

Specifications					Ver.1.	
Product Name	PIR MO	TION SENSOR "Paf	PIRs" M	odel No.	EKMB119111	Page: 2
4-1 De	acteristics etection Per onditions fo	r measuring: Amb	ient tempe	erature=2	25°C(77°F) Operating volt	age=3VDC
		Temperature difference	Valu	e	Conditions concerning the	e target
	Note1) Detection	8°C(14.4° F)	Max 3.	5m	1.Movement speed: 0.5m/s 2.Target concept is human hea	od.
	Jerection				2. raiger concept is numan nea	u

Note1:Depending on the temperature difference between the target and the surroundings, detection range will change.

(Object size: Around 200 × 200mm)

Max 2.5m

		Value	Notes
	Horizontal	97 $^{\circ}$ (\pm 48.5 $^{\circ}$)	
Detection Area	Vertical	97 $^{\circ}$ (\pm 48.5 $^{\circ}$)	Refer to the section 4-5.
	Detection zones	112	

4-2 Maximum Rated Values

Range

4°C(7.2° F)

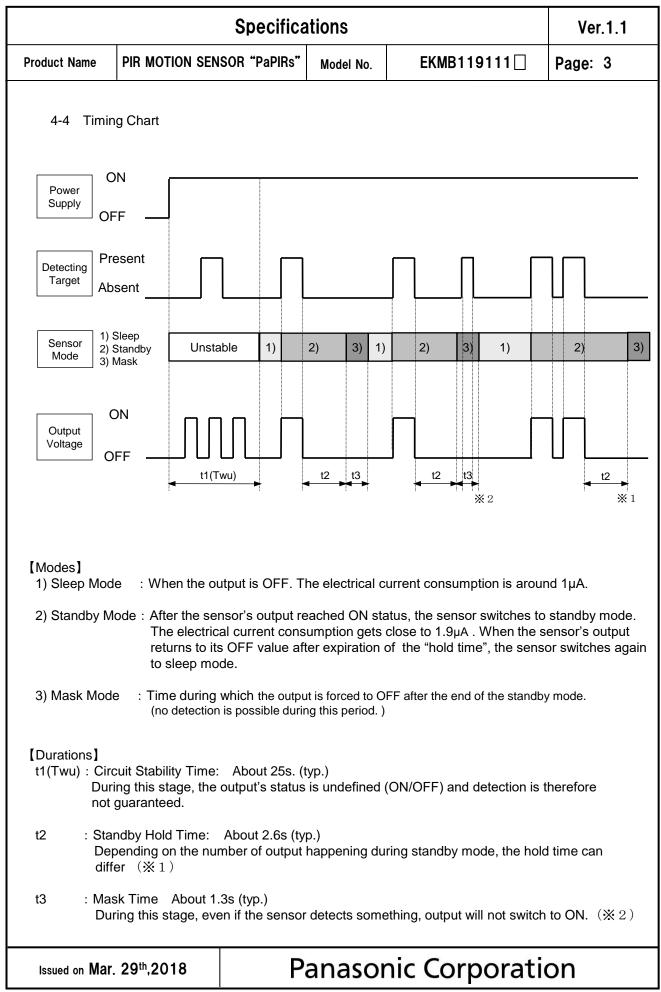
	Value	Unit
Power Supply Voltage	-0.3~4.5	VDC
Usable Ambient Temperature	-20∼+60°C (-4∼+140° F) Do not use in a freezing or condensation environment	
Storage Temperature	-20∼+70°C (-4∼+158° F)	

