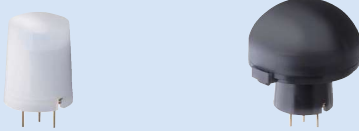


# EKMC(VZ) series

Current consumption **170 $\mu$ A** Digital output



Standard detection type



Long distance detection type



Wall installation type

○Economy type suitable for a wide range of applications

**Recommended applications**

Lighting control, lighting equipment, heaters, ventilators or air conditioners, security equipment for IP cameras, intrusion alarms, digital signage, vending machines, multi-function printers, display panels for meeting rooms, PCs

Lensless type available  
170 $\mu$ A type: EKMC1600100

## Specifications

| Detection performance            | Model no.   | Current consumption | Lens color  | Output type | Detection distance  | Detection area |          | Detection zones |
|----------------------------------|-------------|---------------------|-------------|-------------|---|----------------|----------|-----------------|
|                                  |             |                     |             |             |   | Horizontal     | Vertical |                 |
| Standard detection type<br>      | EKMC1601111 | 170 $\mu$ A         | White       | Digital     | 5m  | 94°            | 82°      | 64              |
|                                  | EKMC1601112 |                     | Black       |             |   |                |          |                 |
|                                  | EKMC1601113 |                     | Pearl white |             |   |                |          |                 |
| Long distance detection type<br> | EKMC1603111 |                     | White       |             | 12m   | 102°           | 92°      | 92              |
|                                  | EKMC1603112 |                     | Black       |             |   |                |          |                 |
|                                  | EKMC1603113 |                     | Pearl white |             |   |                |          |                 |
| Wall installation type<br>       | EKMC1604111 |                     | White       |             | 12m (1st step lens)<br>6m (2nd step lens)<br>3m (3rd step lens) | 40°            | 105°     | 68              |
|                                  | EKMC1604112 |                     | Black       |             |   |                |          |                 |
|                                  | EKMC1604113 |                     | Pearl white |             |   |                |          |                 |

■ Ordering information

**EKMC16**       **1**      

- PaPIRs motion sensor
- Detection (Lens)
  - 00: Lensless / 01: 5m distance standard / 03: 12m long distance / 04: Wall installation type

- Lens color
  - 0: Lensless / 1: White / 2: Black / 3: Pearl white
- Lens
  - 0: Lensless / 1: with lens

## Characteristics

■ Maximum rated values

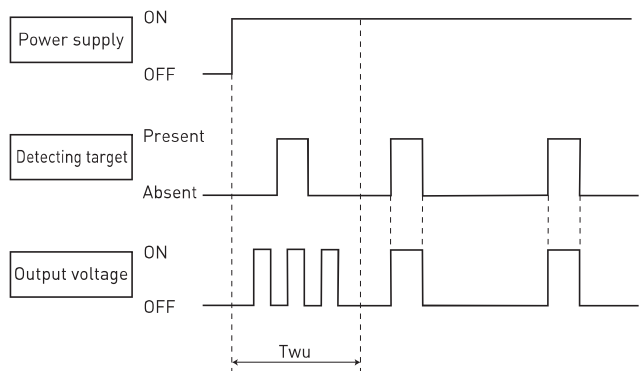
| Items                | Value                                    |
|----------------------|--|
| Power supply voltage | -0.3 to 7V                               |
| Ambient temperature  | -20 to +60°C (no frost, no condensation) |
| Storage temperature  | -20 to +70°C                             |

