-V2<br>                           |
| XW2Z-500P   | 5 m          |   |
| XW2Z-200S   | 2 m          | V600-CD1D-V3<br>V600-CF1A<br>V600-CM1D<br> |
| XW2Z-500S   | 5 m          |   |

■ Connectors for ID Controllers (One Set per Unit)

| Part number                  | Name           | Compatible ID Controllers   |
|------------------------------|----------------|---|
| XM2A-0901                    | Connector Plug | V600-CA2A-V2<br>V600-CD1D-V2<br>V600-CF1A<br>V600-CM1D<br> |
| XM2S-0911                    | Connector Hood |   |
| XM2A-2501                    | Connector Plug | V600-CA1A-V2<br>V600-CA1A-F-V2<br>                         |
| XM2S-2511                    | Connector Hood |   |
| MR-50F (Honda Tsushin Kogyo) | Connector Plug | V600-CA8A-V2<br>V600-CA9A-V2<br>                           |
| MR-50L (Honda Tsushin Kogyo) | Connector Hood |   |



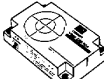

## Specifications

### ■ Battery-less Data Carriers

| Item                                      | Card-type  | Half-size Card-type  | Rectangular Compact  | Chemical-resistant   | Rectangular Compact  | Round Super-compact  | Round Compact  |
|---|--|--|--|--|--|--|--|
| <b>Model</b>                              | V600-D23P71<br>   | V600-D23P72<br> | V600-D23P66<br>   | V600-D23P66SP<br> | V600-D23P61<br>   | V600-D32P53<br> | V600-D23P54<br> |
| <b>Memory Capacity</b>                    | 254 bytes  |  |  |  |  |  |  |
| <b>Memory type</b>                        | EEPROM (non-volatile memory)   |  |  |  |  |  |  |
| <b>Transmission distance</b>              | Refer to page 12, <i>Transmission Distance Specifications for Battery-less DCs</i>   |  |  |  |  |  |  |
| <b>Data retention time</b>                | 10 years (Data is retained for 10 years after it is written)   |  |  |  |  |  |  |
| <b>Number of overwrites</b>               | Each address can be overwritten 300,000 times at an ambient temperature of $-10^{\circ}$ to $40^{\circ}\text{C}$ or 100,000 times at an ambient temperature of $-10^{\circ}$ to $70^{\circ}\text{C}$ . The number of reads is unlimited. |  |  |  | Each address can be overwritten 300,000 times at an ambient temperature of $-25^{\circ}$ to $40^{\circ}\text{C}$ or 100,000 times at an ambient temperature of $-25^{\circ}$ to $70^{\circ}\text{C}$ . The number of reads is unlimited. |  |  |
| <b>Transmission error detection</b>       | 16-bit CRC in both directions  |  |  |  |  |  |  |
| <b>Ambient temperature</b>                | Operating: $-20^{\circ}$ to $110^{\circ}\text{C}$<br>$-10^{\circ}$ to $70^{\circ}\text{C}$ during R/W<br>Storage: $-20^{\circ}$ to $110^{\circ}\text{C}$   |  | Operating: $-40^{\circ}$ to $110^{\circ}\text{C}$<br>$-20^{\circ}$ to $70^{\circ}\text{C}$ during R/W<br>Storage: $-40^{\circ}$ to $110^{\circ}\text{C}$ |  | Operating: $-40^{\circ}$ to $85^{\circ}\text{C}$<br>$-25^{\circ}$ to $70^{\circ}\text{C}$ during R/W<br>Storage: $-40^{\circ}$ to $85^{\circ}\text{C}$   |  |  |
| <b>Ambient humidity</b>                   | Operating: 35% to 95%  |  |  |  |  |  |  |
| <b>Protection rating (IEC 60529)</b>      | IP67   |  | IP68   | IP67G  | IP67   |  |  |
| <b>Vibration resistance (destruction)</b> | 10 to 2,000 Hz, 1.5-mm double amplitude, $300\text{ m/s}^2$ acceleration (approx. 30G) for 30 min each in 3 direction (90 min total)   |  |  |  |  |  |  |
| <b>Shock resistance</b>                   | Destruction: $1,000\text{ m/s}^2$ (approx. 100G) 3 times each in 3 directions (18 times total)   |  |  |  |  |  |  |
| <b>Weight</b>                             | Approx. 15 g   | Approx. 5 g  | Approx. 6 g  | Approx. 19 g   | Approx. 5.8 g  | Approx. 0.4 g  | Approx. 1.0 g  |

**Note:** See dimensional drawings for case construction materials.

## ■ Built-in-battery Data Carriers





| Item                               | Compact  | Thin   | Intermediate Range   | Compact with Replaceable Battery  |
|------------------------------------|--|--|--|---|
| Model                              | V600-D8KR12<br>                                 | V600-D8KR13<br> | V600-D8KR04<br> | V600-D2KR16<br>                                |
| Memory Capacity                    | 8K bytes   |  |  | 2K bytes  |
| Memory type                        | SRAM   |  |  |   |
| Transmission distance              | Refer to page NO TAG, <i>Transmission Distance Specifications for Built-in-battery DCs</i>                                       |  |  |   |
| Battery life (see note 1)          | Refer to page NO TAG, <i>Battery Life</i>  |  |  | 2 years (at 25°C) (see note 2)  |
| Number of reads/writes             | Unlimited  |  |  | Unlimited (Does not affect battery life)  |
| Transmission error detection       | 16-bit CRC in both directions  |  |  |   |
| Ambient temperature                | Operating: -40° to 70°C<br>-25° to 70°C during R/W<br>Storage: -40° to 70°C  |  |  | Operating: -15° to 70°C<br>0° to 50°C during R/W<br>Storage: -15° to 70°C   |
| Ambient humidity                   | Operating: 35% to 95%<br>Storage: 35% to 95%   |  |  | Operating: 35% to 85%<br>Storage: 35% to 95%  |
| Protection rating (IEC 60529)      | IP67   |  |  | IP50 (dustproof) (see note 3)   |
| Vibration resistance (destruction) | 10 to 500 Hz, 1.0-mm double amplitude, 150 m/s <sup>2</sup> acceleration (approx. 15G) for 11 min each in X, Y, and Z directions |  |  | 10 to 150 Hz, 0.75-mm double amplitude, 100-m/s <sup>2</sup> acceleration (approx. 10G) for 30 min each in X, Y, and Z directions |
| Shock resistance (destruction)     | 1,000 m/s <sup>2</sup> (approx. 100G) 3 times each in X, Y, and Z directions (18 times total)                                    |  |  | 300 m/s <sup>2</sup> (approx. 30G) 3 times each in X, Y, and Z directions (18 times total)  |
| Weight                             | Approx. 70 g   |  | Approx. 160 g  | Approx. 15 g  |

**Note:** 1. A low battery detection function is built-in.

2. The battery life is applicable for batteries used at a temperature of 25°C. Refer to *Temperature and Battery Life* on page NO TAG for details on the relationship between temperature and battery life. The CR2016 is provided as the replacement battery. Refer to page 4 for details on accessories.

3. The Data Carrier is dustproof when the provided battery replacement cover seal is used.




## ■ Read/Write (R/W) Heads

| Item                                  | V600-H07<br>   | V600-H11/H11-R<br> | V600-H51<br> | V600-H52<br> |
|---------------------------------------|---|---|---|---|
| Transmission frequency                | 530 kHz   |   |   |   |
| Ambient temperature                   | Operating: -25° to 70°C<br>Storage: -40° to 85°C  |   | Operating: -10° to 60°C<br>Storage: -25° to 75°C  |   |
| Ambient humidity                      | Operating: 35% to 95%<br>Storage: 35% to 95%  |   |   |   |
| Insulation resistance                 | 50 MΩ (at 500 VDC) between cable terminals and case   |   |   |   |
| Dielectric strength                   | 1,000 VAC, 50/60 Hz for 1 min between cable terminals and case  |   |   |   |
| Protection rating (IEC 60529)         | IP67  |   |   |   |
| Vibration resistance (destruction)    | 10 to 500 Hz, 1.0-mm double amplitude, 150 m/s <sup>2</sup> acceleration (approx. 15G) with 3 sweeps of 11 min each in X, Y, and Z directions |   |   |   |
| Shock resistance                      | Destruction: 500 m/s <sup>2</sup> (approx. 50G) 3 times each in X, Y, and Z directions (18 times total)                                       |   |   |   |
| Cable length (see note 1)             | Standard lengths of 0.5 m, 2 m, 5 m, and 10 m.  |   |   |   |
| Wireless transmission error detection | 16-bit CRC in both directions   |   |   |   |
| Indicators                            | Power: green; transmission: orange  |   |   |   |
| Weight                                | Approx. 1 kg (with 10-m cable)  |   | Approx. 650 g (with 10-m cable)   |   |

**Note:** 1. Extension cables are also available. The maximum cable length is 30.5 m for the V600-H07 and 50.5 m for the V600-H11/H51/H52.



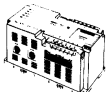
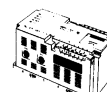



2. The connectors are not water-resistant.

## ■ R/W Heads (with Separate Amplifier)

| Item   | Sensor section  |  | Amplifier section  |
|--|---|--|--|
|  | V600-HS51<br>  | V600-HS61<br> | V600-HA51<br>   |
| <b>Transmission frequency</b>                | 530 kHz   |  | ---  |
| <b>Ambient temperature</b>                   | Operating: -10° to 60°C<br>Storage: -25° to 75°C  |  | Operating: -10° to 60°C<br>Storage: -25° to 75°C   |
| <b>Ambient humidity</b>                      | Operating: 35% to 95%   |  |  |
| <b>Insulation resistance</b>                 | 50 MΩ (at 500 VDC) between cable terminals and case   |  |  |
| <b>Dielectric strength</b>                   | 1,000 VAC 50/60 Hz for 1 min between cable terminals and case   |  |  |
| <b>Protection rating (IEC 60529)</b>         | IP67  |  | IP66   |
| <b>Vibration resistance (destruction)</b>    | 10 to 2,000 Hz, 1.5-mm double amplitude, 300 m/s <sup>2</sup> acceleration (approx. 30G) with 2 sweeps of 15 min each in 3 directions |  | Installed in panel: 10 to 2,000 Hz, 1.5-mm single amplitude, 300-m/s <sup>2</sup> acceleration (approx. 30G) with 2 sweeps of 11 min each in 3 directions<br><br>DIN Track installation: 10 to 500 Hz, 1.0-mm single amplitude, 150-m/s <sup>2</sup> acceleration (approx. 15G) with 3 sweeps of 11 min each in 3 directions |
| <b>Shock resistance (destruction)</b>        | 1,000 m/s <sup>2</sup> (approx. 100G) 3 times each in 3 directions (18 times total)   |  | 500 m/s <sup>2</sup> (approx. 50G) 3 times each in 3 directions (18 times total)   |
| <b>Cable length</b>                          | 2 m (fixed) between sensor and amplifier  |  | Standard lengths of 2 m, 5 m, and 10 m between amplifier and controller (see note 1)   |
| <b>Wireless transmission error detection</b> | 16-bit CRC in both directions   |  |  |
| <b>Indicators</b>                            | ---   |  | Power: green; transmission: orange   |
| <b>Weight</b>                                | Approx. 70 g (with 2-m cable)   |  | Approx. 650 g (10-m cable)   |

- Note:**
1. Extension cables are also available. The maximum cable length is 50 m for the V600-HA51. Extension cables are not available for the V600-HS51/HS61.
  2. The connectors are not water-resistant.


## ■ ID Controllers

| Item                            | V600 Series (Electromagnetic RFID System)  |   |   |   |  |   |  |
|---------------------------------|--|---|---|---|--|---|--|
|                                 | V600-CA1A-V2<br>(See note)<br>  | V600-CA1A-F-V2<br>(See note)<br> | V600-CA2A-V2<br>(See note)<br> | V600-CA8A-V2<br>(See note)<br> | V600-CA9A-V2<br> | V600-CD1D-V3<br>(See note)<br>           | V600-CM1D<br> |
| Host interface                  | RS-232C  | RS-232C<br>(FANUC protocol-compatible)  | RS-422<br>(Maximum of 16 Units can be connected)  | Parallel PNP output   | Parallel NPN output  | RS-232C   | RS-232C  |
| Possible number of R/W Heads    | 2  |   |   |   |  | 1   | 1  |
| Power supply voltage            | 100 to 240 VAC, 50/60 Hz   |   |   |   |  | 24 VDC  | 24 VDC, 5 VDC  |
| Acceptable power supply voltage | 85 to 264 VAC  |   |   |   |  | 20.4 to 26.4 VDC  | 24 VDC, 20.4 to 26.4 VDC, 5 VDC, 4.5 to 5.5 VDC  |
| Power consumption               | 35 VA max.   |   |   |   |  | 7.2 W max.  | 24 VDC: 7.2 W max.<br>5 VDC: 1.5 W max.  |
| Insulation resistance           | 50 M $\Omega$ 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             | 1,500 VAC, 50/60 Hz for 1 min between the points listed above;<br>Leakage current: 10 mA max.  |   |   |   |  | 1,000 VAC, 50/60 Hz for 1 min between the points listed above;<br>Leakage current: 10 mA max.                               |  |
| Noise immunity                  | 1,500 V (p-p) pulses of 100 ns to 1 $\mu$ s pulse width with a 1 ns rise time  |   |   |   |  |   |  |
| Vibration resistance            | Destruction: 10 to 150 Hz, 0.3-mm double amplitude for 32 min each in X, Y, and Z directions<br>Malfunction: 10 to 150 Hz, 0.2-mm double amplitude for 32 min each in X, Y, and Z directions |   |   |   |  |   |  |
| Shock resistance                | Destruction: 200 m/s <sup>2</sup> (approx. 20G) 3 times each in X, Y, and Z directions (18 times total)  |   |   |   |  |   |  |
| Ambient temperature             | Operating: -10° to 55°C<br>Storage: -25° to 65°C   |   |   |   |  | Operating: 0° to 50°C<br>Storage: -15° to 70°C  |  |
| Ambient humidity                | 35% to 85% (with no condensation)  |   |   |   |  |   |  |
| Operating conditions            | No corrosive gases   |   |   |   |  |   |  |
| Memory back-up                  | A capacitor backs up the most recent error data and statistical error data for up to 20 days (at 25°C) after a power interruption  |   |   |   |  | Memory backup is not available. Error details, however, can be read from the personal computer when the power is turned ON. |  |
| Diagnostic functions            | Checks for CPU errors, memory errors, power interruptions, and transmission errors   |   |   |   |  |   |  |
| Ground                          | Ground to 100 $\Omega$ or less.  |   |   |   |  |   |  |
| Protection rating               | For inter-panel installation (IEC 60529 IP30)  |   |   |   |  |   |  |
| Standards/Approvals             | See Appendix B   |   |   |   |  |   |  |
| Weight                          | Approx. 890 g  |   | Approx. 930 g   | Approx. 960 g   |  | Approx. 360 g   | Approx. 180 g  |

Note: The CA□A/-V2 and CD1D-V3 conform to EC Directives.



## ■ Handheld ID Controllers

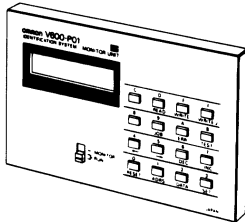
| Item  | V600-CB-US-S   |
|---|--|
|   |                              |
| <b>Power supply</b>                         | Built-in nickel-cadmium batteries (6 VDC) or 9-V alkaline batteries (9 VDC) (see note)                         |
| <b>Power consumption</b>                    | 700 mA max.  |
| <b>Continuous operating time (see note)</b> | 3 hrs min. when using the built-in nickel-cadmium batteries;<br>1.5 hrs min. when using the alkaline batteries |
| <b>Automatic power-saver</b>                | The power is turned OFF automatically if a key input or response is not received in 10 min                     |
| <b>Automatic command cancellation</b>       | A command will be cancelled automatically if a response is not received from a Data Carrier within 2 min       |
| <b>Low battery indicator</b>                | This display appears when the battery voltage falls below the minimum voltage required for operation           |
| <b>User memory</b>                          | 32K bytes (Data will be retained for at least 24 hrs after batteries are removed)                              |
| <b>Vibration resistance</b>                 | Destruction: 10 to 150 Hz, 0.15-mm single amplitude for 32 min each in X, Y, and Z directions                  |
| <b>Shock resistance</b>                     | Destruction: 200 m/s <sup>2</sup> (approx. 20G) 3 times each in X, Y, and Z directions (18 times total)        |
| <b>Ambient temperature</b>                  | Operating: 0° to 45°C<br>Storage: -20° to 60°C (excluding the battery pack)                                    |
| <b>Ambient humidity</b>                     | Operating: 35% to 85%  |
| <b>Operating conditions</b>                 | No corrosive gases   |
| <b>Protection rating</b>                    | IEC 60529 IP30   |
| <b>Weight</b>                               | 680 g max. (including the battery pack)  |

- Note:**
1. The continuous operating time is for new, fully charged nickel cadmium batteries or new alkaline batteries used at room temperature.
  2. Dispose of recyclable nickel cadmium batteries appropriately.

## ■ Monitor Unit

V600-P01 (for use with V600-CA□A Controllers)

The Monitor Unit is a monitoring device that can be mounted to an ID Controller. It can be used to test communications between the R/W Head and Data Carrier when the RFID System is started up, check the data in Data Carriers, and read error information or statistical error information.




The specifications conform to those of the ID Controller, except the operating temperature range is 0°C to 40°C.

