Digital Wireless Intercom System

Base Station

- Easily connected to wired intercom (2W-4W2 system)
- PGM input
- Independent use enabled using microphone/speaker
- Status display by LCD
- Up to 4 CS units can be connected
- Rack-mount type BA=2U, JB=2U

Specifications
- Structure: Rack-mount type
- Power supply: AC 100V-240V
- Input/output: Microphone, SP, 2W/4W line, PGM, TEL
- Environment: -10~+50°C (excluding display panel (LCD) part)
- Weight: Approx. 7.0 kg
- Dimensions: Width: 480mm, height: 88mm, depth: 250mm (not including protruding portions)

Cell Station

- Diversity system
- Compact and easily installed temporarily
- Operable with one microphone cable (power supplied from BS)

Specifications
- Structure: Wall mounting and microphone stand mounting system
- Power supply: DC 24 V (supplied from the main device)
- DC 12V (external power supply)
- Number of calls: Simultaneous calls are possible in 1: 4
- Antenna: Diversity operation with shared transmission/ reception and integrally structured case
- Channel setting: Multi-channel access system
- Standards: Technical standard conformance has been certified
- Environment: -10~+50°C
- Weight: Approx. 430g (fittings included)
- Dimensions: Width: 153mm, height: 155mm, depth: 91mm (fittings included)

Power UNIT

YPL-1800A

Production on order

This product is necessary when five or more CS units are connected to one BS unit.

Specifications
- Output voltage: 24V
- Power supply: AC 100V
- Environment: -10~+50°C
- Weight: Approx. 6.0kg
- Dimensions: Width: 480mm, height: 88mm, depth: 350mm (not including protruding portions)

Leading the sector of simultaneous-call digital radio devices, Tamura’s digital wireless intercom systems are used in a wide range of markets as highly reliable professional equipment. Their simple operability and stable communication performance, which Tamura has always paid special attention to since the early development stages, allow for a wide range of applications not only in broadcasting stations, halls and theaters, but also for industrial use.

1 System example

![Image of Digital Wireless Intercom System]

2 System features

- Radio station license is not required
- Communication of higher quality than analog system
- Quick connection
- Use of optional CS control unit (for long distance) enables extended connection between master unit and slave unit up to 800 m (standard: 150 m) when the recommended cables (J-4/2C or CAV6) is used

3 System standards

1. Used frequency: 1900 MHz band, 42 waves
2. Communication system: Multi-carrier TDMA-TDD system
3. Antenna power: 10 mW or less
4. Multiplex: 4
5. Frequency switching: Synthesizer system by quartz control
6. Separation: 300 kHz (600 kHz separation in the same area)
7. Channel switching: MCA
8. Audio encoding system: 32 kb/s ADPCM
9. Transmission rate: 384 kb/s
10. Technical standard conformance: Conformity-certificated product
11. Radio station license: Not required
Digital Wireless Intercom System

**Outline of Digital Wireless Intercom System**

1. One microphone cables connects between BS unit and CS unit, and between CS unit and CS unit
   - Maximum 150 m between BS unit and CS unit, between CS units
   - (recommended cable: CANARE L-4E5C or DA206)

2. Cascade connection up to 4 CS units is possible for one CS control unit in BS unit.
   - Up to 4 CS control units can be mounted in one BS unit
   - (When five or more CS units are connected to one BS unit, the Power UNIT[YPL-1800A] is necessary)

3. Up to 4 PS units can make a call to one CS unit.

4. PS units can be divided into 2 groups for use with one BS unit

5. No limit for use to the number of PS units dedicated for receiving command
   - (When a PS unit dedicated for receiving command is used, the number of PS units that can be used is reduced by one)

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**Personal Station** (PS) TWI-P190B

- **HEADSET**
  - HS-316C
  - **Battery pack**
    - BH-190
    - AA alkali cell, 2

- **Specifications (HS-316C)**
  - Microphone part (condenser type)
    - Impedance: 1.6kΩ±30%
    - Sensitivity: -73.0dB±4dB at 1kHz (0dB = 1V/0.5Pa)
    - Frequency characteristics: 100Hz - 10kHz
  - Receiver part
    - Impedance: 300Ω (cord resistance included)
    - Rated input: 10mW
    - Maximum permissible input: 300mW
    - Output sound pressure level: 121dB at 1kHz (0dB = 2×10^-5 Pa)
    - Frequency characteristics: 100Hz - 8kHz