■ Electrical characteristics

| Items  |     | Symbol | EKMC (VZ) type | Conditions  |
|--|-----|--------|----------------|---|
| Operating voltage                                | Max | Vdd    | 6.0V           | —   |
|  | Min |        | 3.0V           |   |
| Current consumption (in standby mode) Note 1)    | Ave | Iw     | 170 $\mu$ A    | Ambient temperature: 25°C<br>Iout=0<br>Vdd: 5V    |
| Output current (during detection) Note 2)        | Max | Iout   | 100 $\mu$ A    | Ambient temperature: 25°C<br>Vout $\geq$ Vdd-0.5  |
| Output voltage (during detection period)         | Min | Vout   | Vdd-0.5V       | Ambient temperature: 25°C<br>Open at no detection |
| Circuit stability time (when voltage is applied) | Max | Twu    | 30 sec         | Ambient temperature: 25°C<br>Iout=0<br>Vdd: 5V    |

Note 1) Current consumption during detection period is the total value of current consumption in standby mode add to output current.  
Note 2) Please select an output resistors (pull-down concept) in accordance with Vout so that the output current is lower than or equal to 100 $\mu$ A. If the output current is more than 100 $\mu$ A, this may cause false alarms.

## Timing chart



[Explanation of the timing]  
Twu: Circuit stability time: max. 30 sec  
During this stage, the output's status is undefined (ON/OFF) and detection is therefore not guaranteed.

# Lenses for the EKMB/EKMC series

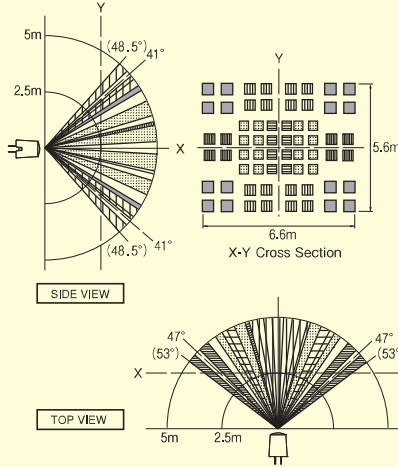
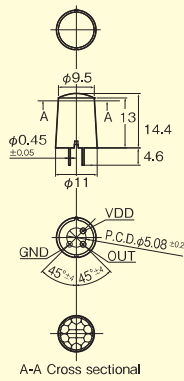
## Dimension (mm)

## Detection zone

## Detection characteristics

### Standard detection type

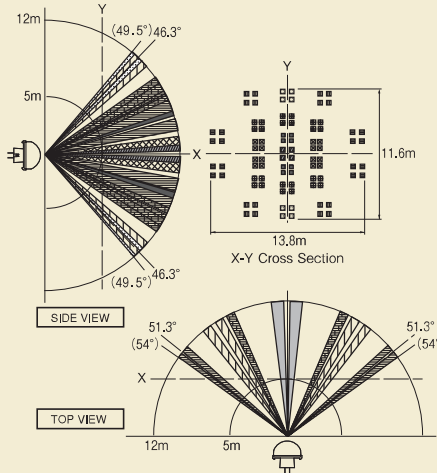
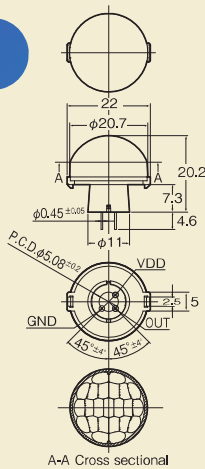
CAD data



|                     |  |
|---------------------|--|
| Detection distance  | Max. 5m  |
| Field of view       | 94°×82°  |
| Detection zone      | 64 beams   |
| Detection condition | <ul style="list-style-type: none"> <li>The temperature difference between the target and the surroundings must be higher than 4°C.</li> <li>Movement speed: 1.0m/s</li> <li>Target concept: Human body with an approx. size of 700×250mm</li> <li>Target moving direction: Crossing the detection beam.</li> </ul> |