## ■ V600-CB-US-S Configuration


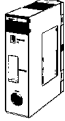
| Model                  | Name                         | Remarks                               |
|------------------------|------------------------------|---------------------------------------|
| V600-CB-US             | Handheld ID Controller       | Controller                            |
| V600-A14<br>(See note) | Battery Charger<br>(120 VAC) | Accessory                             |
| V600-A11               | Battery Case                 | Accessory (for alkaline batteries)    |
| V600-A12               | Ni-Cd Battery Pack           | Accessory (built-in to ID Controller) |
| V600-A13               | Carrying Belt                | Accessory                             |

## ■ IDSC Series

| Item                                   | IDSC Series  |
|--|--|
|  | IDSC-C1DR-A-E<br>IDSC-C1DT-A-E<br>   |
| <b>Host interface</b>                  | RS-232C  |
| <b>Possible number of R/W Heads</b>    | 1  |
| <b>Power supply voltage</b>            | 100 to 240 VAC, 50/60 Hz   |
| <b>Acceptable power supply voltage</b> | 85 to 264 VAC  |
| <b>Power consumption</b>               | 60 VA max.   |
| <b>Insulation resistance</b>           | 20 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  |
| <b>Dielectric strength</b>             | 2,300 VAC, 50/60 Hz for 1 min between the points listed above;<br>Leakage current: 10 mA max.  |
| <b>Noise immunity</b>                  | 1,500 V (p-p) pulses of 100 ns to 1 μs pulse width with a 1 ns rise time   |
| <b>Vibration resistance</b>            | 10 to 57 Hz, 0.075-mm double amplitude, 57 to 150 Hz, 9.8 m/s <sup>2</sup> acceleration (approx. 1G) for 80 min each in X, Y, and Z directions   |
| <b>Shock resistance</b>                | 150 m/s <sup>2</sup> (approx. 15G) 3 times each in X, Y, and Z directions  |
| <b>Ambient temperature</b>             | Operating: 0° to 55°C<br>Storage: -20° to 75°C (excluding the battery pack)  |
| <b>Ambient humidity</b>                | 10% to 90% (with no condensation)  |
| <b>Operating conditions</b>            | No corrosive gases   |
| <b>Memory back-up</b>                  | The battery life is 5 years regardless of whether an RTC is provided.<br>The period that data is retained after a power interruption depends on the ambient temperature.<br>Replace the battery within one week of the battery low indicator flashing. |
| <b>Diagnostic functions</b>            | Checks for CPU errors, memory errors, power interruptions, and transmission errors   |
| <b>Ground</b>                          | Ground to 100 Ω or less.   |
| <b>Construction</b>                    | For inter-panel installation   |
| <b>Weight</b>                          | Approx. 1,500 g  |


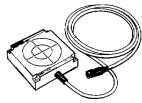
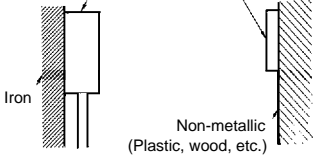





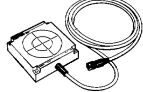
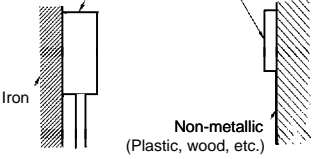

**Note:** Refer to the applicable ID Controller Operation Manual for details.


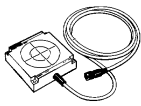
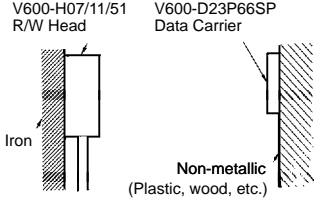

## ■ ID Sensor Units



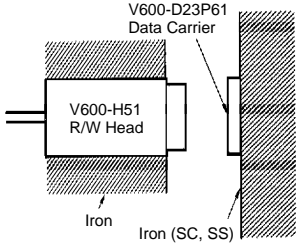
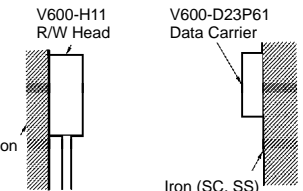

| Item                                | C500-IDS01-V2 (for general use)<br>C500-IDS02-V1 (for remote R/W head location)<br>C500 IDA02 (See note)   | C200H-IDS01-V1  |
|-------------------------------------|---|--|
| <b>Communications control</b>       | Dedicated time sharing  |  |
| <b>Possible number of R/W Heads</b> | 1 R/W Head  |  |
| <b>DC memory format</b>             | 8-bit dedicated format  |  |
| <b>Commands</b>                     | The following 7 commands are used: Read, Write, Auto read, Auto write, Abort, Cancel auto-command, Data management processing   |  |
| <b>Transmission capacity</b>        | Up to 502 bytes (251 words) of data can be batch-transferred using the Intelligent I/O instructions (READ/WRITE)  | Up to 1024 bytes (512 words) of data can be transferred (at 20 words/PLC cycle)                    |
| <b>Diagnostic functions</b>         | 1. CPU watchdog timer<br>2. Detects transmission error with DC, absence of DC<br>3. Error log function, records transmission errors (with capacitor back-up)  |  |
| <b>Monitoring functions</b>         | A Handheld Programming Console (with a special keysheet) can be used to monitor operation (max. cable length: 4 m). The following operations are possible: Read 1-byte, Write 1-byte, Continuous write, Test, and Monitor error log |  |
| <b>Memory back-up</b>               | The error information has a capacitor back-up. Data retained at least 15 days (at 25°C).  |  |
| <b>I/O word allocation</b>          | Two words are allocated when the Intelligent I/O instructions (READ/WRITE) are used<br>Four words are allocated when the Intelligent I/O instructions (READ/WRITE) are not used (selectable)  | Five words are allocated within the Special I/O (IR) area (IR 100 to IR 199)                       |
| <b>External power supply</b>        | 250 mA min. at 24 VDC   | ---  |
| <b>Internal current consumption</b> | 400 mA max. at 5 VDC  | 250 mA max. at 5 VDC<br>120 mA max. at 26 VDC<br>(to drive the R/W Head) (see note)                |
| <b>Weight</b>                       | 700 g max.  | 400 g max.   |

**Note:** The C500-IDA02 must be used with the C500-IDS02-V1. The cable can be extended to a maximum of 200 m.



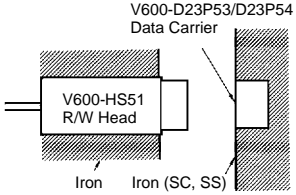
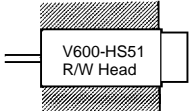
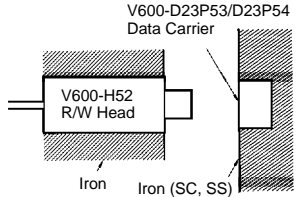

■ Transmission Distance Specifications for Battery-less DCs

| Recommended combinations  |   | Installation |                     | Controller mode                | Transmission distance                  | Condition for DC and R/W head Installation  |
|---|---|--------------|---------------------|--------------------------------|--|---|
| Data Carrier  | R/W Head  |              |                     |                                |  |   |
|    |    | Stationary   | Read/Write distance | N/A                            | 10 to 70 mm (max. axial offset ±10 mm) | <p>These Data Carriers are for installation on non-metallic surfaces only.</p> <p>V600-H07/11/51 R/W Head    V600-D23P71/D23P72 Data Carrier</p>  <p><b>Note:</b> Data transmission will be impossible if the DC is installed directly on a metal surface. The transmission distances will be reduced to 70% of the listed figures if the DC is 10 mm from the metal surface, and 90% of the listed figures if the DC is 20 mm from the metal surface. Refer to the section on installation in the Data Carrier or R/W Head's <i>Operation Manual</i> or <i>Supplement</i> for more details.</p> |
|   |   | Moving       |                     |                                | 30 to 60 mm (max. axial offset ±10 mm) |   |
|   |    | Stationary   | Read/Write distance | N/A                            | 5 to 40 mm (max. axial offset ±10 mm)  |   |
|   |   | Moving       |                     |                                | 15 to 40 mm (max. axial offset ±10 mm) |   |
|    |    | Stationary   | Read/Write distance | N/A                            | 10 to 50 mm (max. axial offset ±10 mm) |   |
|   |   | Moving       |                     |                                | 30 to 40 mm (max. axial offset ±10 mm) |   |
|   |    | Stationary   | Read/Write distance | N/A                            | 5 to 30 mm (max. axial offset ±10 mm)  |   |
|   |   | Moving       |                     |                                | 15 to 30 mm (max. axial offset ±10 mm) |   |
|  |  | Stationary   | Read distance       | Transmission distance priority | 5 to 45 mm (max. axial offset ±10 mm)  | <p>V600-H07/11/51 R/W Head    V600-D23P66 Data Carrier</p>  <p><b>Note:</b> Data transmission will be impossible if the DC is installed directly on a metal surface. The transmission distances will be reduced to 70% of the listed figures if the DC is 10 mm from the metal surface, and 90% of the listed figures if the DC is 20 mm from the metal surface. Refer to the section on installation in the Data Carrier or R/W Head's <i>Operation Manual</i> or <i>Supplement</i> for more details.</p>   |
|   |   |              |                     |                                | Transmission time priority             |   |
|   |   |              | Write distance      | N/A                            |  |   |
|   |   | Moving       | Read distance       | Transmission distance priority | 25 to 40 mm (max. axial offset ±10 mm) |   |
|   |   |              |                     |                                | Transmission time priority             |   |
|   |   |              | Write distance      | N/A                            | 25 to 30 mm (max. axial offset ±10 mm) |   |
|   |  | Stationary   | Read distance       | Transmission distance priority | 5 to 30 mm (max. axial offset ±10 mm)  |   |
|   |   |              |                     |                                | Transmission time priority             |   |
|   |   |              | Write distance      | N/A                            |  |   |
|   |   | Moving       | Read distance       | Transmission distance priority | 15 to 25 mm (max. axial offset ±10 mm) |   |
|   |   |              |                     |                                | Transmission time priority             |   |
|   |   |              | Write distance      | N/A                            |  |   |



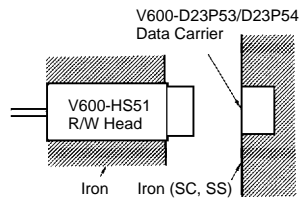

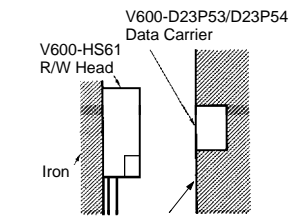

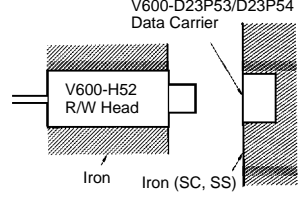
| Recommended combinations   |   | Installation |                | Controller mode                        | Transmission distance                  | Condition for DC and R/W head Installation   |
|--|---|--------------|----------------|--|--|--|
| Data Carrier   | R/W Head  |              |                |  |  |  |
| V600-D23P66SP<br> | V600-H07<br>       | Stationary   | Read distance  | Transmission distance priority         | 5 to 40 mm (max. axial offset ±10 mm)  |  <p><b>Note:</b> Data transmission will be impossible if the DC is installed directly on a metal surface. The transmission distances will be reduced to 70% of the listed figures if the DC is 10 mm from the metal surface, and 90% of the listed figures if the DC is 20 mm from the metal surface. Refer to the section on installation in the Data Carrier or R/W Head's <i>Operation Manual</i> or <i>Supplement</i> for more details.</p> |
|  |   |              |                | Transmission time priority             | 5 to 30 mm (max. axial offset ±10 mm)  |  |
|  |   |              | Write distance | N/A                                    | 5 to 30 mm (max. axial offset ±10 mm)  |  |
|  |   | Moving       | Read distance  | Transmission distance priority         | 20 to 40 mm (max. axial offset ±10 mm) |  |
|  |   |              |                | Transmission time priority             | 20 to 30 mm (max. axial offset ±10 mm) |  |
|  |   |              | Write distance | N/A                                    | 20 to 30 mm (max. axial offset ±10 mm) |  |
|  | V600-H11/H11-R<br> | Stationary   | Read distance  | Transmission distance priority         | 5 to 25 mm (max. axial offset ±10 mm)  |  |
|  |   |              |                | Transmission time priority             | 5 to 20 mm (max. axial offset ±10 mm)  |  |
|  |   |              | Write distance | N/A                                    | 5 to 20 mm (max. axial offset ±10 mm)  |  |
|  |   | Moving       | Read distance  | Transmission distance priority         | 10 to 25 mm (max. axial offset ±10 mm) |  |
| Transmission time priority   |   |              |                | 10 to 20 mm (max. axial offset ±10 mm) |  |  |
| Write distance   |   |              | N/A            | 10 to 20 mm (max. axial offset ±10 mm) |  |  |

| Recommended combinations   |   | Installation |                | Controller mode                | Transmission distance                  | Condition for DC and R/W head Installation  |
|--|---|--------------|----------------|--------------------------------|--|---|
| Data Carrier   | R/W Head  |              |                |                                |  |   |
| V600-D23P61<br> | V600-H11/H11-R<br> | Stationary   | Read distance  | Transmission distance priority | 2 to 19 mm (max. axial offset ±10 mm)  | These Data Carriers can be installed on all surfaces.<br><br><br> |
|  |   |              |                | Transmission time priority     | 2 to 16 mm (max. axial offset ±10 mm)  |   |
|  |   |              | Write distance | N/A                            | 2 to 16 mm (max. axial offset ±10 mm)  |   |
|  |   | Moving       | Read distance  | Transmission distance priority | 12 to 19 mm (max. axial offset ±10 mm) |   |
|  |   |              |                | Transmission time priority     | 12 to 16 mm (max. axial offset ±10 mm) |   |
|  |   |              | Write distance | N/A                            | 12 to 16 mm (max. axial offset ±10 mm) |   |
| V600-H51<br>    |   | Stationary   | Read distance  | Transmission distance priority | 1 to 16 mm (max. axial offset ±10 mm)  |   |
|  |   |              |                | Transmission time priority     | 1 to 14 mm (max. axial offset ±10 mm)  |   |
|  |   |              | Write distance | N/A                            | 1 to 14 mm (max. axial offset ±10 mm)  |   |
|  |   | Moving       | Read distance  | Transmission distance priority | 7 to 16 mm (max. axial offset ±10 mm)  |   |
|  |   |              |                | Transmission time priority     | 7 to 14 mm (max. axial offset ±10 mm)  |   |
|  |   |              | Write distance | N/A                            | 7 to 14 mm (max. axial offset ±10 mm)  |   |

**Note:** The listed transmission distances apply for installation on metallic and non-metallic surfaces.

| Recommended combinations   |  | Installation   |                                | Controller mode                         | Transmission distance                   |   | Condition for DC and R/W head Installation   |
|--|--|----------------|--------------------------------|---|---|---|--|
| Data Carrier   | R/W Head   |                |                                |   |   |   |  |
| V600-D23P53<br> | V600-HS51<br> | Stationary     | Read distance                  | Transmission distance priority          | 0.5 to 4.0 mm (max. axial offset ±2 mm) | 0.5 to 4.5 mm (max. axial offset ±1 mm) | These Data Carriers are for installed in metallic only.<br><br>V600-D23P53/D23P54 Data Carrier<br><br>V600-HS51 R/W Head<br>Iron Iron (SC, SS) |
|  |  |                |                                | Transmission time priority              | 0.5 to 3.0 mm (max. axial offset ±2 mm) | 0.5 to 3.5 mm (max. axial offset ±1 mm) |  |
|  |  |                | Write distance                 | Irrelevant                              | 0.5 to 3.0 mm (max. axial offset ±2 mm) | 0.5 to 3.5 mm (max. axial offset ±1 mm) |  |
|  | V600-HS61<br> | Stationary     | Read distance                  | Transmission distance priority          | 0.5 to 4.0 mm (max. axial offset ±2 mm) | 0.5 to 4.5 mm (max. axial offset ±1 mm) |  |
|  |  |                |                                | Transmission time priority              | 0.5 to 3.0 mm (max. axial offset ±2 mm) | 0.5 to 3.5 mm (max. axial offset ±1 mm) |  |
|  |  |                | Write distance                 | Irrelevant                              | 0.5 to 3.0 mm (max. axial offset ±2 mm) | 0.5 to 3.5 mm (max. axial offset ±1 mm) |  |
| V600-H52<br>    | Stationary   | Read distance  | Transmission distance priority | 0.5 to 4.0 mm (max. axial offset ±2 mm) | 0.5 to 4.5 mm (max. axial offset ±1 mm) |   |  |
|  |  |                | Transmission time priority     | 0.5 to 3.0 mm (max. axial offset ±2 mm) | 0.5 to 3.5 mm (max. axial offset ±1 mm) |   |  |
|  |  | Write distance | Irrelevant                     | 0.5 to 3.0 mm (max. axial offset ±2 mm) | 0.5 to 3.5 mm (max. axial offset ±1 mm) |   |  |

**Note:** The listed transmission distances apply for installation on metallic and non-metallic surfaces.


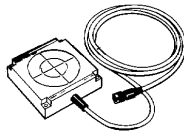
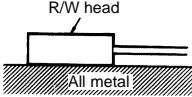
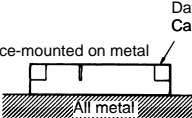
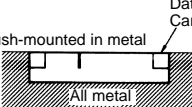
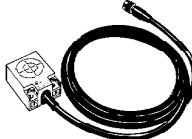

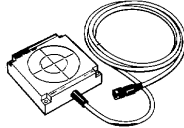
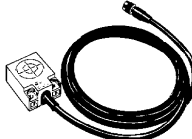
| Recommended combinations   |  | Installation   |                                | Controller mode                         | Transmission distance                   |   | Condition for DC and R/W head Installation   |   |
|--|--|----------------|--------------------------------|---|---|---|--|---|
| Data Carrier   | R/W Head   |                |                                |   |   |   |  |   |
| V600-D23P54<br> | V600-HS51<br> | Stationary     | Read distance                  | Transmission distance priority          | 0.5 to 6.0 mm (max. axial offset ±2 mm) | 0.5 to 6.5 mm (max. axial offset ±1 mm)   | These Data Carriers are for installed in metallic only.<br> |   |
|  |  |                |                                | Transmission time priority              | 0.5 to 5.5 mm (max. axial offset ±2 mm) | 0.5 to 6.0 mm (max. axial offset ±1 mm)   |  |   |
|  |  |                | Write distance                 | Irrelevant                              | 0.5 to 5.0 mm (max. axial offset ±2 mm) | 0.5 to 5.5 mm (max. axial offset ±1 mm)   |  |   |
|  | V600-HS61<br> | Stationary     | Read distance                  | Transmission distance priority          | 0.5 to 6.5 mm (max. axial offset ±2 mm) | 0.5 to 7.0 mm (max. axial offset ±1 mm)   |  |  |
|  |  |                |                                | Transmission time priority              | 0.5 to 5.5 mm (max. axial offset ±2 mm) | 0.5 to 6.0 mm (max. axial offset ±1 mm)   |  |   |
|  |  |                | Write distance                 | Irrelevant                              | 0.5 to 5.5 mm (max. axial offset ±2 mm) | 0.5 to 6.0 mm (max. axial offset ±1 mm)   |  |   |
| V600-H52<br>    | Stationary   | Read distance  | Transmission distance priority | 0.5 to 6.5 mm (max. axial offset ±2 mm) | 0.5 to 7.0 mm (max. axial offset ±1 mm) |  |  |   |
|  |  |                | Transmission time priority     | 0.5 to 5.5 mm (max. axial offset ±2 mm) | 0.5 to 6.0 mm (max. axial offset ±1 mm) |   |  |   |
|  |  | Write distance | Irrelevant                     | 0.5 to 5.5 mm (max. axial offset ±2 mm) | 0.5 to 6.0 mm (max. axial offset ±1 mm) |   |  |   |

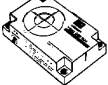
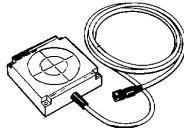
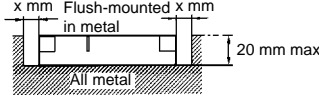
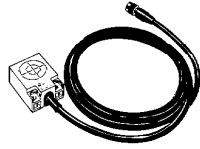

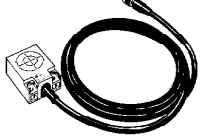
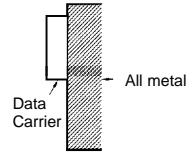
**Note:** The listed transmission distances apply for installation on metallic and non-metallic surfaces.