4-3 Electrical Characteristics

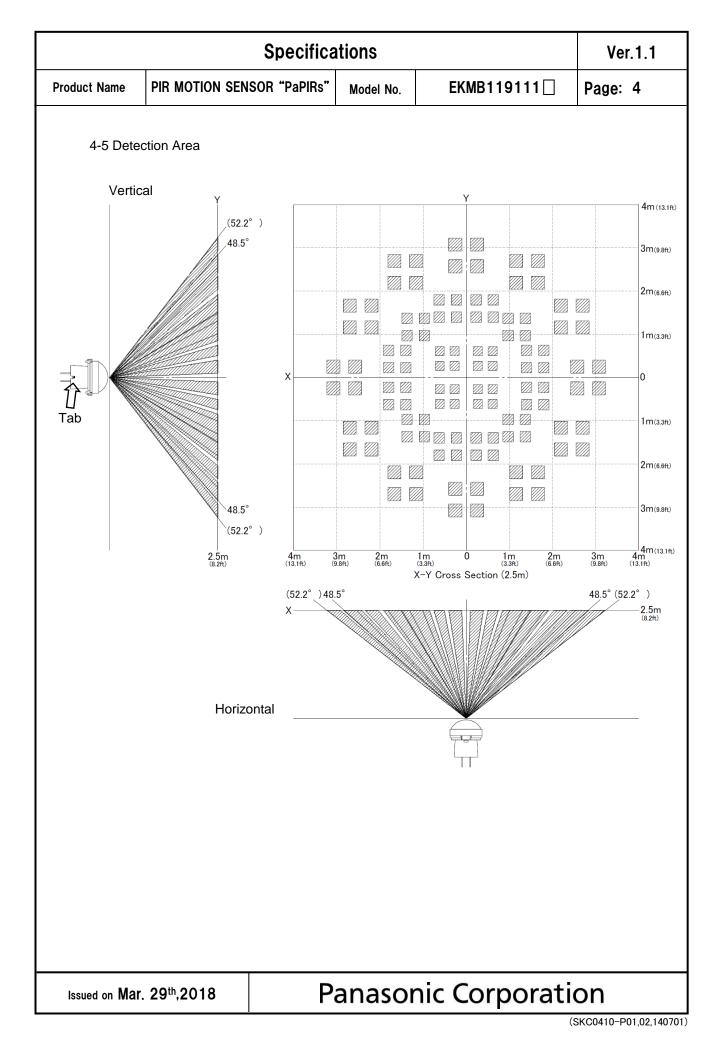
Conditions for Measuring: Ambient temperature=25°C(77°F)

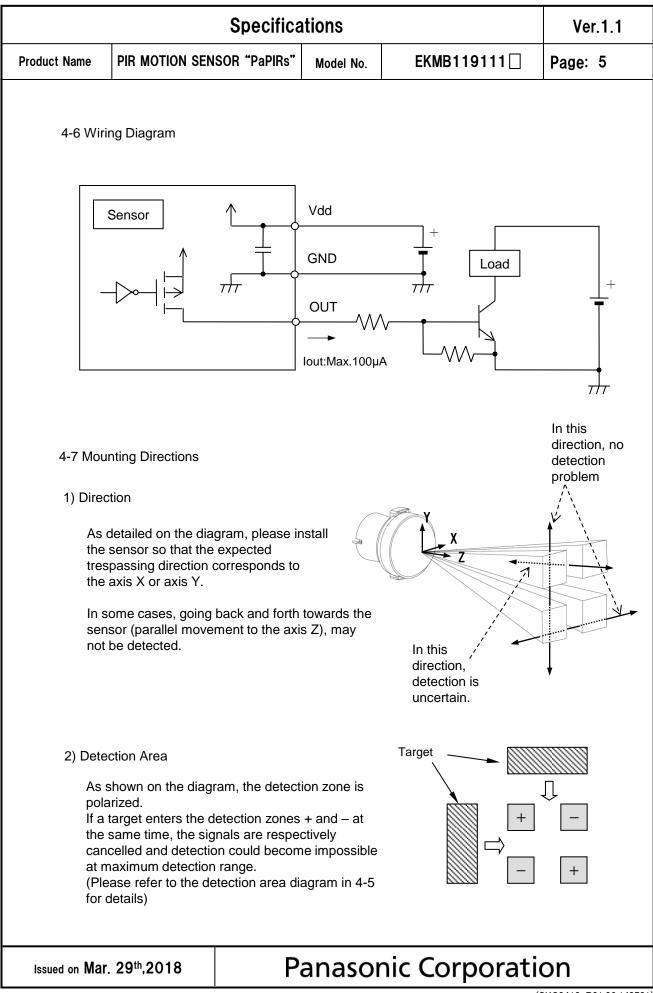
Vdd					
	2.3	—	4.0	VDC	_
lw	_	1.0	1.6	μA	lout=0
lw	—	1.9	3.0	μA	lout=0
lout	_	_	100	μA	Vout≧Vdd−0.
Vout	Vdd-0.5	Ι	Ι	VDC	_
Twu	_	25	210	S	_
	lw lout Vout	lw – lout – Vout Vdd–0.5	Iw - 1.9 Iout - - Vout Vdd-0.5 -	Iw - 1.9 3.0 Iout - - 100 Vout Vdd-0.5 - -	Iw - 1.9 3.0 μA Iout - - 100 μA Vout Vdd-0.5 - - VDC