### Long distance detection type

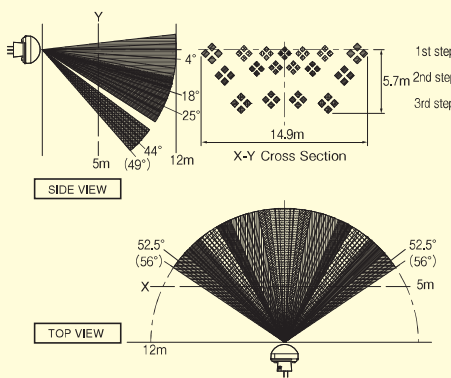
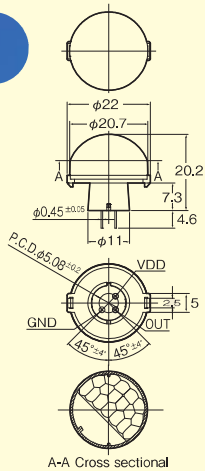
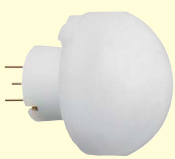
CAD data



|                     |  |
|---------------------|--|
| Detection distance  | Max. 12m   |
| Field of view       | 102°×92°   |
| Detection zone      | 92 beams   |
| Detection condition | <ul style="list-style-type: none"> <li>The temperature difference between the target and the surroundings must be higher than 4°C.</li> <li>Movement speed: 1.0m/s</li> <li>Target concept: Human body with an approx. size of 700×250mm</li> <li>Target moving direction: Crossing the detection beam.</li> </ul> |

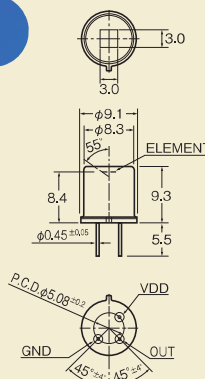
### Wall installation type

CAD data

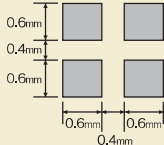


|                     |  |          |
|---------------------|--|----------|
| Detection distance  | 1st step lens  | Max. 12m |
|                     | 2nd step lens  | Max. 6m  |
|                     | 3rd step lens  | Max. 3m  |
| Field of view       | 40°×105°   |          |
| Detection zone      | 68 beams   |          |
| Detection condition | <ul style="list-style-type: none"> <li>The temperature difference between the target and the surroundings must be higher than 4°C.</li> <li>Movement speed: 1.0m/s</li> <li>Target concept: Human body with an approx. size of 700×250mm</li> <li>Target moving direction: Crossing the detection beam.</li> </ul> |          |

### Lensless type



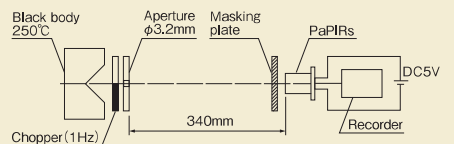
#### PIR element



|                       |  |
|-----------------------|--|
| Detection sensitivity | Average: 5.6μW/cm <sup>2</sup><br>Maximum: 7.6μW/cm <sup>2</sup> |
|-----------------------|--|

※Detection sensitivity is measured by following system

#### Test setup



# Horizontally wide detection type

Current consumption **1/2/6/170 $\mu$ A**

Digital output

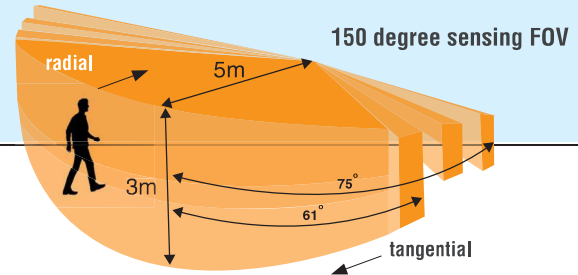
## > World's first PIR with "Approach Sensing" technology

Panasonic presents the world's first PIR sensor in the shape of a hammerhead with a special optic, which is more sensitive to radial motion.