- Note:**
1. The transmission distance/transmission time priority mode setting can be made only with the lower-level communications mode setting switch with a serial-interface Controller or ID Sensor Unit. With parallel-interface Controllers, the mode setting is always transmission distance priority.
  2. With Data Carriers that can be installed on metal surfaces (V600-D23P61/D23P53/D23P54), the transmission distance will vary depending on the metal used. The figures given in the table above are valid for iron (SC, SS). Refer to the section on installation in the Data Carrier or R/W Head Operation Manual or Supplement for more details.
  3. The specifications take fluctuations in temperature and slight differences between products into account.

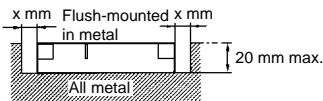


■ Transmission Distance Specifications for Built-in-battery DCs

| Recommended combinations  |   | Installation |                          | Controller mode | Transmission distance                  | Condition for DC and R/W head Installation  |
|---|---|--------------|--------------------------|-----------------|--|---|
| Data Carrier  | R/W Head  |              |                          |                 |  |   |
|  |    | Stationary   | Flush-mounted in metal   | Irrelevant      | 10 to 50 mm (max. axial offset ±10 mm) | <br><br><br><br> |
|   |   |              | Surface-mounted on metal |                 | 10 to 60 mm (max. axial offset ±10 mm) |   |
|   |   | Moving       | Flush-mounted in metal   |                 | 25 to 50 mm (max. axial offset ±10 mm) |   |
|   |   |              | Surface-mounted on metal |                 | 25 to 60 mm (max. axial offset ±10 mm) |   |
|   |    | Stationary   | Flush-mounted in metal   |                 | 5 to 40 mm (max. axial offset ±10 mm)  |   |
|   |   |              | Surface-mounted on metal |                 | 5 to 45 mm (max. axial offset ±10 mm)  |   |
|   |   | Moving       | Flush-mounted in metal   |                 | 25 to 40 mm (max. axial offset ±10 mm) |   |
|   |   |              | Surface-mounted on metal |                 | 25 to 45 mm (max. axial offset ±10 mm) |   |
|  |   | Stationary   | Flush-mounted in metal   | Irrelevant      | 10 to 30 mm (max. axial offset ±10 mm) | <p><b>Note:</b> The listed transmission distances apply for installation on metallic and non-metallic surfaces.</p>   |
|   |   |              | Surface-mounted on metal |                 | 10 to 35 mm (max. axial offset ±10 mm) |   |
|   |   | Moving       | Flush-mounted in metal   |                 | 20 to 30 mm (max. axial offset ±10 mm) |   |
|   |   |              | Surface-mounted on metal |                 | 20 to 35 mm (max. axial offset ±10 mm) |   |
|   |  | Stationary   | Flush-mounted in metal   |                 | 10 to 30 mm (max. axial offset ±10 mm) |   |
|   |   |              | Surface-mounted on metal |                 | 10 to 30 mm (max. axial offset ±10 mm) |   |
|   |   | Moving       | Flush-mounted in metal   |                 | 15 to 30 mm (max. axial offset ±10 mm) |   |
|   |   |              | Surface-mounted on metal |                 | 15 to 30 mm (max. axial offset ±10 mm) |   |

| Recommended combinations  |  | Installation |                          | Controller mode | Transmission distance                   | Condition for DC and R/W head Installation   |  |
|---|--|--------------|--------------------------|-----------------|---|--|--|
| Data Carrier  | R/W Head   |              |                          |                 |   |  |  |
| V600-D8KR04 (unsealed)<br> | V600-H07<br>  | Stationary   | Flush-mounted in metal   | Irrelevant      | See note                                |  <p><b>Note:</b> The listed transmission distances apply for installation on metallic and non-metallic surfaces.</p>  |  |
|   |  |              | Surface-mounted on metal |                 | 10 to 100 mm (max. axial offset ±10 mm) |  |  |
|   |  | Moving       | Flush-mounted in metal   |                 | See note                                |  |  |
|   |  |              | Surface-mounted on metal |                 | 50 to 100 mm (max. axial offset ±10 mm) |  |  |
|   | V600-H11<br>  | Stationary   | Flush-mounted in metal   |                 | Irrelevant                              |  | See note                               |
|   |  |              | Surface-mounted on metal |                 |   |  | 10 to 65 mm (max. axial offset ±10 mm) |
|   |  | Moving       | Flush-mounted in metal   |                 |   |  | See note                               |
|   |  |              | Surface-mounted on metal |                 |   |  | 30 to 65 mm (max. axial offset ±10 mm) |
| V600-D2KR16<br>            | V600-H11<br> | Stationary   | Flush-mounted in metal   | Irrelevant      | 2 to 15 mm (max. axial offset ±10 mm)   |  <p><b>Note:</b> The listed transmission distances apply for installation on metallic and non-metallic surfaces.</p> |  |
|   |  |              | Surface-mounted on metal |                 | 6 to 15 mm (max. axial offset ±10 mm)   |  |  |
|   |  | Moving       | Flush-mounted in metal   |                 |   |  | 10 to 15 mm (max. axial offset ±10 mm) |
|   |  |              | Surface-mounted on metal |                 |   |  |  |

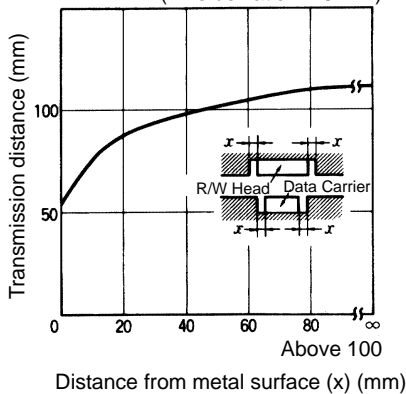
**Note:** When Data Carriers are flush-mounted in metal, the read/write distance will depend on the distance (x) between the side of the DC and the metal surface.



Refer to the appropriate R/W Head Operation Manual for details on the influence of metal.

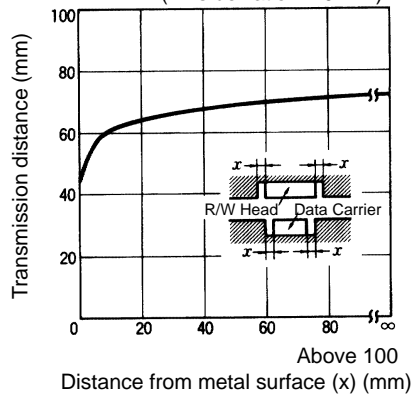
**Combined with V600-H07**

(Axis deviation: ±0 mm)


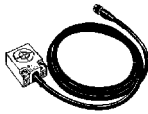







**Combined with V600-H11**

(Axis deviation: ±0 mm)

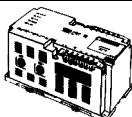
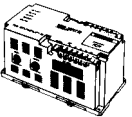
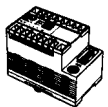
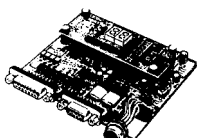




## ■ READ/WRITE HEADS





| Item                    | Part number       |   | Specifications/Design  |   |                                     |             |
|-------------------------|-------------------|---|--|---|-------------------------------------|-------------|
| Rectangular             | V600-H07 (0.5 m)  |   |   | Dimensions: 100 × 100 × 30 mm   | 0.5-m cable                         |             |
|                         | V600-H07 (2 m)    |   |  |   | 2-m cable                           |             |
|                         | V600-H07 (5 m)    |   |  |   | 5-m cable                           |             |
|                         | V600-H07 (10 m)   |   |  |   | 10-m cable                          |             |
|                         | Cylinder type     | V600-H11 (0.5 m)  |  |    | Dimensions: 53 × 40 × 23 mm         | 0.5-m cable |
|                         |                   | V600-H11-R (0.5 m)  |  |   |                                     | 0.5-m cable |
|                         |                   | V600-H11 (2 m)  |  |   |                                     | 2-m cable   |
|                         |                   | V600-H11 (5 m)  |  |   |                                     | 5-m cable   |
|                         |                   | V600-H11 (10 m)   |  |   |                                     | 10-m cable  |
|                         | Cylinder type     | V600-H51 (0.5 m)  |  |    | Dimensions: 22 dia. × 80 mm         | 0.5-m cable |
| V600-H51 (2 m)          |                   | 2-m cable   |  |   |                                     |             |
| V600-H51 (5 m)          |                   | 5-m cable   |  |   |                                     |             |
| V600-H51 (10 m)         |                   | 10-m cable  |  |   |                                     |             |
| V600-H52 (0.5 m)        |                   |  | Dimensions: 22 dia. × 85 mm  | 0.5-m cable   |                                     |             |
| V600-H52 (2 m)          |                   |   |  | 2-m cable   |                                     |             |
| V600-H52 (5 m)          |                   |   |  | 5-m cable   |                                     |             |
| V600-H52 (10 m)         |                   |   |  | 10-m cable  |                                     |             |
| Separate-amplifier type | Amplifier section | V600-HA51 (2 m)   |   | 73.8 × 22.6 × 36.5 mm, with 2-m cable   |                                     |             |
|                         |                   | V600-HA51 (5 m)   |  | 73.8 × 22.6 × 36.5 mm, with 5-m cable   |                                     |             |
|                         |                   | V600-HA51 (10 m)  |  | 73.8 × 22.6 × 36.5 mm, with 10-m cable  |                                     |             |
|                         | Sensor section    | V600-HS51   |  | 12 dia. × 36.5 mm deep, with 2-m cable  |                                     |             |
|                         |                   | V600-HS61   |  |  | 30.5 × 18 × 10 mm, with a 2-m cable |             |

**Note:** Refer to *Model Changes* on page 98 for details regarding substitute models for the V600-D□KR01/D□KR02/D□KR03 Built-in-battery Data Carriers and the V600-H06-□ R/W Heads that are no longer in production.



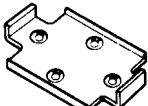
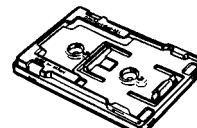


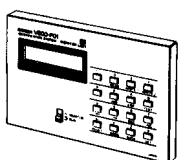
## ■ ID Controllers

| Item         | Part number        | Specifications/Design   |  |  |
|--------------|--------------------|---|--|--|
| Two Head     | V600-CA1A-V2       |    | 100 to 240 VAC, 50/60 Hz<br>Two R/W Head connectors<br>200 × 100 × 100 mm  | RS-232C host interface                               |
|              | V600-CA2A-V2       |   | RS-422 host interface  |  |
|              | V600-CA8A-V2       |   | Parallel PNP host interface  |  |
|              | V600-CA9A-V2       |   | Parallel NPN host interface  |  |
|              | V600-CA1A-F-V2     |    | 100 to 240 VAC, 50/60 Hz<br>One R/W Head connector<br>200 × 100 × 100 mm<br>FANUC protocol format I/II                                       | FANUC CNC Tool ID protocol<br>RS-232C host interface |
| One Head     | V600-CD1D-V3       |    | 24 VDC<br>R/W Head connectors<br>115 × 68 × 80 mm  | RS-232C host interface                               |
|              | V600-CM1D          |    | 24 VDC, 5 VDC<br>R/W Head connectors<br>Board type   |  |
| Handheld     | V600-CB-US-S (Kit) |   | A Battery Charger, Ni-Cd Battery Pack, Battery Case, and Carrying Belt are included.<br>Dispose of recyclable Ni-Cd batteries appropriately. |  |
| Programmable | IDSC-CIDR-A-E      |  | 100 to 240 VAC, 50/60 Hz<br>Relay contact output type  |  |
|              | IDSC-CIDT-A-E      |   | 100 to 240 VAC, 50/60 Hz<br>Transistor output type   |  |

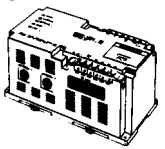
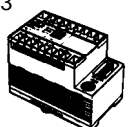
## ■ PLC ID Sensor Modules/ID Adapter

| Part number    | Specifications/Design   |  |  |
|----------------|---|--|--|
| C200H-IDS01-V1 | ID Sensor Module<br> | For the C200H, C200HX, and CS1 PLCs<br>General purpose   |  |
| C500-IDA02     | ID Sensor Module<br> | SYSMAC CV 500, CV1000, CVM1, C500 (F), C1000H(F), C2000H PLCs<br>General purpose                         |  |
| C500-IDS02-V1  | ID Sensor Module<br> | ID Adapter Module<br> | SYSMAC CV 500, CV1000, CVM1, C500 (F), C1000H(F), C2000H PLCs<br>For placement of R/W Head up to 200 m from PLC rack |
| C500-IDA02     |   | Required when using the C500-IDS02-V1 ID Sensor Unit   |  |

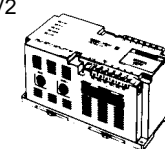
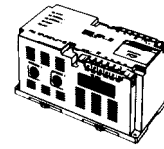
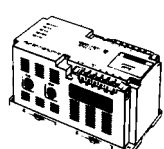
### ■ Accessories (Order Separately)

| Item   | Part number              |   | Specifications/Design   |            |
|--|--------------------------|---|---|------------|
| R/W Antennas   | V600-A45                 |    | Standard cable<br>Non-water-resistant connectors  | 3-m cable  |
|  | V600-A44                 |   |   | 5-m cable  |
|  | V600-A40                 |   |   | 10-m cable |
|  | V600-A41                 |   |   | 20-m cable |
|  | V600-A42                 |   |   | 30-m cable |
|  | V600-A56                 |    | Robotic cable<br>Non-water-resistant connectors   | 3-m cable  |
|  | V600-A55                 |   |   | 5-m cable  |
|  | V600-A50                 |   |   | 10-m cable |
|  | V600-A51                 |   |   | 20-m cable |
|  | V600-A52                 |   |   | 30-m cable |
| Data Carrier Mounting Brackets                         | V600-A81                 |    | For the V600-D2KR16   |            |
|  | V600-A84                 |    | For the V600-D23P71/D23P72  |            |
| Attachments  | V600-A86                 |    | For the V600-D23P66   |            |
| Data Carrier Battery Replacement Kit (lithium battery) | V600-A82 (5 in each set) |    | For the V600-D2KR16<br>Commercially available CR2016 battery<br>(includes replacement battery, seal, and cover) |            |
| Monitor Unit   | V600-P01                 |  | For the V600-CA□A-□ Controller  |            |

### ■ RS-232C Cables (Order Separately)








| Part number | Cable length | Compatible ID Controllers   |
|-------------|--------------|---|
| XW2Z-200P   | 2 m          | V600-CA1A-V2<br>                           |
| XW2Z-500P   | 5 m          |   |
| XW2Z-200S   | 2 m          | V600-CD1D-V3<br>V600-CF1A<br>V600-CM1D<br> |
| XW2Z-500S   | 5 m          |   |

### ■ Connectors for ID Controllers (One Set per Unit)

| Part number                  | Name           | Compatible ID Controllers   |
|------------------------------|----------------|---|
| XM2A-0901                    | Connector Plug | V600-CA2A-V2<br>V600-CD1D-V2<br>V600-CF1A<br>V600-CM1D<br> |
| XM2S-0911                    | Connector Hood |   |
| XM2A-2501                    | Connector Plug | V600-CA1A-V2<br>V600-CA1A-F-V2<br>                         |
| XM2S-2511                    | Connector Hood |   |
| MR-50F (Honda Tsushin Kogyo) | Connector Plug | V600-CA8A-V2<br>V600-CA9A-V2<br>                           |
| MR-50L (Honda Tsushin Kogyo) | Connector Hood |   |





## Specifications

### ■ Battery-less Data Carriers

| Item                               | Card-type   | Half-size Card-type  | Rectangular Compact  | Chemical-resistant   | Rectangular Compact   | Round Super-compact  | Round Compact  |
|------------------------------------|---|--|--|--|---|--|--|
| Model                              | V600-D23P71<br>  | V600-D23P72<br> | V600-D23P66<br> | V600-D23P66SP<br> | V600-D23P61<br>  | V600-D32P53<br> | V600-D23P54<br> |
| Memory Capacity                    | 254 bytes   |  |  |  |   |  |  |
| Memory type                        | EEPROM (non-volatile memory)  |  |  |  |   |  |  |
| Transmission distance              | Refer to page 22, <i>Transmission Distance Specifications for Battery-less DCs</i>  |  |  |  |   |  |  |
| Data retention time                | 10 years (Data is retained for 10 years after it is written)  |  |  |  |   |  |  |
| Number of overwrites               | Each address can be overwritten 300,000 times at an ambient temperature of -10° to 40°C or 100,000 times at an ambient temperature of -10° to 70°C. The number of reads is unlimited. |  |  |  | Each address can be overwritten 300,000 times at an ambient temperature of -25° to 40°C or 100,000 times at an ambient temperature of -25° to 70°C. The number of reads is unlimited. |  |  |
| Transmission error detection       | 16-bit CRC in both directions   |  |  |  |   |  |  |
| Ambient temperature                | Operating: -20° to 110°C<br>-10° to 70°C during R/W<br>Storage: -20° to 110°C   |  | Operating: -40° to 110°C<br>-20° to 70°C during R/W<br>Storage: -40° to 110°C                    |  | Operating: -40° to 85°C<br>-25° to 70°C during R/W<br>Storage: -40° to 85°C   |  |  |
| Ambient humidity                   | Operating: 35% to 95%   |  |  |  |   |  |  |
| Protection rating (IEC 60529)      | IP67  |  | IP68   | IP67G  | IP67  |  |  |
| Vibration resistance (destruction) | 10 to 2,000 Hz, 1.5-mm double amplitude, 300 m/s <sup>2</sup> acceleration (approx. 30G) for 30 min each in 3 direction (90 min total)  |  |  |  |   |  |  |
| Shock resistance                   | Destruction: 1,000 m/s <sup>2</sup> (approx. 100G) 3 times each in 3 directions (18 times total)  |  |  |  |   |  |  |
| Weight                             | Approx. 15 g  | Approx. 5 g  | Approx. 6 g  | Approx. 19 g   | Approx. 5.8 g   | Approx. 0.4 g  | Approx. 1.0 g  |

**Note:** See dimensional drawings for case construction materials.

## ■ Built-in-battery Data Carriers





| Item                               | Compact  | Thin   | Intermediate Range  | Compact with Replaceable Battery  |
|------------------------------------|--|--|---|---|
| Model                              | V600-D8KR12<br>                                 | V600-D8KR13<br> | V600-D8KR04<br> | V600-D2KR16<br>                                |
| Memory Capacity                    | 8K bytes   |  |   | 2K bytes  |
| Memory type                        | SRAM   |  |   |   |
| Transmission distance              | Refer to page 74, <i>Transmission Distance Specifications for Built-in-battery DCs</i>   |  |   |   |
| Battery life (see note 1)          | Refer to page 33, <i>Battery Life</i>  |  |   | 2 years (at 25°C) (see note 2)  |
| Number of reads/writes             | Unlimited  |  |   | Unlimited (Does not affect battery life)  |
| Transmission error detection       | 16-bit CRC in both directions  |  |   |   |
| Ambient temperature                | Operating: -40° to 70°C<br>-25° to 70°C during R/W<br>Storage: -40° to 70°C  |  |   | Operating: -15° to 70°C<br>0° to 50°C during R/W<br>Storage: -15° to 70°C   |
| Ambient humidity                   | Operating: 35% to 95%<br>Storage: 35% to 95%   |  |   | Operating: 35% to 85%<br>Storage: 35% to 95%  |
| Protection rating (IEC 60529)      | IP67   |  |   | IP50 (dustproof) (see note 3)   |
| Vibration resistance (destruction) | 10 to 500 Hz, 1.0-mm double amplitude, 150 m/s <sup>2</sup> acceleration (approx. 15G) for 11 min each in X, Y, and Z directions |  |   | 10 to 150 Hz, 0.75-mm double amplitude, 100-m/s <sup>2</sup> acceleration (approx. 10G) for 30 min each in X, Y, and Z directions |
| Shock resistance (destruction)     | 1,000 m/s <sup>2</sup> (approx. 100G) 3 times each in X, Y, and Z directions (18 times total)                                    |  |   | 300 m/s <sup>2</sup> (approx. 30G) 3 times each in X, Y, and Z directions (18 times total)  |
| Weight                             | Approx. 70 g   |  | Approx. 160 g   | Approx. 15 g  |

**Note:** 1. A low battery detection function is built-in.

2. The battery life is applicable for batteries used at a temperature of 25°C. Refer to *Temperature and Battery Life* on page 33 for details on the relationship between temperature and battery life. The CR2016 is provided as the replacement battery. Refer to page 14 for details on accessories.