Issued on Mar. 29th,2018



⁽SKC0410-P01,02,140701)





⁽SKC0410-P01,02,140701)

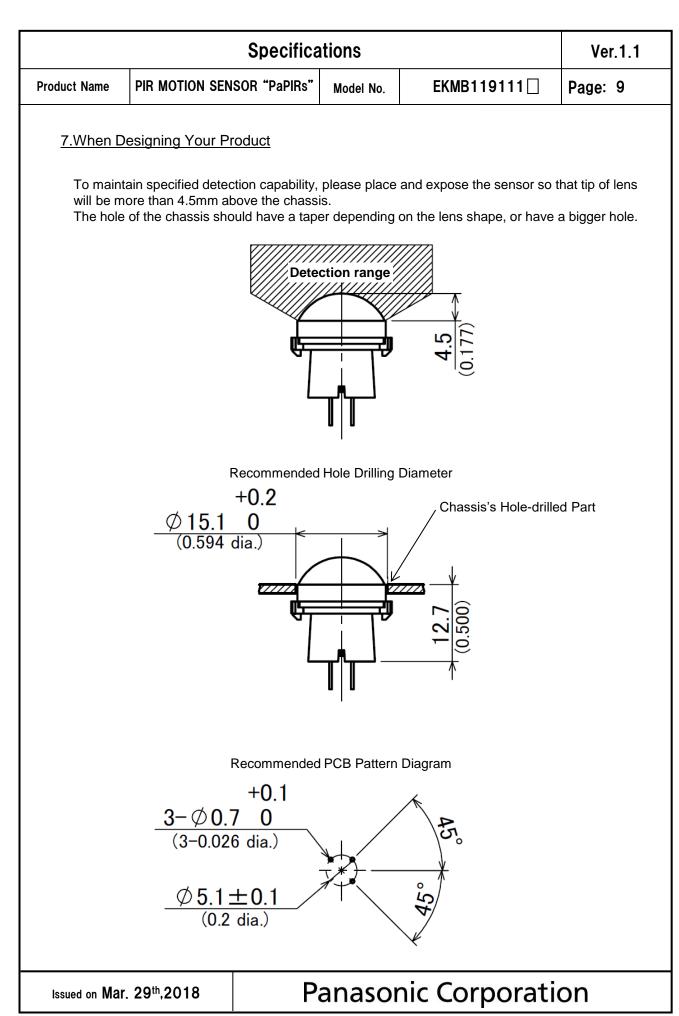
Specifications				
Product Name	PIR MOTION SENSOR "PaPIRs"	Model No.	EKMB119111	Page: 6
	•			

Head the following precautions to prevent injury or accidents.

- Do not use these sensors under any circumstance in which the range of their ratings, environment conditions or other specifications are exceeded. Using the sensors in any way which causes their specifications to be exceeded may generate abnormally high levels of heat, emit smoke, etc., resulting in damage to the circuitry and possibly causing an accident.
- 2) Our company is committed to making products of the highest quality and reliability. Nevertheless, all electrical components are subject to natural deterioration, and durability of a product will depend on the operating environment and conditions of use. Continued use after such deterioration could lead to overheating, smoke or fire. Always use the product in conjunction with proper fire-prevention, safety and maintenance measures to avoid accidents, reduction in product life expectancy or break-down.
- Before connecting, check the pin layout by referring to the connector wiring diagram, specifications diagram, etc., to verify that the connector is connected properly. Mistakes made in connection may cause unforeseen problems in operation, generate abnormally high levels of heat, emit smoke, etc., resulting in damage to the circuitry.
- 4) Do not use any motion sensor which has been disassembled or remodeled.
- 5) Failure modes of sensors include short-circuiting, open-circuiting and temperature rises. If this sensor is to be used in equipment where safety is a prime consideration, examine the possible effects of these failures on the equipment concerned, and ensure safety by providing protection circuits or protection devices. Example :
 - Safety equipments and devices
- Traffic signals
- Burglar and disaster prevention