### Recommended applications

Wall switches, thermostats, IP cameras, wake-up switch for displays, intrusion alarm sensors (e.g. for windows and doors), door intercom systems, entrance and garden lamps, automatic door systems, vending machines



Horizontally wide detection type

|   |                          |             |             |              |             |
|---|--------------------------|-------------|-------------|--------------|-------------|
| <b>Current consumption in standby mode</b><br>(1 $\mu$ A type: in sleep mode) | 1 $\mu$ A                | 2 $\mu$ A   | 6 $\mu$ A   | 170 $\mu$ A  |             |
|   | Digital (open collector) |             |             |              |             |
| <b>Lens color</b>   | White                    | EKMB1105111 | EKMB1205111 | EKMB1305111K | EKMC1605111 |
|   | Black                    | EKMB1105112 | EKMB1205112 | EKMB1305112K | EKMC1605112 |
|   | Pearl white              | EKMB1105113 | EKMB1205113 | EKMB1305113K | EKMC1605113 |

| Dimension (mm)                    | Detection zone | Detection characteristics  |                    |          |  |               |        |            |        |            |                |        |    |        |    |                       |        |  |        |  |
|-----------------------------------|----------------|--|--------------------|----------|--|---------------|--------|------------|--------|------------|----------------|--------|----|--------|----|-----------------------|--------|--|--------|--|
| <p><b>CAD data by request</b></p> |                | <table border="1"> <tr> <td>Detection distance</td> <td colspan="2">Max. 5m*</td> </tr> <tr> <td rowspan="2">Field of view</td> <td>Area A</td> <td>122° x 35°</td> </tr> <tr> <td>Area B</td> <td>150° x 20°</td> </tr> <tr> <td rowspan="2">Detection zone</td> <td>Area A</td> <td>88</td> </tr> <tr> <td>Area B</td> <td>16</td> </tr> <tr> <td rowspan="2">Detection condition ▲</td> <td>Area A</td> <td> <ul style="list-style-type: none"> <li>The temperature difference between the target and the surroundings must be higher than 4°C.</li> <li>Movement speed: 1m/s</li> <li>Target concept: human head with an approx. size of 700x250mm</li> <li>Target moving direction: crossing 2 detection zones</li> </ul> </td> </tr> <tr> <td>Area B</td> <td> <ul style="list-style-type: none"> <li>The temperature difference between the target and the surroundings must be higher than 8°C.</li> <li>Movement speed: 1m/s</li> <li>Target concept: human body with an approx. size of 700x250mm</li> <li>Target moving direction: crossing 2 detection zones</li> </ul> </td> </tr> </table> | Detection distance | Max. 5m* |  | Field of view | Area A | 122° x 35° | Area B | 150° x 20° | Detection zone | Area A | 88 | Area B | 16 | Detection condition ▲ | Area A | <ul style="list-style-type: none"> <li>The temperature difference between the target and the surroundings must be higher than 4°C.</li> <li>Movement speed: 1m/s</li> <li>Target concept: human head with an approx. size of 700x250mm</li> <li>Target moving direction: crossing 2 detection zones</li> </ul> | Area B | <ul style="list-style-type: none"> <li>The temperature difference between the target and the surroundings must be higher than 8°C.</li> <li>Movement speed: 1m/s</li> <li>Target concept: human body with an approx. size of 700x250mm</li> <li>Target moving direction: crossing 2 detection zones</li> </ul> |
| Detection distance                | Max. 5m*       |  |                    |          |  |               |        |            |        |            |                |        |    |        |    |                       |        |  |        |  |
| Field of view                     | Area A         | 122° x 35°   |                    |          |  |               |        |            |        |            |                |        |    |        |    |                       |        |  |        |  |
|                                   | Area B         | 150° x 20°   |                    |          |  |               |        |            |        |            |                |        |    |        |    |                       |        |  |        |  |
| Detection zone                    | Area A         | 88   |                    |          |  |               |        |            |        |            |                |        |    |        |    |                       |        |  |        |  |
|                                   | Area B         | 16   |                    |          |  |               |        |            |        |            |                |        |    |        |    |                       |        |  |        |  |
| Detection condition ▲             | Area A         | <ul style="list-style-type: none"> <li>The temperature difference between the target and the surroundings must be higher than 4°C.</li> <li>Movement speed: 1m/s</li> <li>Target concept: human head with an approx. size of 700x250mm</li> <li>Target moving direction: crossing 2 detection zones</li> </ul>   |                    |          |  |               |        |            |        |            |                |        |    |        |    |                       |        |  |        |  |
|                                   | Area B         | <ul style="list-style-type: none"> <li>The temperature difference between the target and the surroundings must be higher than 8°C.</li> <li>Movement speed: 1m/s</li> <li>Target concept: human body with an approx. size of 700x250mm</li> <li>Target moving direction: crossing 2 detection zones</li> </ul>   |                    |          |  |               |        |            |        |            |                |        |    |        |    |                       |        |  |        |  |