3. The Data Carrier is dustproof when the provided battery replacement cover seal is used.




## ■ Read/Write (R/W) Heads

| Item                                  | V600-H07<br>   | V600-H11/H11-R<br> | V600-H51<br> | V600-H52<br> |
|---------------------------------------|---|---|---|---|
| Transmission frequency                | 530 kHz   |   |   |   |
| Ambient temperature                   | Operating: -25° to 70°C<br>Storage: -40° to 85°C  |   | Operating: -10° to 60°C<br>Storage: -25° to 75°C  |   |
| Ambient humidity                      | Operating: 35% to 95%<br>Storage: 35% to 95%  |   |   |   |
| Insulation resistance                 | 50 MΩ (at 500 VDC) between cable terminals and case   |   |   |   |
| Dielectric strength                   | 1,000 VAC, 50/60 Hz for 1 min between cable terminals and case  |   |   |   |
| Protection rating (IEC 60529)         | IP67  |   |   |   |
| Vibration resistance (destruction)    | 10 to 500 Hz, 1.0-mm double amplitude, 150 m/s <sup>2</sup> acceleration (approx. 15G) with 3 sweeps of 11 min each in X, Y, and Z directions |   |   |   |
| Shock resistance                      | Destruction: 500 m/s <sup>2</sup> (approx. 50G) 3 times each in X, Y, and Z directions (18 times total)                                       |   |   |   |
| Cable length (see note 1)             | Standard lengths of 0.5 m, 2 m, 5 m, and 10 m.  |   |   |   |
| Wireless transmission error detection | 16-bit CRC in both directions   |   |   |   |
| Indicators                            | Power: green; transmission: orange  |   |   |   |
| Weight                                | Approx. 1 kg (with 10-m cable)  |   | Approx. 650 g (with 10-m cable)   |   |

**Note:** 1. Extension cables are also available. The maximum cable length is 30.5 m for the V600-H07 and 50.5 m for the V600-H11/H51/H52.

2. The connectors are not water-resistant.


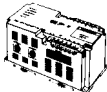
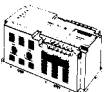
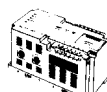
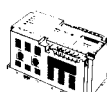


## ■ R/W Heads (with Separate Amplifier)

| Item                                  | Sensor section  |  | Amplifier section  |
|---------------------------------------|---|--|--|
|                                       | V600-HS51<br>  | V600-HS61<br> | V600-HA51<br>   |
| Transmission frequency                | 530 kHz   |  | ---  |
| Ambient temperature                   | Operating: -10° to 60°C<br>Storage: -25° to 75°C  |  | Operating: -10° to 60°C<br>Storage: -25° to 75°C   |
| Ambient humidity                      | Operating: 35% to 95%   |  |  |
| Insulation resistance                 | 50 MΩ (at 500 VDC) between cable terminals and case   |  |  |
| Dielectric strength                   | 1,000 VAC 50/60 Hz for 1 min between cable terminals and case   |  |  |
| Protection rating (IEC 60529)         | IP67  |  | IP66   |
| Vibration resistance (destruction)    | 10 to 2,000 Hz, 1.5-mm double amplitude, 300 m/s <sup>2</sup> acceleration (approx. 30G) with 2 sweeps of 15 min each in 3 directions |  | Installed in panel: 10 to 2,000 Hz, 1.5-mm single amplitude, 300-m/s <sup>2</sup> acceleration (approx. 30G) with 2 sweeps of 11 min each in 3 directions<br>DIN Track installation: 10 to 500 Hz, 1.0-mm single amplitude, 150-m/s <sup>2</sup> acceleration (approx. 15G) with 3 sweeps of 11 min each in 3 directions |
| Shock resistance (destruction)        | 1,000 m/s <sup>2</sup> (approx. 100G) 3 times each in 3 directions (18 times total)   |  | 500 m/s <sup>2</sup> (approx. 50G) 3 times each in 3 directions (18 times total)   |
| Cable length                          | 2 m (fixed) between sensor and amplifier  |  | Standard lengths of 2 m, 5 m, and 10 m between amplifier and controller (see note 1)   |
| Wireless transmission error detection | 16-bit CRC in both directions   |  |  |
| Indicators                            | ---   |  | Power: green; transmission: orange   |
| Weight                                | Approx. 70 g (with 2-m cable)   |  | Approx. 650 g (10-m cable)   |

- Note:**
1. Extension cables are also available. The maximum cable length is 50 m for the V600-HA51. Extension cables are not available for the V600-HS51/HS61.
  2. The connectors are not water-resistant.




## ■ ID Controllers

| Item                                   | V600 Series (Electromagnetic RFID System)  |   |   |   |  |   |  |
|--|--|---|---|---|--|---|--|
|  | V600-CA1A-V2<br>(See note)<br>  | V600-CA1A-F-V2<br>(See note)<br> | V600-CA2A-V2<br>(See note)<br> | V600-CA8A-V2<br>(See note)<br> | V600-CA9A-V2<br> | V600-CD1D-V3<br>(See note)<br>           | V600-CM1D<br> |
| <b>Host interface</b>                  | RS-232C  | RS-232C<br>(FANUC protocol-compatible)  | RS-422<br>(Maximum of 16 Units can be connected)  | Parallel PNP output   | Parallel NPN output  | RS-232C   | RS-232C  |
| <b>Possible number of R/W Heads</b>    | 2  |   |   |   |  | 1   | 1  |
| <b>Power supply voltage</b>            | 100 to 240 VAC, 50/60 Hz   |   |   |   |  | 24 VDC  | 24 VDC, 5 VDC  |
| <b>Acceptable power supply voltage</b> | 85 to 264 VAC  |   |   |   |  | 20.4 to 26.4 VDC  | 24 VDC, 20.4 to 26.4 VDC, 5 VDC, 4.5 to 5.5 VDC  |
| <b>Power consumption</b>               | 35 VA max.   |   |   |   |  | 7.2 W max.  | 24 VDC: 7.2 W max.<br>5 VDC: 1.5 W max.  |
| <b>Insulation resistance</b>           | 50 M $\Omega$ 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                                    |   |   |   |  |   |  |
| <b>Dielectric strength</b>             | 1,500 VAC, 50/60 Hz for 1 min between the points listed above;<br>Leakage current: 10 mA max.  |   |   |   |  | 1,000 VAC, 50/60 Hz for 1 min between the points listed above;<br>Leakage current: 10 mA max.                               |  |
| <b>Noise immunity</b>                  | 1,500 V (p-p) pulses of 100 ns to 1 $\mu$ s pulse width with a 1 ns rise time  |   |   |   |  |   |  |
| <b>Vibration resistance</b>            | Destruction: 10 to 150 Hz, 0.3-mm double amplitude for 32 min each in X, Y, and Z directions<br>Malfunction: 10 to 150 Hz, 0.2-mm double amplitude for 32 min each in X, Y, and Z directions |   |   |   |  |   |  |
| <b>Shock resistance</b>                | Destruction: 200 m/s <sup>2</sup> (approx. 20G) 3 times each in X, Y, and Z directions (18 times total)  |   |   |   |  |   |  |
| <b>Ambient temperature</b>             | Operating: -10° to 55°C<br>Storage: -25° to 65°C   |   |   |   |  | Operating: 0° to 50°C<br>Storage: -15° to 70°C  |  |
| <b>Ambient humidity</b>                | 35% to 85% (with no condensation)  |   |   |   |  |   |  |
| <b>Operating conditions</b>            | No corrosive gases   |   |   |   |  |   |  |
| <b>Memory back-up</b>                  | A capacitor backs up the most recent error data and statistical error data for up to 20 days (at 25°C) after a power interruption  |   |   |   |  | Memory backup is not available. Error details, however, can be read from the personal computer when the power is turned ON. |  |
| <b>Diagnostic functions</b>            | Checks for CPU errors, memory errors, power interruptions, and transmission errors   |   |   |   |  |   |  |
| <b>Ground</b>                          | Ground to 100 $\Omega$ or less.  |   |   |   |  |   |  |
| <b>Protection rating</b>               | For inter-panel installation (IEC 60529 IP30)  |   |   |   |  |   |  |
| <b>Standards/Approvals</b>             | See Appendix B   |   |   |   |  |   |  |
| <b>Weight</b>                          | Approx. 890 g  |   | Approx. 930 g   | Approx. 960 g   |  | Approx. 360 g   | Approx. 180 g  |

**Note:** The CA□A/-V2 and CD1D-V3 conform to EC Directives.

## ■ Handheld ID Controllers

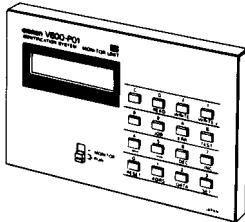
| Item  | V600-CB-US-S   |
|---|--|
|   |                              |
| <b>Power supply</b>                         | Built-in nickel-cadmium batteries (6 VDC) or 9-V alkaline batteries (9 VDC) (see note)                         |
| <b>Power consumption</b>                    | 700 mA max.  |
| <b>Continuous operating time (see note)</b> | 3 hrs min. when using the built-in nickel-cadmium batteries;<br>1.5 hrs min. when using the alkaline batteries |
| <b>Automatic power-saver</b>                | The power is turned OFF automatically if a key input or response is not received in 10 min                     |
| <b>Automatic command cancellation</b>       | A command will be cancelled automatically if a response is not received from a Data Carrier within 2 min       |
| <b>Low battery indicator</b>                | This display appears when the battery voltage falls below the minimum voltage required for operation           |
| <b>User memory</b>                          | 32K bytes (Data will be retained for at least 24 hrs after batteries are removed)                              |
| <b>Vibration resistance</b>                 | Destruction: 10 to 150 Hz, 0.15-mm single amplitude for 32 min each in X, Y, and Z directions                  |
| <b>Shock resistance</b>                     | Destruction: 200 m/s <sup>2</sup> (approx. 20G) 3 times each in X, Y, and Z directions (18 times total)        |
| <b>Ambient temperature</b>                  | Operating: 0° to 45°C<br>Storage: -20° to 60°C (excluding the battery pack)                                    |
| <b>Ambient humidity</b>                     | Operating: 35% to 85%  |
| <b>Operating conditions</b>                 | No corrosive gases   |
| <b>Protection rating</b>                    | IEC 60529 IP30   |
| <b>Weight</b>                               | 680 g max. (including the battery pack)  |

- Note:**
1. The continuous operating time is for new, fully charged nickel cadmium batteries or new alkaline batteries used at room temperature.
  2. Dispose of recyclable nickel cadmium batteries appropriately.

## ■ Monitor Unit

V600-P01 (for use with V600-CA□A Controllers)

The Monitor Unit is a monitoring device that can be mounted to an ID Controller. It can be used to test communications between the R/W Head and Data Carrier when the RFID System is started up, check the data in Data Carriers, and read error information or statistical error information.




The specifications conform to those of the ID Controller, except the operating temperature range is 0°C to 40°C.

## ■ V600-CB-US-S Configuration


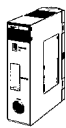
| Model                  | Name                         | Remarks                               |
|------------------------|------------------------------|---------------------------------------|
| V600-CB-US             | Handheld ID Controller       | Controller                            |
| V600-A14<br>(See note) | Battery Charger<br>(120 VAC) | Accessory                             |
| V600-A11               | Battery Case                 | Accessory (for alkaline batteries)    |
| V600-A12               | Ni-Cd Battery Pack           | Accessory (built-in to ID Controller) |
| V600-A13               | Carrying Belt                | Accessory                             |

## ■ IDSC Series

| Item                                   | IDSC Series  |
|--|--|
|  | IDSC-C1DR-A-E<br>IDSC-C1DT-A-E<br>   |
| <b>Host interface</b>                  | RS-232C  |
| <b>Possible number of R/W Heads</b>    | 1  |
| <b>Power supply voltage</b>            | 100 to 240 VAC, 50/60 Hz   |
| <b>Acceptable power supply voltage</b> | 85 to 264 VAC  |
| <b>Power consumption</b>               | 60 VA max.   |
| <b>Insulation resistance</b>           | 20 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  |
| <b>Dielectric strength</b>             | 2,300 VAC, 50/60 Hz for 1 min between the points listed above;<br>Leakage current: 10 mA max.  |
| <b>Noise immunity</b>                  | 1,500 V (p-p) pulses of 100 ns to 1 μs pulse width with a 1 ns rise time   |
| <b>Vibration resistance</b>            | 10 to 57 Hz, 0.075-mm double amplitude, 57 to 150 Hz, 9.8 m/s <sup>2</sup> acceleration (approx. 1G) for 80 min each in X, Y, and Z directions   |
| <b>Shock resistance</b>                | 150 m/s <sup>2</sup> (approx. 15G) 3 times each in X, Y, and Z directions  |
| <b>Ambient temperature</b>             | Operating: 0° to 55°C<br>Storage: -20° to 75°C (excluding the battery pack)  |
| <b>Ambient humidity</b>                | 10% to 90% (with no condensation)  |
| <b>Operating conditions</b>            | No corrosive gases   |
| <b>Memory back-up</b>                  | The battery life is 5 years regardless of whether an RTC is provided.<br>The period that data is retained after a power interruption depends on the ambient temperature.<br>Replace the battery within one week of the battery low indicator flashing. |
| <b>Diagnostic functions</b>            | Checks for CPU errors, memory errors, power interruptions, and transmission errors   |
| <b>Ground</b>                          | Ground to 100 Ω or less.   |
| <b>Construction</b>                    | For inter-panel installation   |
| <b>Weight</b>                          | Approx. 1,500 g  |


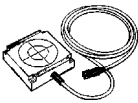
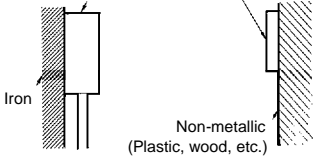
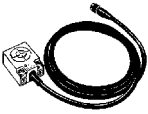


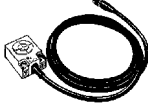


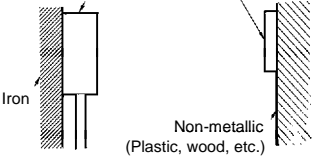

**Note:** Refer to the applicable ID Controller Operation Manual for details.


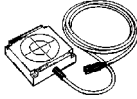
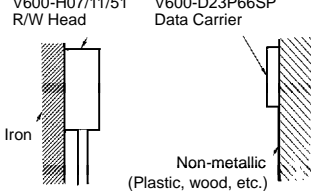

## ■ ID Sensor Units



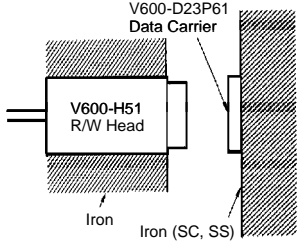


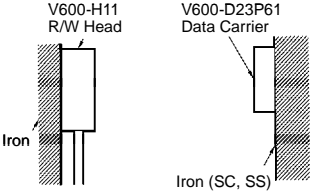
| Item                                | C500-IDS01-V2 (for general use)<br>C500-IDS02-V1 (for remote R/W head location)<br>C500 IDA02 (See note)   | C200H-IDS01-V1  |
|-------------------------------------|---|--|
| <b>Communications control</b>       | Dedicated time sharing  |  |
| <b>Possible number of R/W Heads</b> | 1 R/W Head  |  |
| <b>DC memory format</b>             | 8-bit dedicated format  |  |
| <b>Commands</b>                     | The following 7 commands are used: Read, Write, Auto read, Auto write, Abort, Cancel auto-command, Data management processing   |  |
| <b>Transmission capacity</b>        | Up to 502 bytes (251 words) of data can be batch-transferred using the Intelligent I/O instructions (READ/WRITE)  | Up to 1024 bytes (512 words) of data can be transferred (at 20 words/PLC cycle)                    |
| <b>Diagnostic functions</b>         | 1. CPU watchdog timer<br>2. Detects transmission error with DC, absence of DC<br>3. Error log function, records transmission errors (with capacitor back-up)  |  |
| <b>Monitoring functions</b>         | A Handheld Programming Console (with a special keysheet) can be used to monitor operation (max. cable length: 4 m). The following operations are possible: Read 1-byte, Write 1-byte, Continuous write, Test, and Monitor error log |  |
| <b>Memory back-up</b>               | The error information has a capacitor back-up. Data retained at least 15 days (at 25°C).  |  |
| <b>I/O word allocation</b>          | Two words are allocated when the Intelligent I/O instructions (READ/WRITE) are used<br>Four words are allocated when the Intelligent I/O instructions (READ/WRITE) are not used (selectable)  | Five words are allocated within the Special I/O (IR) area (IR 100 to IR 199)                       |
| <b>External power supply</b>        | 250 mA min. at 24 VDC   | ---  |
| <b>Internal current consumption</b> | 400 mA max. at 5 VDC  | 250 mA max. at 5 VDC<br>120 mA max. at 26 VDC<br>(to drive the R/W Head) (see note)                |
| <b>Weight</b>                       | 700 g max.  | 400 g max.   |



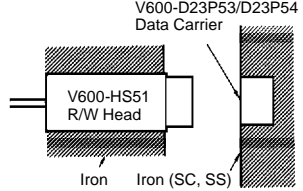
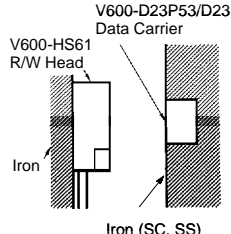
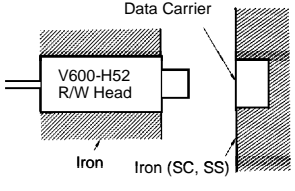

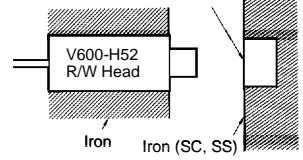
**Note:** The C500-IDA02 must be used with the C500-IDS02-V1. The cable can be extended to a maximum of 200 m.