	Specifica	tions		Ver.1.1
Product Name	PIR MOTION SENSOR "PaPIRs"	Model No.	EKMB119111	Page: 7
6.Operating	Precautions			
6-1 Basic	Principles			
However heat sou	is a pyroelectric infrared sensor th r, it may not detect in the following irce. Besides, it could also detect t by and reliability of the system may) cases: lack o the presence	of movement, no temperatur of heat sources other than a	a human body.
1) Dete	cting heat sources other than the h	human body,	such as:	
b) Whe beam c) Sude	Il animals entering the detection a en a heat source for example sun l n hit the sensor regardless inside o den temperature change inside or HVAC, or vapor from the humidifie	light, incandes or outside the around the de	detection area.	
2) Diffic	ulty in sensing the heat source			
a co b) Non-	es, acrylic or similar materials stan rrect transmission of infrared rays, movement or quick movements o use refer to 4-1 for details about m	, f the heat sou	irce inside the detection are	-
3) Expa	nsion of the detection area			
	e of considerable difference in the on area may be wider apart from t			y temperature,
4) Malfe	unction / Detection error			
output	essary detection signal might be o due to the nature of pyro-electric e on strictly, please implement the c	element. Whe	n the application does not a	ccept such
6-2 Optin	nal Operating Environment Condit	ions		
2) Hum 3) Press 4) Over 5) This mois	perature : Please refer to the ma idity Degree :15~85% Rh (Avoid sure : 86~106kPa heating, oscillations, shocks can d sensor is not waterproof or dustpr ture, condensation, frost, containin	d condensatio cause the sen roof. Avoid use ng salt air or c	on or freezing of this product sor to malfunction. e in environments subject to	
6) Avoid	d use in environments with corrosi	ve gases.		

			Specific	ations		Ver.1.1
Product Na	ime	PIR MOTION SEN	SOR "PaPIRs"	Model No.	EKMB119111	Page: 8
6-3	Handli	ng Cautions		·		
		t solder with a sole ensor should be h	-		2°F), or for more than 3 se	conds.
2)	To ma	aintain stability of t	ne product, alv	ways mount or	a printed circuit board.	
		t use liquids to wa mance.	sh the sensor.	. If washing flu	id gets through the lens, it c	an reduce
4)	Do no	t use a sensor afte	er it fell on the	ground.		
		ensor may be dan ns and be very cai	• •		c electricity. Avoid direct hai duct.	nd contact with
,		wiring the produc disturbances.	t, always use s	shielded cable	s and minimize the wiring le	ngth to prevent
7)	is hig	hly recommended e resistance : be			age surge. Use of surge abs	
	Noise	resistance : ±2	OV or less (So	quare waves w	noise can cause operating /ith a width of 50ns or 1µs) capacitor on the sensor's pe	
,	•	ting errors can be broadcasting offic		ise from static	electricity, lightning, cell ph	one, amateur
10)	Detec	tion performance	can be reduce	d by dirt on th	e lens, please be careful.	
11)				• • •	lease avoid adding weight c r reduced performance.	or impacts that
12)	not gu humia	uarantee durability dity levels will acco anned usage and	or environme elerate the det	ntal resistance erioration of el	uggested to prolong usage. e. Generally, high temperatu ectrical components. Pleas e expected reliability and le	ires or high e consider both
		ot attempt to clean se can cause sha			ent or solvent, such as benz	zene or alcohol,
	enviro	nments containing	corrosive gas	s, dust, salty a	ronments. As well, avoid st ir etc. It could cause perforn llic connectors could be dan	nance
15)	Te Hu	ge conditions emperature: umidity: se use within 1 yea	30 ~ 75%	+41 ∼ +104° ts delivery.	F)	
			-	-		
Issued or	n Mar	29 th ,2018	P	anaso	nic Corporati	on



(SKC0410-P01,02,140701)

Specifications				Ver.1.1
Product Name	PIR MOTION SENSOR "PaPIRs"	Model No.	EKMB119111	Page: 10

8.Special Notice

As improvements are continually being made, the specifications or design of this product are subject to change without notice.