\* Under specified detection conditions  
 ▲ Please refer to "Cautions for use" (page 18) and "Basic principles" (page 18, point 5), for more details

Please contact your local sales representative for detailed specifications.

# Standard and slight motion detection type

Current consumption **1/2/6/170µA**

Digital output



### > 2 functions in 1 lens

High Sensitivity Centre ZONE: Optimized for detecting small movements and small objects  
 Normal Sensitivity Outer ZONE: Optimized for detecting larger movements of larger objects

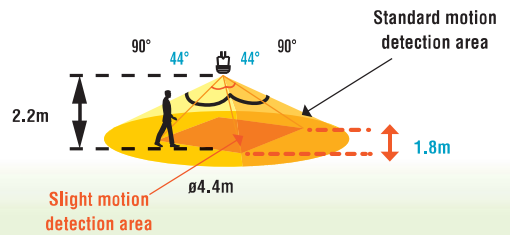


### Recommended applications

Lighting control, heaters, ventilators or air conditioners, IP cameras, intrusion alarms, digital signage, vending machines, multi-function printers, display panels for meeting rooms, PCs



Standard and slight motion detection type



|  |                          |             |             |              |             |
|--|--------------------------|-------------|-------------|--------------|-------------|
| ► Current consumption in standby mode<br>(1µA type: in sleep mode) | 1µA                      | 2µA         | 6µA         | 170µA        |             |
|  | Digital (open collector) |             |             |              |             |
| ► Output   | Digital (open collector) |             |             |              |             |
|  | White                    | EKMB1193111 | EKMB1293111 | EKMB1393111K | EKMC1693111 |
|  | Black                    | EKMB1193112 | EKMB1293112 | EKMB1393112K | EKMC1693112 |
| ► Lens color   | Pearl white              | EKMB1193113 | EKMB1293113 | EKMB1393113K | EKMC1693113 |