■ Transmission Distance Specifications for Battery-less DCs

| Recommended combinations  |   | Installation |                            | Controller mode                        | Transmission distance                  | Condition for DC and R/W head Installation  |
|---|---|--------------|----------------------------|--|--|---|
| Data Carrier  | R/W Head  |              | Read/Write distance        |  |  |   |
|    |    | Stationary   | Read/Write distance        | N/A                                    | 10 to 70 mm (max. axial offset ±10 mm) | <p>These Data Carriers are for installation on non-metallic surfaces only.</p> <p>V600-H07/11/51 R/W Head    V600-D23P71/D23P72 Data Carrier</p>  <p><b>Note:</b> Data transmission will be impossible if the DC is installed directly on a metal surface. The transmission distances will be reduced to 70% of the listed figures if the DC is 10 mm from the metal surface, and 90% of the listed figures if the DC is 20 mm from the metal surface. Refer to the section on installation in the Data Carrier or R/W Head's <i>Operation Manual</i> or <i>Supplement</i> for more details.</p> |
|   |   | Moving       |                            |  | 30 to 60 mm (max. axial offset ±10 mm) |   |
|   |    | Stationary   | Read/Write distance        | N/A                                    | 5 to 40 mm (max. axial offset ±10 mm)  |   |
|   |   | Moving       |                            |  | 15 to 40 mm (max. axial offset ±10 mm) |   |
|    |    | Stationary   | Read/Write distance        | N/A                                    | 10 to 50 mm (max. axial offset ±10 mm) |   |
|   |   | Moving       |                            |  | 30 to 40 mm (max. axial offset ±10 mm) |   |
|   |    | Stationary   | Read/Write distance        | N/A                                    | 5 to 30 mm (max. axial offset ±10 mm)  |   |
|   |   | Moving       |                            |  | 15 to 30 mm (max. axial offset ±10 mm) |   |
|  |  | Stationary   | Read distance              | Transmission distance priority         | 5 to 45 mm (max. axial offset ±10 mm)  | <p>V600-H07/11/51 R/W Head    V600-D23P66 Data Carrier</p>  <p><b>Note:</b> Data transmission will be impossible if the DC is installed directly on a metal surface. The transmission distances will be reduced to 70% of the listed figures if the DC is 10 mm from the metal surface, and 90% of the listed figures if the DC is 20 mm from the metal surface. Refer to the section on installation in the Data Carrier or R/W Head's <i>Operation Manual</i> or <i>Supplement</i> for more details.</p>   |
|   |   |              | Transmission time priority | 5 to 35 mm (max. axial offset ±10 mm)  |  |   |
|   |   |              | Write distance             | N/A                                    | 5 to 35 mm (max. axial offset ±10 mm)  |   |
|   |   | Moving       | Read distance              | Transmission distance priority         | 25 to 40 mm (max. axial offset ±10 mm) |   |
|   |   |              | Transmission time priority | 25 to 30 mm (max. axial offset ±10 mm) |  |   |
|   |   |              | Write distance             | N/A                                    | 25 to 30 mm (max. axial offset ±10 mm) |   |
|   |  | Stationary   | Read distance              | Transmission distance priority         | 5 to 30 mm (max. axial offset ±10 mm)  |   |
|   |   |              | Transmission time priority | 5 to 25 mm (max. axial offset ±10 mm)  |  |   |
|   |   |              | Write distance             | N/A                                    | 5 to 25 mm (max. axial offset ±10 mm)  |   |
|   |   | Moving       | Read distance              | Transmission distance priority         | 15 to 25 mm (max. axial offset ±10 mm) |   |
|   |   |              | Transmission time priority | 15 to 20 mm (max. axial offset ±10 mm) |  |   |
|   |   |              | Write distance             | N/A                                    | 15 to 20 mm (max. axial offset ±10 mm) |   |



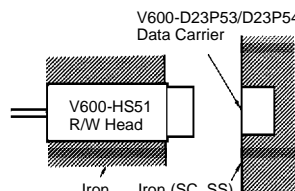

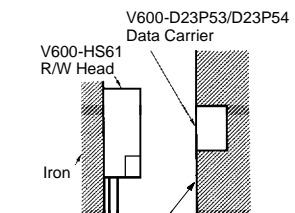

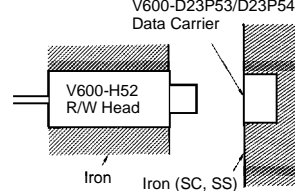
| Recommended combinations   |   | Installation |                | Controller mode                | Transmission distance                       | Condition for DC and R/W head Installation   |
|--|---|--------------|----------------|--------------------------------|---|--|
| Data Carrier   | R/W Head  |              |                |                                |   |  |
| V600-D23P66SP<br> | V600-H07<br>       | Stationary   | Read distance  | Transmission distance priority | 5 to 40 mm (max. axial offset $\pm 10$ mm)  |  <p><b>Note:</b> Data transmission will be impossible if the DC is installed directly on a metal surface. The transmission distances will be reduced to 70% of the listed figures if the DC is 10 mm from the metal surface, and 90% of the listed figures if the DC is 20 mm from the metal surface. Refer to the section on installation in the Data Carrier or R/W Head's <i>Operation Manual</i> or <i>Supplement</i> for more details.</p> |
|  |   |              |                | Transmission time priority     | 5 to 30 mm (max. axial offset $\pm 10$ mm)  |  |
|  |   |              | Write distance | N/A                            | 5 to 30 mm (max. axial offset $\pm 10$ mm)  |  |
|  |   | Moving       | Read distance  | Transmission distance priority | 20 to 40 mm (max. axial offset $\pm 10$ mm) |  |
|  |   |              |                | Transmission time priority     | 20 to 30 mm (max. axial offset $\pm 10$ mm) |  |
|  |   |              | Write distance | N/A                            | 20 to 30 mm (max. axial offset $\pm 10$ mm) |  |
|  | V600-H11/H11-R<br> | Stationary   | Read distance  | Transmission distance priority | 5 to 25 mm (max. axial offset $\pm 10$ mm)  |  |
|  |   |              |                | Transmission time priority     | 5 to 20 mm (max. axial offset $\pm 10$ mm)  |  |
|  |   |              | Write distance | N/A                            | 5 to 20 mm (max. axial offset $\pm 10$ mm)  |  |
|  |   | Moving       | Read distance  | Transmission distance priority | 10 to 25 mm (max. axial offset $\pm 10$ mm) |  |
|  |   |              |                | Transmission time priority     | 10 to 20 mm (max. axial offset $\pm 10$ mm) |  |
|  |   |              | Write distance | N/A                            | 10 to 20 mm (max. axial offset $\pm 10$ mm) |  |

| Recommended combinations   |   | Installation |                | Controller mode                | Transmission distance                  | Condition for DC and R/W head Installation  |
|--|---|--------------|----------------|--------------------------------|--|---|
| Data Carrier   | R/W Head  |              |                |                                |  |   |
| V600-D23P61<br> | V600-H11/H11-R<br> | Stationary   | Read distance  | Transmission distance priority | 2 to 19 mm (max. axial offset ±10 mm)  | These Data Carriers can be installed on all surfaces.<br>  |
|  |   |              |                | Transmission time priority     | 2 to 16 mm (max. axial offset ±10 mm)  |   |
|  |   |              | Write distance | N/A                            | 2 to 16 mm (max. axial offset ±10 mm)  |   |
|  |   | Moving       | Read distance  | Transmission distance priority | 12 to 19 mm (max. axial offset ±10 mm) |   |
|  |   |              |                | Transmission time priority     | 12 to 16 mm (max. axial offset ±10 mm) |   |
|  |   |              | Write distance | N/A                            | 12 to 16 mm (max. axial offset ±10 mm) |   |
| V600-H51<br>    | V600-H51<br>       | Stationary   | Read distance  | Transmission distance priority | 1 to 16 mm (max. axial offset ±10 mm)  |  <p><b>Note:</b> The listed transmission distances apply for installation on metallic and non-metallic surfaces.</p> |
|  |   |              |                | Transmission time priority     | 1 to 14 mm (max. axial offset ±10 mm)  |   |
|  |   |              | Write distance | N/A                            | 1 to 14 mm (max. axial offset ±10 mm)  |   |
|  |   | Moving       | Read distance  | Transmission distance priority | 7 to 16 mm (max. axial offset ±10 mm)  |   |
|  |   |              |                | Transmission time priority     | 7 to 14 mm (max. axial offset ±10 mm)  |   |
|  |   |              | Write distance | N/A                            | 7 to 14 mm (max. axial offset ±10 mm)  |   |

| Recommended combinations   |  | Installation   |                                | Controller mode                         | Transmission distance                   |   | Condition for DC and R/W head Installation   |
|--|--|----------------|--------------------------------|---|---|---|--|
| Data Carrier   | R/W Head   |                |                                |   |   |   |  |
| V600-D23P53<br> | V600-HS51<br> | Stationary     | Read distance                  | Transmission distance priority          | 0.5 to 4.0 mm (max. axial offset ±2 mm) | 0.5 to 4.5 mm (max. axial offset ±1 mm) | These Data Carriers are for installed in metallic only.<br><br><br> |
|  |  |                |                                | Transmission time priority              | 0.5 to 3.0 mm (max. axial offset ±2 mm) | 0.5 to 3.5 mm (max. axial offset ±1 mm) |  |
|  |  |                | Write distance                 | Irrelevant                              | 0.5 to 3.0 mm (max. axial offset ±2 mm) | 0.5 to 3.5 mm (max. axial offset ±1 mm) |  |
|  | V600-HS61<br> | Stationary     | Read distance                  | Transmission distance priority          | 0.5 to 4.0 mm (max. axial offset ±2 mm) | 0.5 to 4.5 mm (max. axial offset ±1 mm) |  |
|  |  |                |                                | Transmission time priority              | 0.5 to 3.0 mm (max. axial offset ±2 mm) | 0.5 to 3.5 mm (max. axial offset ±1 mm) |  |
|  |  |                | Write distance                 | Irrelevant                              | 0.5 to 3.0 mm (max. axial offset ±2 mm) | 0.5 to 3.5 mm (max. axial offset ±1 mm) |  |
| V600-H52<br>    | Stationary   | Read distance  | Transmission distance priority | 0.5 to 4.0 mm (max. axial offset ±2 mm) | 0.5 to 4.5 mm (max. axial offset ±1 mm) |   |  |
|  |  |                | Transmission time priority     | 0.5 to 3.0 mm (max. axial offset ±2 mm) | 0.5 to 3.5 mm (max. axial offset ±1 mm) |   |  |
|  |  | Write distance | Irrelevant                     | 0.5 to 3.0 mm (max. axial offset ±2 mm) | 0.5 to 3.5 mm (max. axial offset ±1 mm) |   |  |

**Note:** The listed transmission distances apply for installation on metallic and non-metallic surfaces.


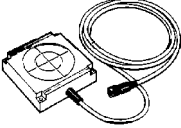
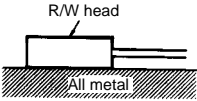
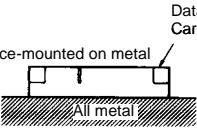
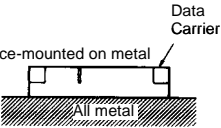
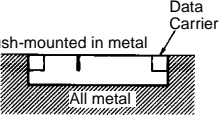

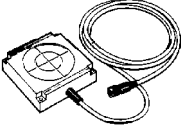
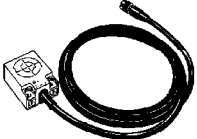


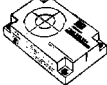
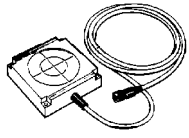
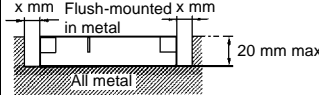
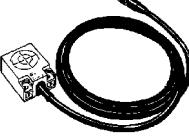


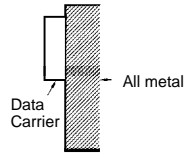
| Recommended combinations   |  | Installation   |                                | Controller mode                         | Transmission distance                   |   | Condition for DC and R/W head Installation   |   |
|--|--|----------------|--------------------------------|---|---|---|--|---|
| Data Carrier   | R/W Head   |                |                                |   |   |   |  |   |
| V600-D23P54<br> | V600-HS51<br> | Stationary     | Read distance                  | Transmission distance priority          | 0.5 to 6.0 mm (max. axial offset ±2 mm) | 0.5 to 6.5 mm (max. axial offset ±1 mm)   | These Data Carriers are for installed in metallic only.<br> |   |
|  |  |                |                                | Transmission time priority              | 0.5 to 5.5 mm (max. axial offset ±2 mm) | 0.5 to 6.0 mm (max. axial offset ±1 mm)   |  |   |
|  |  |                | Write distance                 | Irrelevant                              | 0.5 to 5.0 mm (max. axial offset ±2 mm) | 0.5 to 5.5 mm (max. axial offset ±1 mm)   |  |   |
|  | V600-HS61<br> | Stationary     | Read distance                  | Transmission distance priority          | 0.5 to 6.5 mm (max. axial offset ±2 mm) | 0.5 to 7.0 mm (max. axial offset ±1 mm)   |  |  |
|  |  |                |                                | Transmission time priority              | 0.5 to 5.5 mm (max. axial offset ±2 mm) | 0.5 to 6.0 mm (max. axial offset ±1 mm)   |  |   |
|  |  |                | Write distance                 | Irrelevant                              | 0.5 to 5.5 mm (max. axial offset ±2 mm) | 0.5 to 6.0 mm (max. axial offset ±1 mm)   |  |   |
| V600-H52<br>    | Stationary   | Read distance  | Transmission distance priority | 0.5 to 6.5 mm (max. axial offset ±2 mm) | 0.5 to 7.0 mm (max. axial offset ±1 mm) |  |  |   |
|  |  |                | Transmission time priority     | 0.5 to 5.5 mm (max. axial offset ±2 mm) | 0.5 to 6.0 mm (max. axial offset ±1 mm) |   |  |   |
|  |  | Write distance | Irrelevant                     | 0.5 to 5.5 mm (max. axial offset ±2 mm) | 0.5 to 6.0 mm (max. axial offset ±1 mm) |   |  |   |

**Note:** The listed transmission distances apply for installation on metallic and non-metallic surfaces.

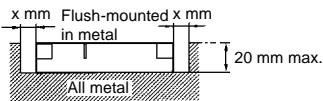
- Note:**
1. The transmission distance/transmission time priority mode setting can be made only with the lower-level communications mode setting switch with a serial-interface Controller or ID Sensor Unit. With parallel-interface Controllers, the mode setting is always transmission distance priority.
  2. With Data Carriers that can be installed on metal surfaces (V600-D23P61/D23P53/D23P54), the transmission distance will vary depending on the metal used. The figures given in the table above are valid for iron (SC, SS). Refer to the section on installation in the Data Carrier or R/W Head Operation Manual or Supplement for more details.
  3. The specifications take fluctuations in temperature and slight differences between products into account.

## ■ Transmission Distance Specifications for Built-in-battery DCs

| Recommended combinations   |   | Installation |                          | Controller mode | Transmission distance                       | Condition for DC and R/W head Installation  |   |
|--|---|--------------|--------------------------|-----------------|---|---|---|
| Data Carrier   | R/W Head  |              |                          |                 |   |   |   |
|   |    | Stationary   | Flush-mounted in metal   | Irrelevant      | 10 to 50 mm (max. axial offset $\pm 10$ mm) |                                  |   |
|  |   |              | Surface-mounted on metal |                 | 10 to 60 mm (max. axial offset $\pm 10$ mm) |   |   |
|  |   | Moving       | Flush-mounted in metal   |                 | 25 to 50 mm (max. axial offset $\pm 10$ mm) |   |   |
|  |   |              | Surface-mounted on metal |                 | 25 to 60 mm (max. axial offset $\pm 10$ mm) |   |   |
|  |    | Stationary   | Flush-mounted in metal   |                 | 5 to 40 mm (max. axial offset $\pm 10$ mm)  |   |  |
|  |   |              | Surface-mounted on metal |                 | 5 to 45 mm (max. axial offset $\pm 10$ mm)  |   |   |
|  |   | Moving       | Flush-mounted in metal   |                 | 25 to 40 mm (max. axial offset $\pm 10$ mm) |                                  |   |
|  |   |              | Surface-mounted on metal |                 | 25 to 45 mm (max. axial offset $\pm 10$ mm) |   |   |
|  |   | Stationary   | Flush-mounted in metal   | Irrelevant      | 10 to 30 mm (max. axial offset $\pm 10$ mm) | <p><b>Note:</b> The listed transmission distances apply for installation on metallic and non-metallic surfaces.</p> |   |
|  |   |              | Surface-mounted on metal |                 | 10 to 35 mm (max. axial offset $\pm 10$ mm) |   |   |
|  |   | Moving       | Flush-mounted in metal   |                 | 20 to 30 mm (max. axial offset $\pm 10$ mm) |   |   |
|  |   |              | Surface-mounted on metal |                 | 20 to 35 mm (max. axial offset $\pm 10$ mm) |   |   |
|  |  | Stationary   | Flush-mounted in metal   |                 | 10 to 30 mm (max. axial offset $\pm 10$ mm) |   |   |
|  |   |              | Surface-mounted on metal |                 | 10 to 30 mm (max. axial offset $\pm 10$ mm) |   |   |
|  |   | Moving       | Flush-mounted in metal   |                 | 15 to 30 mm (max. axial offset $\pm 10$ mm) |   |   |
|  |   |              | Surface-mounted on metal |                 | 15 to 30 mm (max. axial offset $\pm 10$ mm) |   |   |

| Recommended combinations  |  | Installation |                          | Controller mode | Transmission distance                   | Condition for DC and R/W head Installation   |  |
|---|--|--------------|--------------------------|-----------------|---|--|--|
| Data Carrier  | R/W Head   |              |                          |                 |   |  |  |
| V600-D8KR04 (unsealed)<br> | V600-H07<br>  | Stationary   | Flush-mounted in metal   | Irrelevant      | See note                                |  <p><b>Note:</b> The listed transmission distances apply for installation on metallic and non-metallic surfaces.</p>  |  |
|   |  |              | Surface-mounted on metal |                 | 10 to 100 mm (max. axial offset ±10 mm) |  |  |
|   |  | Moving       | Flush-mounted in metal   |                 | See note                                |  |  |
|   |  |              | Surface-mounted on metal |                 | 50 to 100 mm (max. axial offset ±10 mm) |  |  |
|   | V600-H11<br>  | Stationary   | Flush-mounted in metal   |                 | Irrelevant                              |  | See note                               |
|   |  |              | Surface-mounted on metal |                 |   |  | 10 to 65 mm (max. axial offset ±10 mm) |
|   |  | Moving       | Flush-mounted in metal   |                 |   |  | See note                               |
|   |  |              | Surface-mounted on metal |                 |   |  | 30 to 65 mm (max. axial offset ±10 mm) |
| V600-D2KR16<br>            | V600-H11<br> | Stationary   | Flush-mounted in metal   | Irrelevant      | 2 to 15 mm (max. axial offset ±10 mm)   |  <p><b>Note:</b> The listed transmission distances apply for installation on metallic and non-metallic surfaces.</p> |  |
|   |  |              | Surface-mounted on metal |                 |   |  |  |
|   |  | Moving       | Flush-mounted in metal   |                 | 6 to 15 mm (max. axial offset ±10 mm)   |  |  |
|   |  |              | Surface-mounted on metal |                 | 10 to 15 mm (max. axial offset ±10 mm)  |  |  |

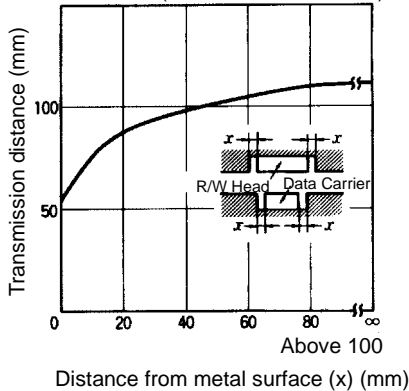
**Note:** When Data Carriers are flush-mounted in metal, the read/write distance will depend on the distance (x) between the side of the DC and the metal surface.