*HS-316C is exclusive for personal station*

- **Specifications (HS-126D)**
  - Microphone part (dynamic type)
    - Impedance: 200Ω±20% at 1kHz
    - DC resistance: 1000Ω±10%
    - Sensitivity: -46dB±4dB at 1kHz (0dB = 1V/0.5Pa)
    - Frequency characteristics: 100Hz - 8kHz
  - Receiver part
    - Impedance: 9Ω±15%
    - Inductance: 0.045mH±10%
    - DC resistance: 7.7Ω±10%
    - Maximum permissible input: 500mW
    - Output sound pressure level: 103dB±4dB at 1kHz (0dB = 2×10^-5 Pa)
    - Frequency characteristics: 50Hz - 20kHz

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**Handover operation**

When the extension of communication area is desired, handover setting is available by the setting of PS unit.

Handover: The CS units to which a PS unit is connected are switched automatically.

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*When moved from communication area A to communication area B, CS unit of PS unit changes from No. 1 to No. 2.*
Digital Wireless Intercom System

System example -1  BS: One unit  CS: 4 units  PS: 16 units
Communication Area

System example -2  BS: One unit  Power Unit: One unit  CS: 16 units  PS: 40 units

Electrical characteristics

<table>
<thead>
<tr>
<th></th>
<th>BS YF-F-1870B</th>
<th>CS YRW-1870B</th>
<th>PS TWI-P190B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common to high frequencies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radio wave type</td>
<td>G7D, G7E, G7X, G1D, G1E, G1X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antenna type</td>
<td>λ/2 sleeve antenna</td>
<td>Whip antenna</td>
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</tr>
<tr>
<td>Antenna impedance</td>
<td>50Ω</td>
<td></td>
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<tr>
<td>Frequency range</td>
<td>1893.650 ~ 1905.950MHz</td>
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</tr>
<tr>
<td>Number of frequencies</td>
<td>42 waves (control carrier 2 waves, communication carrier 40 waves)</td>
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<td></td>
</tr>
<tr>
<td>Separation</td>
<td>300kHz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oscillation system</td>
<td>Quartz control frequency synthesizer system</td>
<td></td>
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<tr>
<td>Frequency stability</td>
<td>Within ±3x10⁻⁴</td>
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<tr>
<td>Modulation accuracy</td>
<td>12.5% or less</td>
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<tr>
<td>Antenna power</td>
<td>10mW</td>
<td></td>
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<tr>
<td>Intensity of spurious radiation</td>
<td>2.5µW or less (beyond band) 250mW or less (within band)</td>
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<tr>
<td>Modulation system</td>
<td>n/4 shift QPSK</td>
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</tr>
<tr>
<td>Audio frequency</td>
<td>3.4kHz or less</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neighboring channel leak power</td>
<td>600kHz misused 800nW or less, 900kHz misused 250nW or less</td>
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</tr>
<tr>
<td>Occupied frequency band area</td>
<td>Within 288 kHz</td>
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<td></td>
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<tr>
<td>Transmission</td>
<td></td>
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</tr>
<tr>
<td>Reception system</td>
<td>Double superhetodyne</td>
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</tr>
<tr>
<td>Reception sensitivity</td>
<td>16 dBμV or less (bit error rate 1x10⁻⁴)</td>
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<tr>
<td>Spurious sensitivity</td>
<td>47 dB or more</td>
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<tr>
<td>Neighboring channel selectivity</td>
<td>50 dB or more (600 kHz detuning)</td>
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<tr>
<td>Body radiation</td>
<td>4mW or less</td>
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<tr>
<td>Line frequency characteristic</td>
<td>3.4kHz or less</td>
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<tr>
<td>Line input/output</td>
<td>-0dBm balanced</td>
<td>-60dBm balanced</td>
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<tr>
<td>Microphone input</td>
<td>-60dBm balanced</td>
<td>-60dBm unbalanced</td>
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<tr>
<td>Speaker output</td>
<td>Inside 1W Outside 2W at 8Ω</td>
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<tr>
<td>External input</td>
<td>0dBm balanced</td>
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<tr>
<td>Used power supply/</td>
<td>AC100V±15%: 3A</td>
<td>AC240V±15%: 1A (cell station only)</td>
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</tr>
<tr>
<td>power consumption</td>
<td>DC12~24V: 1A</td>
<td>130 mA or less at DC 3V</td>
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<tr>
<td>Use environment</td>
<td>Temperature: -10 ~ +50°C, Humidity: Within 30~90%</td>
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