| Dimension (mm)                                       | Detection zone  | Detection characteristics   |                    |            |  |               |               |           |                 |           |                |               |    |                 |    |                       |               |   |                 |  |
|--|-----------------|---|--------------------|------------|--|---------------|---------------|-----------|-----------------|-----------|----------------|---------------|----|-----------------|----|-----------------------|---------------|---|-----------------|--|
| <p><b>CAD data by request</b></p> <p>SECTION A-A</p> |                 | <table border="1"> <tr> <td>Detection distance</td> <td colspan="2">Max. 2.2m*</td> </tr> <tr> <td rowspan="2">Field of view</td> <td>Slight motion</td> <td>44° x 44°</td> </tr> <tr> <td>Standard motion</td> <td>90° x 90°</td> </tr> <tr> <td rowspan="2">Detection zone</td> <td>Slight motion</td> <td>36</td> </tr> <tr> <td>Standard motion</td> <td>48</td> </tr> <tr> <td rowspan="2">Detection condition ▲</td> <td>Slight motion</td> <td> <ul style="list-style-type: none"> <li>The temperature difference between the target and the surroundings must be higher than 4°C.</li> <li>Movement speed: 0.5m/s</li> <li>Target concept: human head with an approx. size of 200x200mm</li> <li>Target moving direction: crossing 1 detection zone</li> </ul> </td> </tr> <tr> <td>Standard motion</td> <td> <ul style="list-style-type: none"> <li>The temperature difference between the target and the surroundings must be higher than 4°C.</li> <li>Movement speed: 1.0m/s</li> <li>Target concept: human body with an approx. size of 400x200mm</li> <li>Target moving direction: crossing 2 detection zones</li> </ul> </td> </tr> </table> | Detection distance | Max. 2.2m* |  | Field of view | Slight motion | 44° x 44° | Standard motion | 90° x 90° | Detection zone | Slight motion | 36 | Standard motion | 48 | Detection condition ▲ | Slight motion | <ul style="list-style-type: none"> <li>The temperature difference between the target and the surroundings must be higher than 4°C.</li> <li>Movement speed: 0.5m/s</li> <li>Target concept: human head with an approx. size of 200x200mm</li> <li>Target moving direction: crossing 1 detection zone</li> </ul> | Standard motion | <ul style="list-style-type: none"> <li>The temperature difference between the target and the surroundings must be higher than 4°C.</li> <li>Movement speed: 1.0m/s</li> <li>Target concept: human body with an approx. size of 400x200mm</li> <li>Target moving direction: crossing 2 detection zones</li> </ul> |
| Detection distance                                   | Max. 2.2m*      |   |                    |            |  |               |               |           |                 |           |                |               |    |                 |    |                       |               |   |                 |  |
| Field of view  | Slight motion   | 44° x 44°   |                    |            |  |               |               |           |                 |           |                |               |    |                 |    |                       |               |   |                 |  |
|  | Standard motion | 90° x 90°   |                    |            |  |               |               |           |                 |           |                |               |    |                 |    |                       |               |   |                 |  |
| Detection zone                                       | Slight motion   | 36  |                    |            |  |               |               |           |                 |           |                |               |    |                 |    |                       |               |   |                 |  |
|  | Standard motion | 48  |                    |            |  |               |               |           |                 |           |                |               |    |                 |    |                       |               |   |                 |  |
| Detection condition ▲                                | Slight motion   | <ul style="list-style-type: none"> <li>The temperature difference between the target and the surroundings must be higher than 4°C.</li> <li>Movement speed: 0.5m/s</li> <li>Target concept: human head with an approx. size of 200x200mm</li> <li>Target moving direction: crossing 1 detection zone</li> </ul>   |                    |            |  |               |               |           |                 |           |                |               |    |                 |    |                       |               |   |                 |  |
|  | Standard motion | <ul style="list-style-type: none"> <li>The temperature difference between the target and the surroundings must be higher than 4°C.</li> <li>Movement speed: 1.0m/s</li> <li>Target concept: human body with an approx. size of 400x200mm</li> <li>Target moving direction: crossing 2 detection zones</li> </ul>  |                    |            |  |               |               |           |                 |           |                |               |    |                 |    |                       |               |   |                 |  |

\* Under specified detection conditions  
 ▲ Please refer to "Cautions for use" (page 18) and "Basic principles" (page 18, point 5), for more details

Please contact your local sales representative for detailed specifications.

# Mouser Electronics

Authorized Distributor

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## Panasonic:

[EKMC1601111](#) [EKMC1601112](#) [EKMC1601113](#) [EKMC1603111](#) [EKMC1603112](#) [EKMC1603113](#) [EKMC1604112](#)  
[EKMC1604113](#) [EKMC1604111](#) [EKMC1672112](#) [EKMC1672111](#)

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «**JONHON**», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «**FORSTAR**».



## JONHON

«**JONHON**» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«**FORSTAR**» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: [ocean@oceanchips.ru](mailto:ocean@oceanchips.ru)

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А