Refer to the appropriate R/W Head Operation Manual for details on the influence of metal.

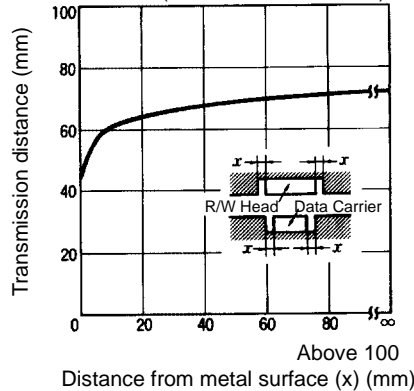
**Combined with V600-H07**

(Axis deviation: ±0 mm)



**Combined with V600-H11**

(Axis deviation: ±0 mm)

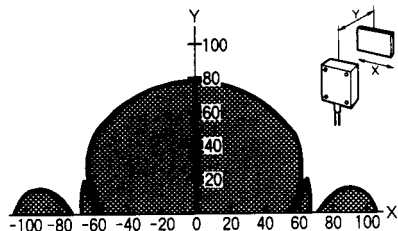


# Transmission Range Graphs

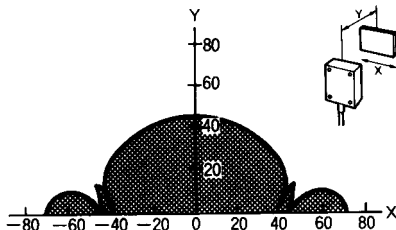
## Battery-less Compact DCs

The values shown in the following graphs are in millimeters. Refer to pages 22 to 28 for details on Data Carrier and R/W Head mounting conditions.

V600-D23P71 & V600-H07

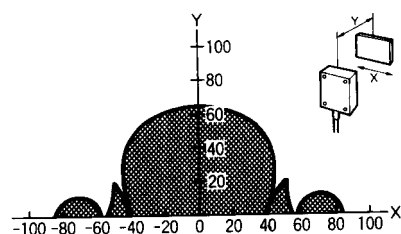


V600-D23P71 & V600-H11

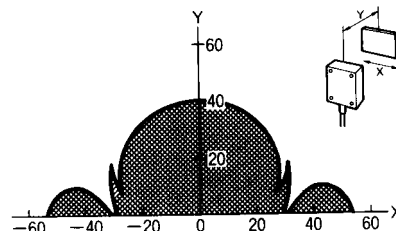


- Read range (in transmission distance priority mode)
- Write range (in transmission distance or transmission time priority mode)
- Read range (in transmission time priority mode)

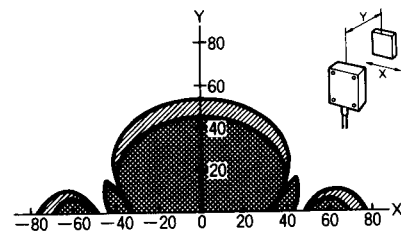
V600-D23P72 & V600-H07



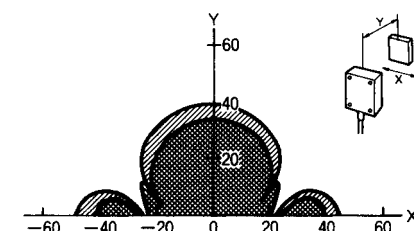
V600-D23P72 & V600-H11



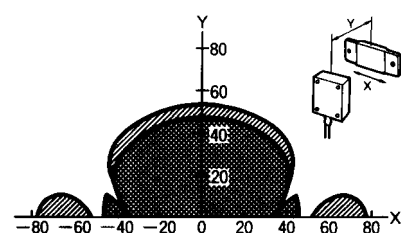
V600-D23P66 & V600-H07



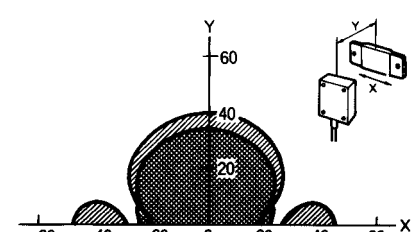
V600-D23P66 & V600-H11



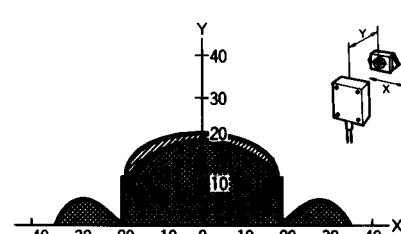
V600-D23P66SP & V600-H07



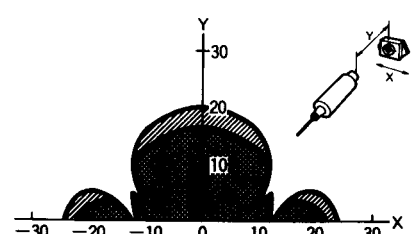
V600-D23P66SP & V600-H11



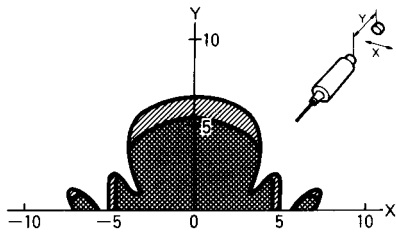
V600-D23P61 & V600-H11



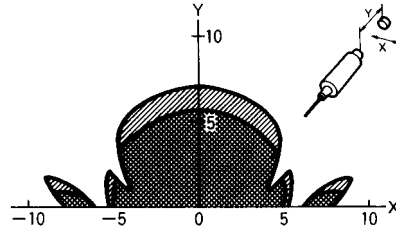
V600-D23P61 & V600-H51






V600-D23P53 & V600-HS51

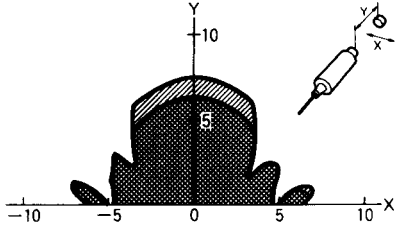


V600-D23P53 & V600-HS61

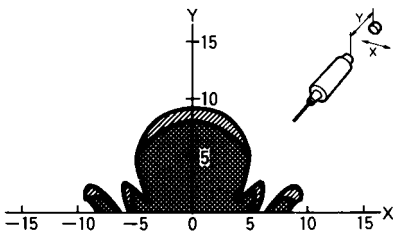


-  Read range (in transmission distance priority mode)
-  Write range (in transmission distance or transmission time priority mode)
-  Read range (in transmission time priority mode)

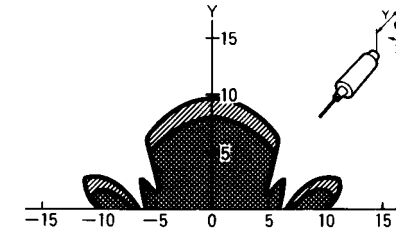
V600-D23P53 & V600-H52



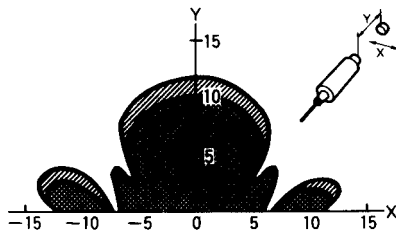
V600-D23P54 & V600-HS51



V600-D23P54 & V600-HS61

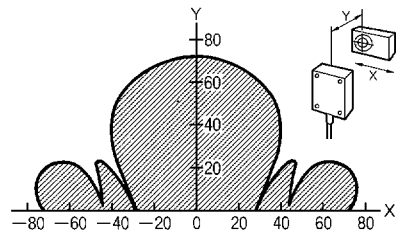


V600-D23P54 & V600-H52

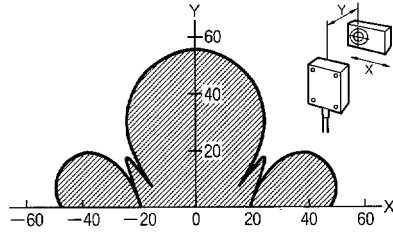


**Battery-replaceable DCs**

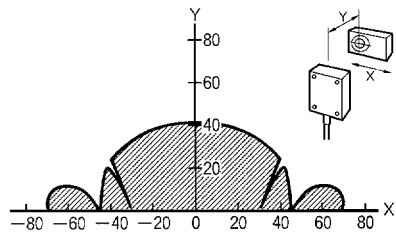
V600-D8KR12 & V600-H07



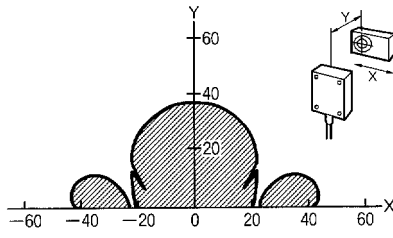
V600-D8KR12 & V600-H11



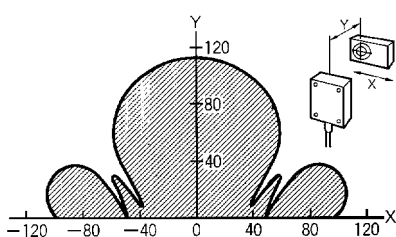
V600-D8KR13 & V600-H07



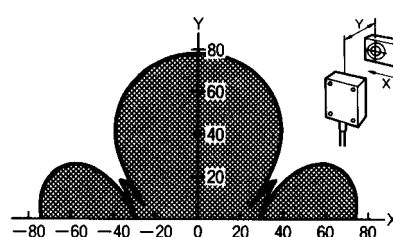
V600-D8KR13 & V600-H11



V600-D8KR04 & V600-H07

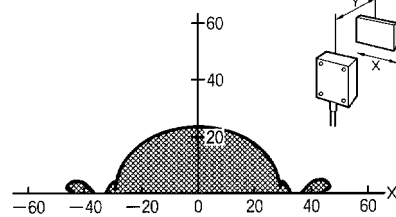


V600-D8KR04 & V600-H11



**Battery-replaceable DCs**

V600-D2KR16 & V600-H11



**Note:** Changing the direction of the DC will change the transmission range.

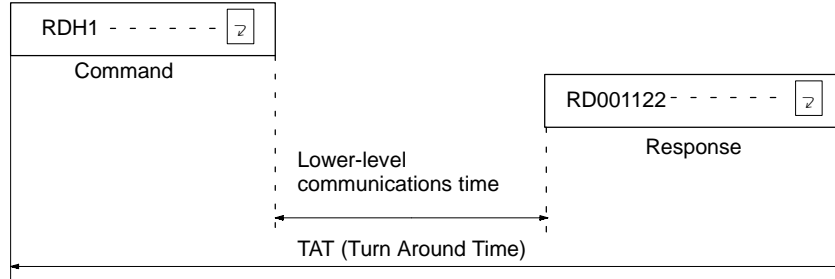
### ■ Transmission Time Specifications

The transmission time does not depend on the model of R/W Head or Data Carrier, although transmission times differ between Data Carriers with and without batteries.

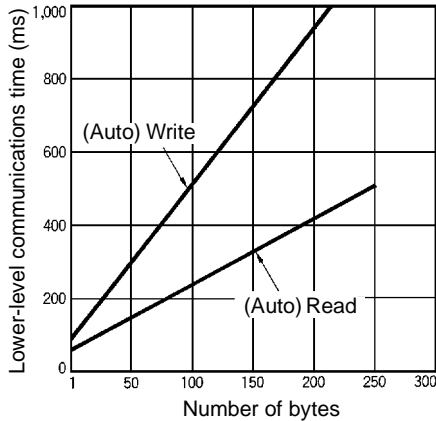
The turn around time (TAT) is the total time required from the issuance of a command from the host device (for example, a host computer) until the reception of a response.

The lower-level communications time does not include the host communications; it is the time required for communications between the R/W Head and Data Carrier. The lower-level communications time is used in the equation for the DC speed.

$$\text{DC Speed} = (\text{Distance travelled in the transmission range}) / (\text{Lower-level communications time})$$



### Built-in-battery Data Carriers



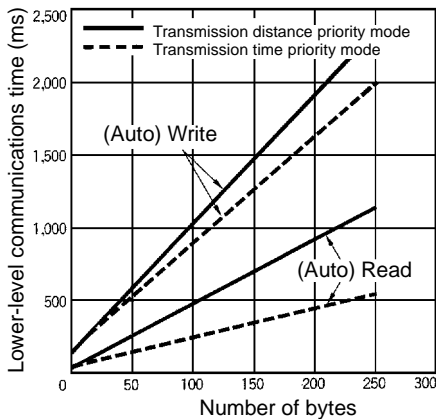
**Note:** The Parallel-interface Controllers and ID Sensor Units will change according to the host software.

### Calculation For Built-in Battery Data Carriers

| Controller/Item       | R/W   | Lower-level communications time | TAT               |
|-----------------------|-------|---------------------------------|-------------------|
| Serial-interface used | READ  | $T = 1.8N + 48.4$               | $T = 3.0N + 55.9$ |
|                       | WRITE | $T = 4.2N + 86.5$               | $T = 4.2N + 94.1$ |

- Note:**
- The TAT figures are for a V600-CA1A ID Controller and host communications set for 9600 bps, 8 data bits, 1 stop bit, and odd parity. Transmission is continuous without spaces between characters.
  - N is the number of bytes when the code is set to ASCII code. (Refer to the Controller's *Operation Manual* for details.)

### Battery-less Data Carriers



### Calculation for Battery-less Data Carriers

| Controller             | R/W   | Lower-level communication s time | TAT                |
|------------------------|-------|----------------------------------|--------------------|
| Distance priority mode | READ  | $T = 4.3N + 64.6$                | $T = 5.6N + 72.2$  |
|                        | WRITE | $T = 8.7N + 167.1$               | $T = 8.7N + 174.6$ |
| Time priority mode     | READ  | $T = 1.8N + 79.0$                | $T = 3.1N + 86.6$  |
|                        | WRITE | $T = 7.1N + 180.4$               | $T = 7.1N + 187.8$ |

**Note:** Except for the TAT data constants, the built-in-battery DCs are the same.

### ■ Lower-level Communications Mode Setting (Distance/Time Priority)

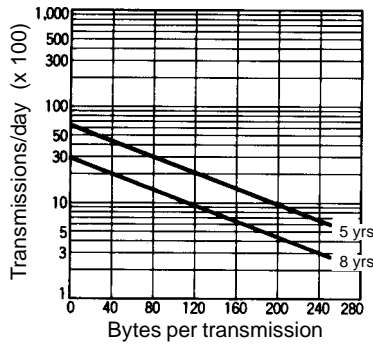
These settings are valid only with Battery-less DCs. The lower-level communications mode setting is made on a DIP Switch on the Serial-interface Controller (V600-CA1A/CA2A/CF1A, or V600-CD1D-V2) or ID Sensor Unit. (Refer to the Controller's *Operation Manual* for more details on this setting.)

With Parallel-interface Controllers (V600-CA8A/CA9A) the mode is fixed to transmission distance priority. With built-in-battery DCs, there is no mode distinction, so either setting can be made.

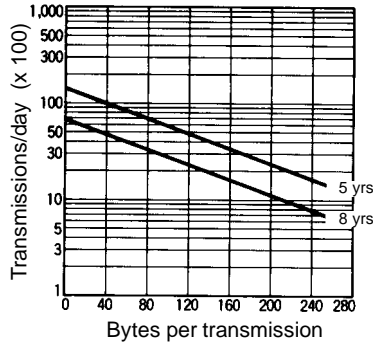
### ■ Battery Life

(Minimum life in the -10°C to 55°C temperature range) The following graphs show the relationship between the number of bytes read/written and the battery life.

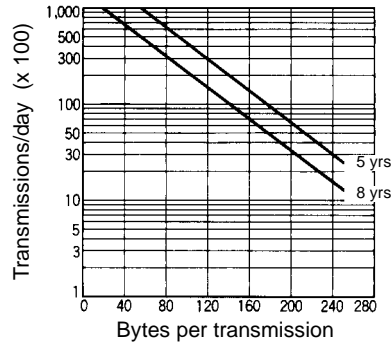
V600-D8KR12 (Reference)



V600-D8KR13 (Reference)



V600-D8KR04 (Reference)

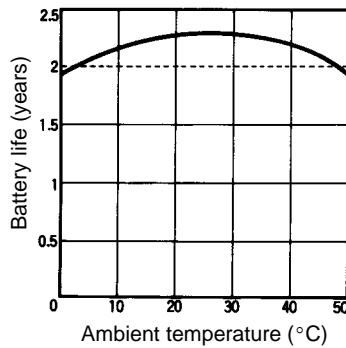


### ■ Temperature and Battery Life

#### V600-D2KR16

The battery life is two years at 25°C regardless of the relationship between the number of bytes read/written and the number of transmissions.

#### Examples Showing Relationship between Battery Life and Temperature



**Note:** The values in the above graph are based on the battery being installed (i.e., the insulation sheet is removed).

The following table shows the standard values.

| Temperature | Battery consumption rate in one year |
|-------------|--------------------------------------|
| 20°C        | 1%                                   |
| 30°C        | 2%                                   |
| 40°C        | 4%                                   |
| 50°C        | 8%                                   |
| 60°C        | 16%                                  |
| 70°C        | 32%                                  |

**Note:** If the battery is not installed, the values shown in the above table will apply.

#### Example

If the battery is stored at 70°C and is not installed, the battery life is calculated as follows:

$$2 \text{ (years)} \times (1 - 0.32) = 1.36 \text{ years}$$

If the battery is stored at 25°C after one year's storage, the battery life will be approximately 1 year and 4 months. (The battery life will be shortened if the battery is used at temperatures close to 0°C or 50°C.)

### ■ Mutual Interference

#### Mutual Interference between R/W Heads

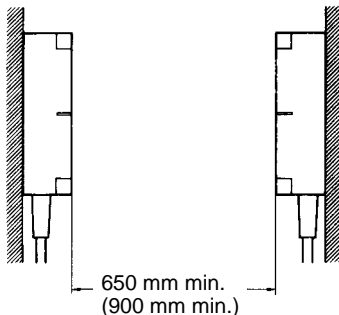
When more than one set of R/W Heads are used, mutual interference between the Heads can be avoided by mounting the Heads at the specified distance as shown below.

#### V600-H07

Facing

RD/WT command: 650 mm min.

Auto command: 900 mm min.

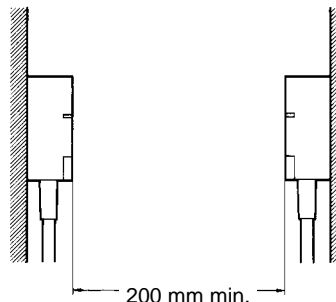


#### V600-H11

Facing

RD/WT command: 200 mm min.

Auto command: 200 mm min.



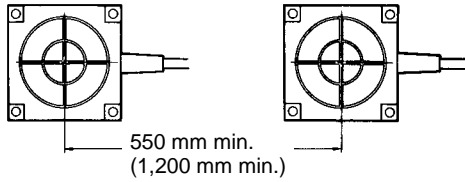


**Mutual Interference between R/W Heads (continued)**

Side-by-side

RD/WT command: 550 mm min.

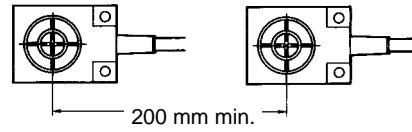
Auto command: 1,200 mm min.



Side-by-side

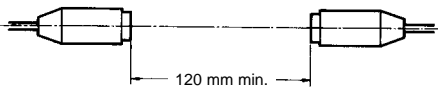
RD/WT command: 200 mm min.

Auto command: 200 mm min.



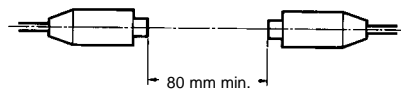
**V600-H51**

Facing: 120 mm min.



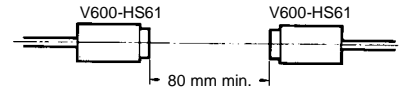
**V600-H52**

Facing: 80 mm min.

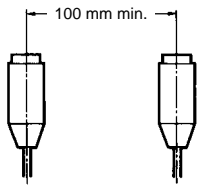


**V600-HS51**

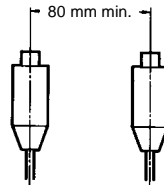
Facing: 80 mm min.



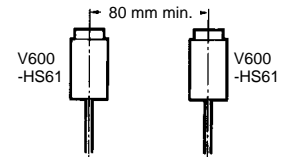
Side-by-side: 100 mm min.



Side-by-side: 80 mm min.

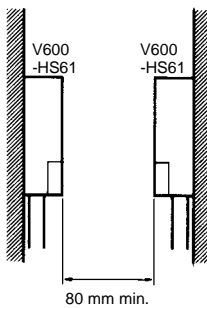


Side-by-side: 80 mm min.

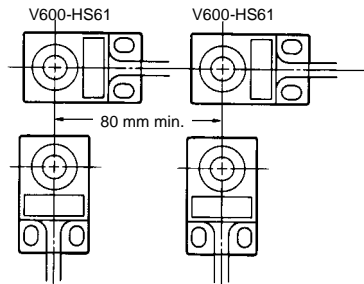


**V600-HS61**

Facing: 80 mm min.



Side-by-side: 80 mm min.



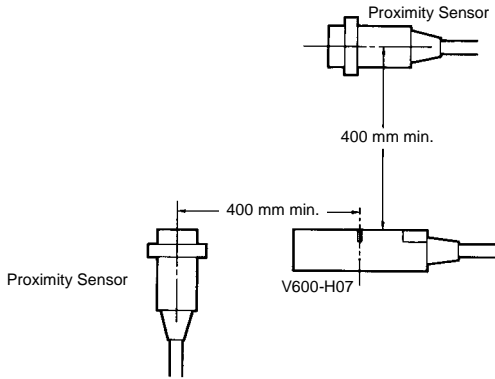
**Note:** If the two R/W Heads are not transmitting simultaneously (i.e., independent read/write), mutual interference will not occur. Therefore, the restriction on the distance between the Heads will not be applicable. The commands will be received by the R/W Heads and transmission will oscillate between them.

### Mutual Interference with Proximity Sensors

The V600-series Units use electromagnetic coupling (frequency: 530 kHz). When a V600 Unit is wired close to R/W Heads, Proximity Switches, and Sensors that have an oscillating frequency between 400 and 600 kHz, the Proximity Sensor may malfunction, so be sure to install the Units according to the distance restrictions specified in the following diagrams. Make sure to thoroughly test that the mounting positions and the fixed positions of the Sensors are correct before putting them into actual operation.

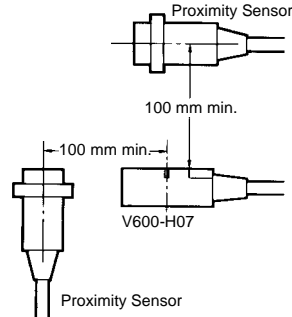
#### V600-H07

Horizontal or Side-by-side: 400 mm min.

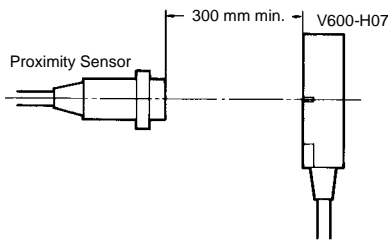


#### V600-H11

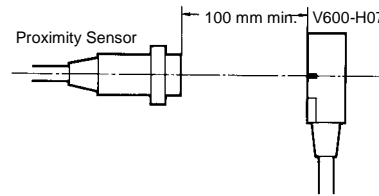
Horizontal or Side-by-side: 100 mm min.



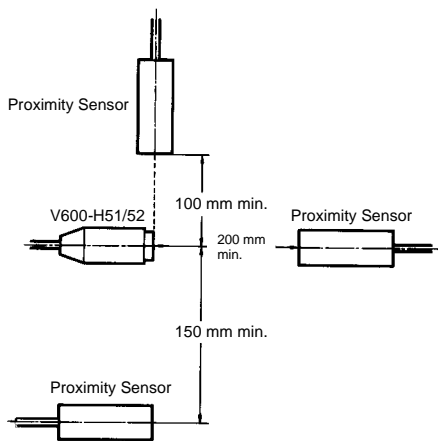
Facing: 300 mm min.



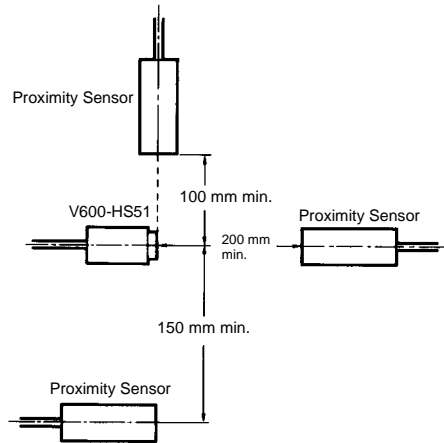
Facing: 100 mm min.



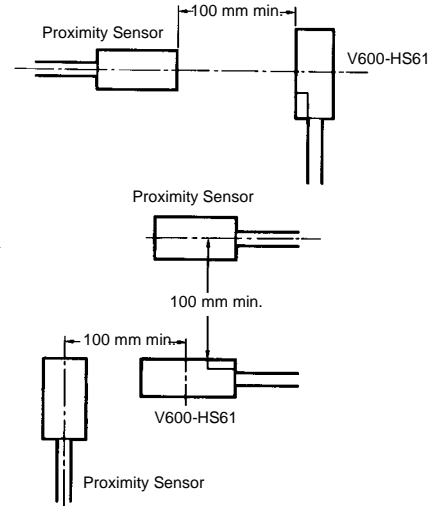
#### V600-H51/H52



#### V600-HS51



#### V600-HS61



## Precautions

### Built-in-battery Data Carriers

Do not disassemble, deform by applying pressure, heat at temperatures exceeding 100°C, or burn. Doing so may cause the built-in lithium batteries to combust or explode.

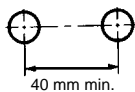
Never short-circuit the positive and negative terminals of the batteries, charge the batteries, disassemble them, deform them, or throw them into a fire. Doing so may cause the batteries to explode, combust, or leak liquid.

## Mutual Interference between Data Carriers

When more than one Data Carrier is used, mutual interference between the DCs can be avoided by making sure that they are mounted apart at the distances specified below.

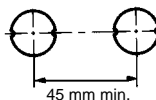
### V600-D23P53

R/W Head: V600-H52/HS51/HS61



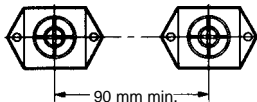
### V600-D23P54

R/W Head: V600-H52/HS51/HS61



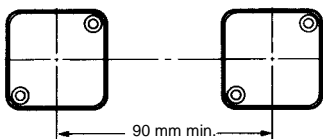
### V600-D23P61

R/W Head: V600-H11/H51

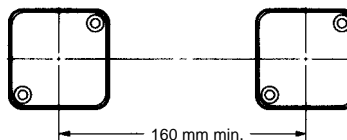


### V600-D23P66

R/W Head: V600-H11

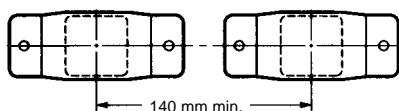


R/W Head: V600-H07

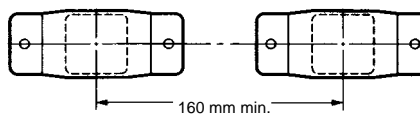


### V600-D23P66SP

R/W Head: V600-H11

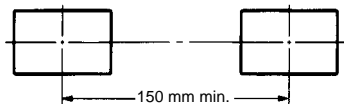


R/W Head: V600-H07

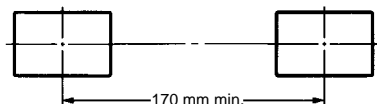


### V600-D23P72

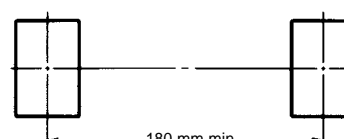
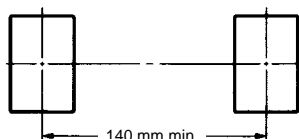
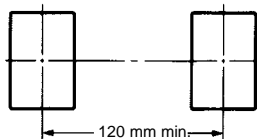
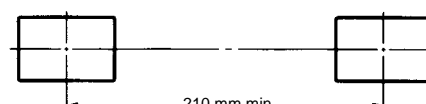
R/W Head: V600-H51



R/W Head: V600-H11

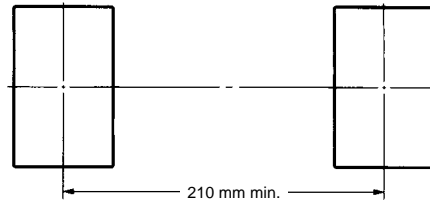
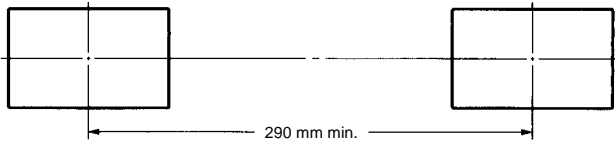


R/W Head: V600-H07



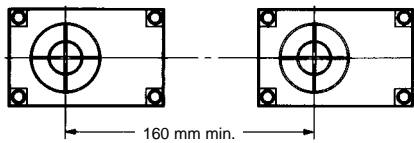
**V600-D23P71**

R/W Head: V600-H07

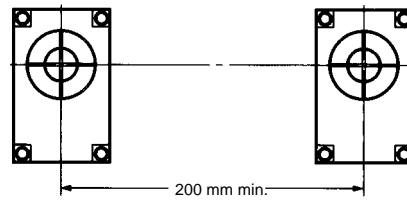
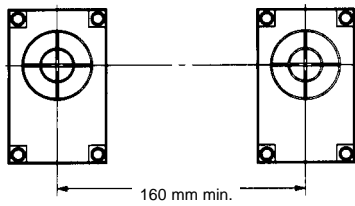
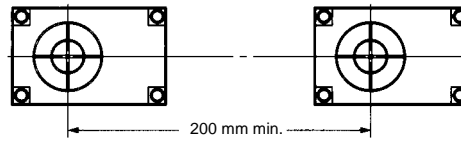


**V600-D8KR11**

R/W Head: V600-H11/H12

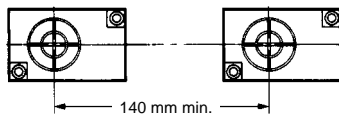


R/W Head: V600-H07

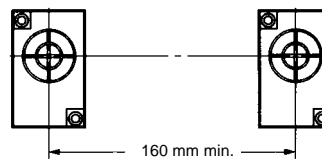
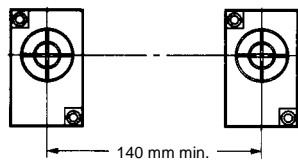
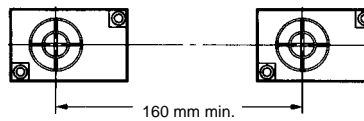


**V600-D8KR12**

R/W Head: V600-H11/H12

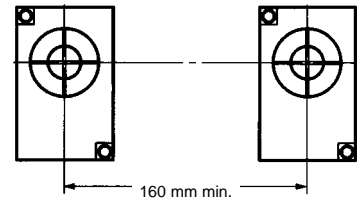
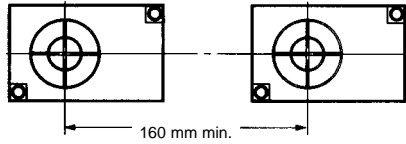


R/W Head: V600-H07



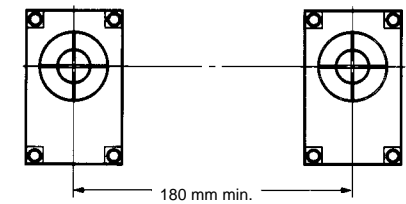
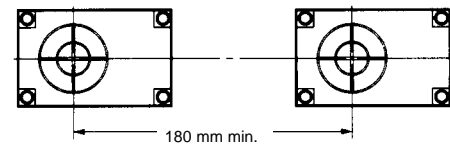
**V600-D8KR13**

R/W Head: V600-H11/H12



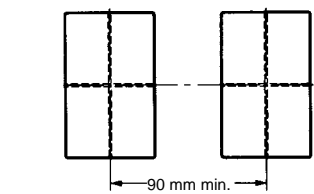
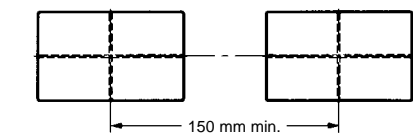
**V600-D8KR04**

R/W Head: V600-H11

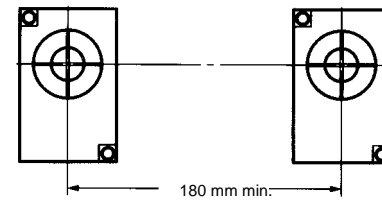
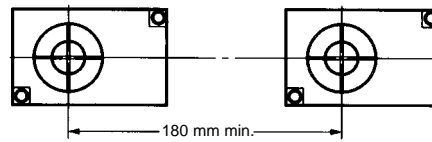


**V600-D2KR16**

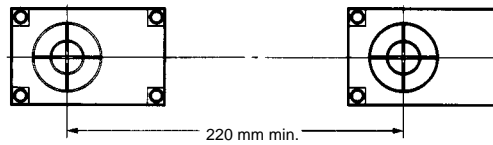
R/W Head: V600-H11



R/W Head: V600-H07



R/W Head: V600-H07



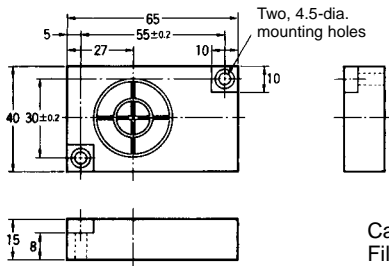
# Dimensions

Note: All units are in millimeters unless otherwise indicated.

## Data Carriers

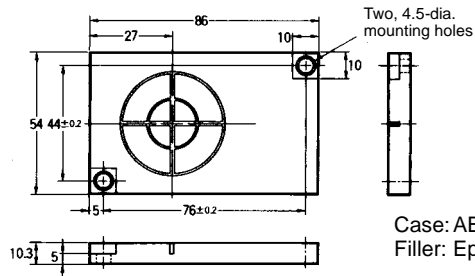
### Built-in-battery DCs

V600-D8KR12



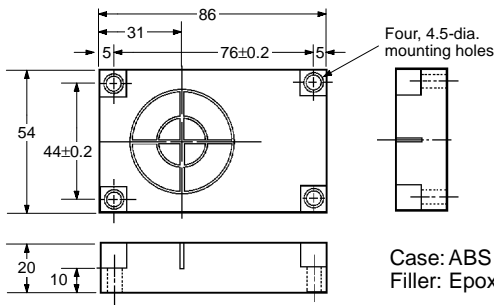
Case: ABS plastic  
Filler: Epoxy plastic

V600-D8KR13



Case: ABS plastic  
Filler: Epoxy plastic

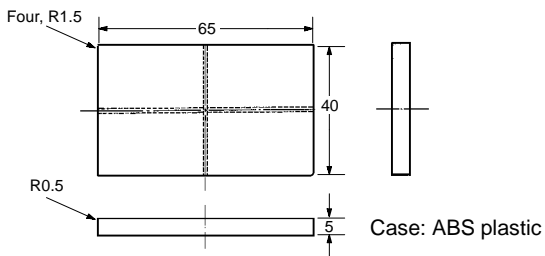
V600-D8KR04



Case: ABS plastic  
Filler: Epoxy plastic

### Replaceable-battery DCs

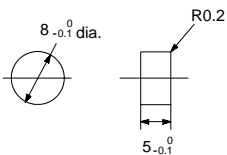
V600-D2KR16



Case: ABS plastic

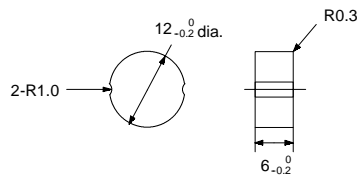
### Battery-less DCs

V600-D23P53



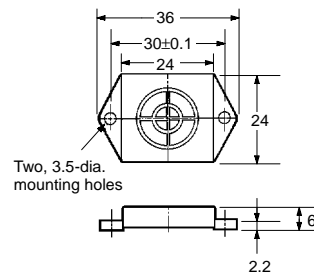
Case: ABS plastic  
Filler: Epoxy plastic

V600-D23P54



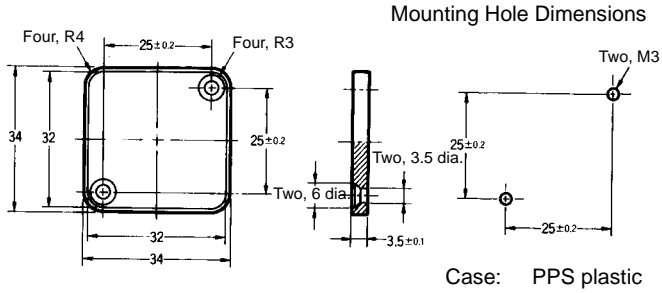
Case: ABS plastic  
Filler: Epoxy plastic

V600-D23P61

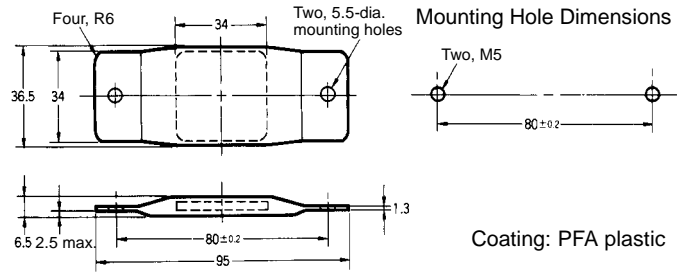


Case: ABS plastic  
Filler: Epoxy plastic

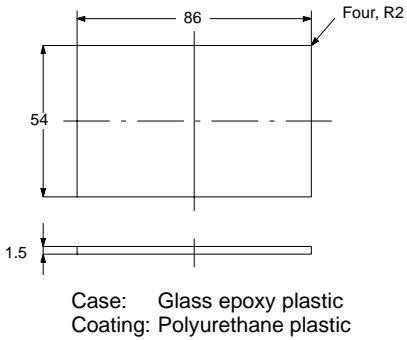
V600-D23P66



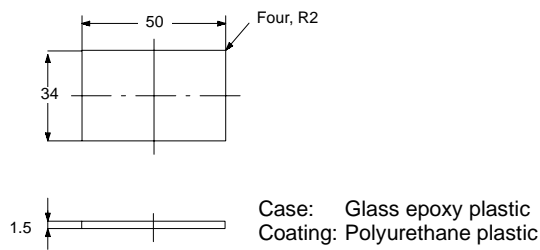
V600-D23P66SP



V600-D23P71

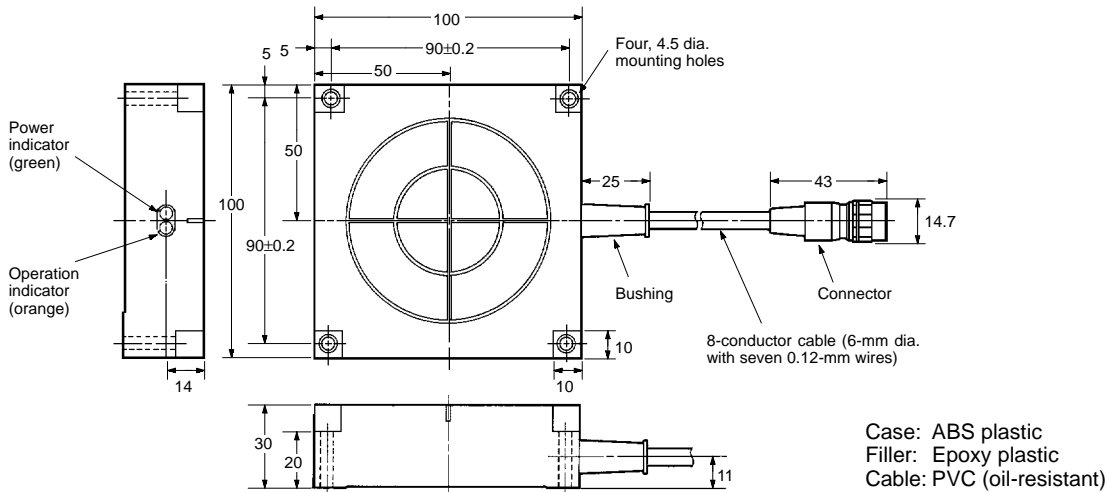


V600-D23P72

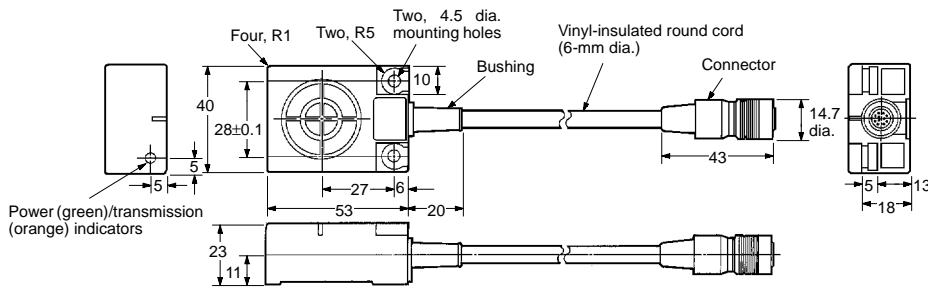


R/W Heads

V600-H07

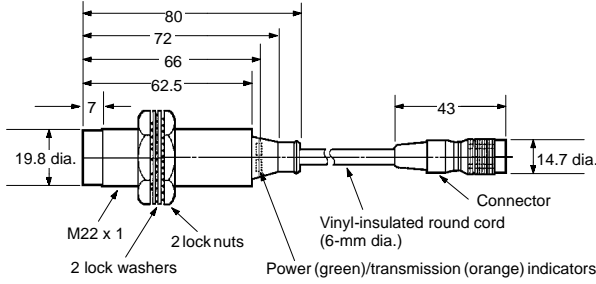


V600-H11



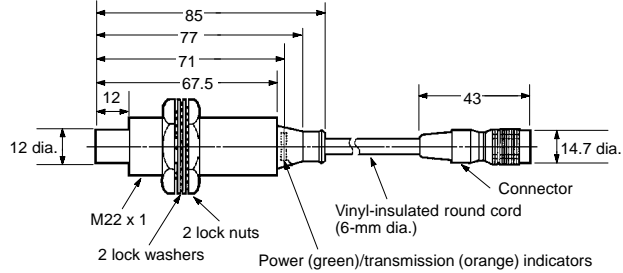
Case: ABS plastic  
Filler: Epoxy plastic  
Cable: PVC (oil-resistant)

V600-H51



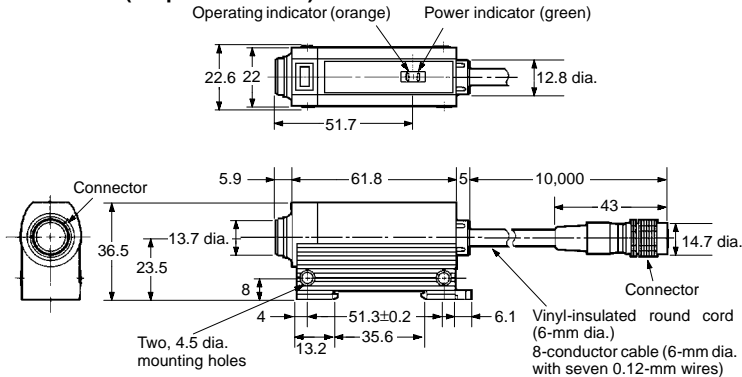
Case: Brass  
Transmission window: ABS plastic  
Filler: Epoxy plastic  
Cable: PVC (oil-resistant)

V600-H52



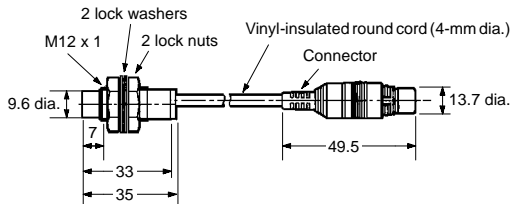
Case: Brass  
Transmission window: ABS plastic  
Filler: Epoxy plastic  
Cable: PVC (oil-resistant)

V600-HA51 (Amplifier Section)



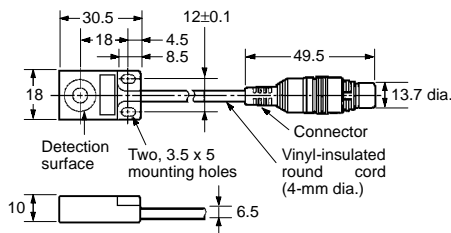
Case: ABS plastic  
Filler: Epoxy plastic  
Cable: PVC (oil-resistant)

V600-HS51 (Sensor Section)



Case: Brass  
Transmission window: ABS plastic  
Filler: Epoxy plastic  
Cable: PVC (oil-resistant)

V600-HS61 (Sensor Section)

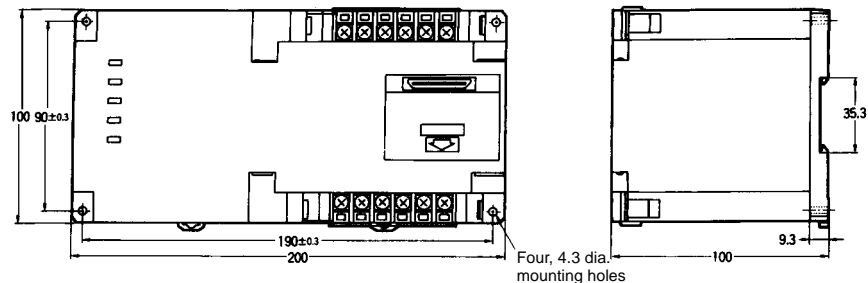


Case: ABS plastic  
Filler: Epoxy plastic  
Cable: PVC (oil-resistant)

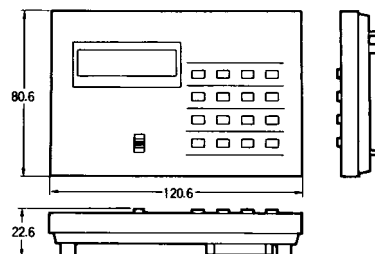


ID Controllers

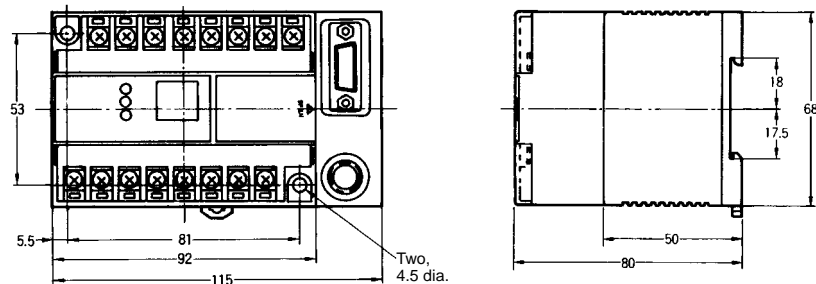
V600-CA□A□ (Multipurpose)



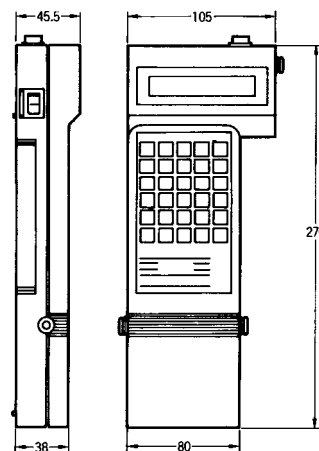
V600-P01 Monitor Unit  
(For use with V600-CA□A□ and V620-CA□A Controllers)



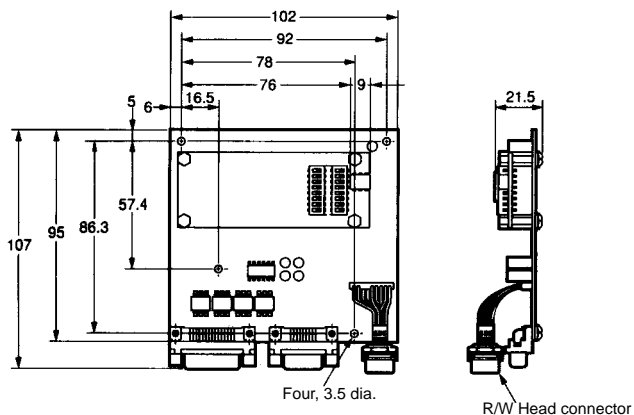
V600-CD1D-V3 (Compact)



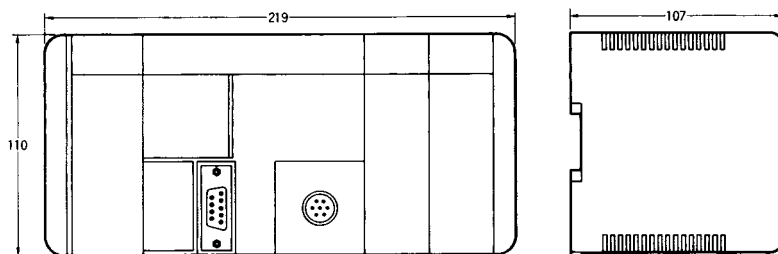
V600-CB-US Hand-held ID Controller



V600-CM1D (Board-mounted)

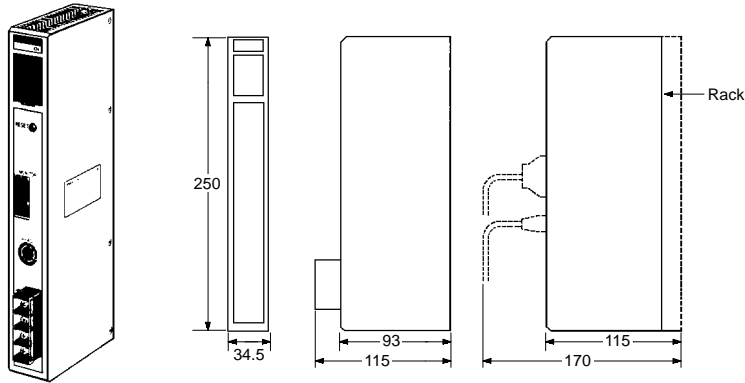


IDSC-C1D□A-E (Stand-alone)

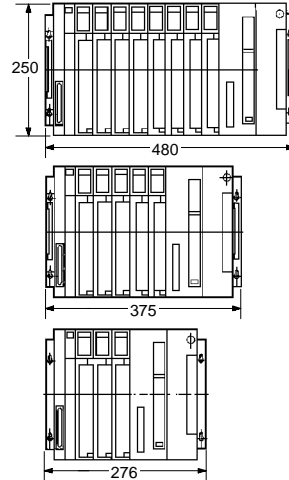


ID Sensor Units and Adapters

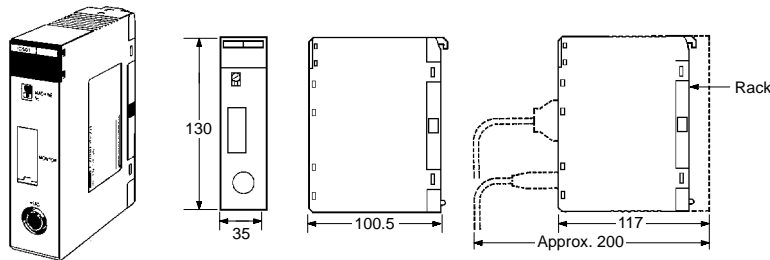
C500-IDS01-V2  
C500-IDS02-V1  
C500-IDA02



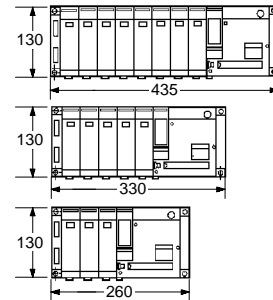
Rack Dimensions (Reference)



C200H-IDS01-V1



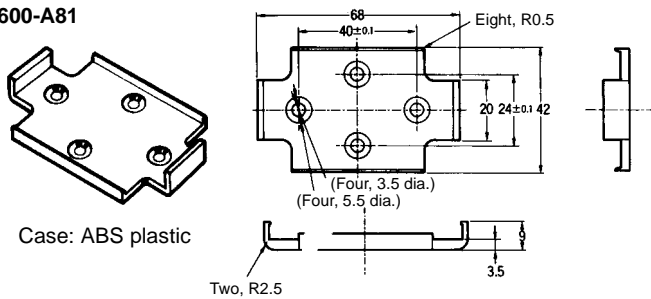
Rack Dimensions (Reference)



Accessories

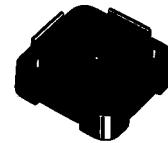
Data Carrier Mounting Brackets

V600-A81

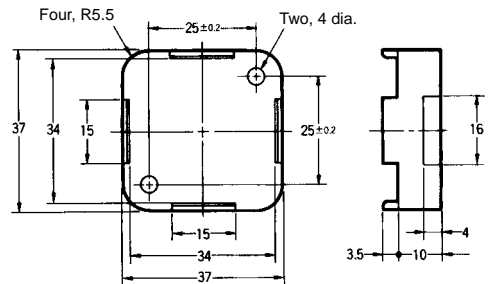


Attachment

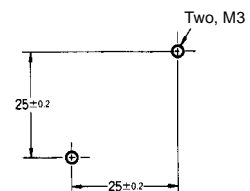
V600-A86



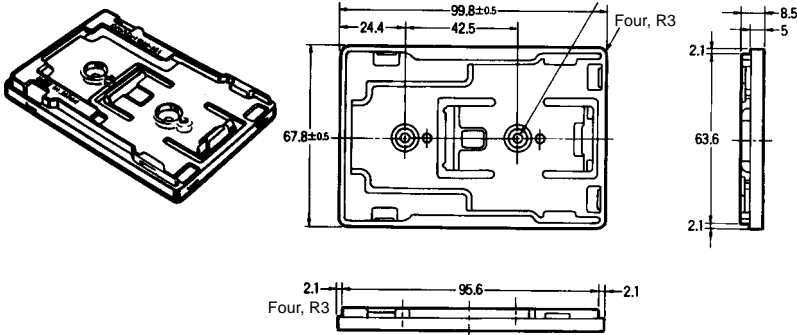
Material: PPS plastic



Mounting Hole Dimensions



V600-A84



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

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