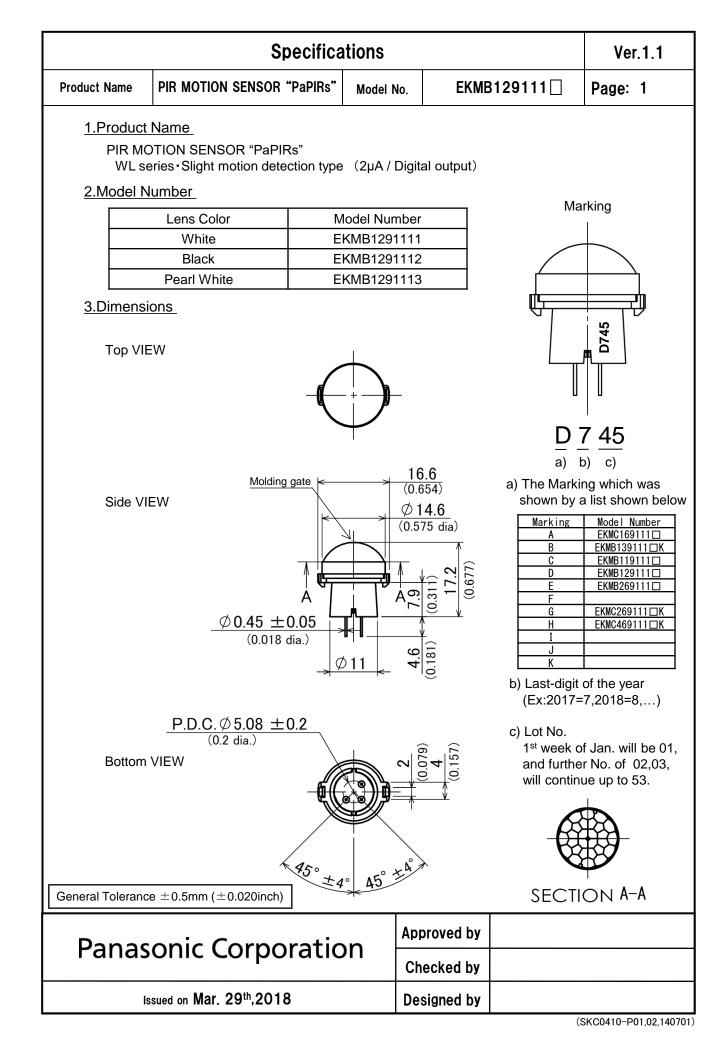
Please strictly follow the "Safety Precautions" and "Operating Precautions" on the specifications sheet. Normal functioning cannot be expected if used in environments or conditions other than those specified above.

We are deeply committed to providing the highest quality control for this product. Nevertheless:

- For issues not addressed above, we invite you to share your suggestions, or details about your company's usage conditions, installation, specifications, needs of end users, and applications for this sensor.
- 2) To reduce the risk of harm caused by product failure to human life or assets, this product should always be used in conjunction with other safety measures, such as protective circuitry, double layered circuit boards, etc., and used within the guaranteed performance, efficiency or special characteristics values stated in the specification sheet.
- 3) This product is warranted for a period of one year, from date of delivery, applicable only if the product is used in accordance with the precautions mentioned above and the specifications sheet. We will replace or repair at the delivery location any malfunctioning or defective part or entire product if such defect or malfunction is caused by us.

However, the above warranty shall be void in the following circumstances:

- a) Damage caused to something else than the product itself.
- b) Damage or loss resulting during transportation, storage or handling after the date of supply.
- c) Phenomenon unforeseeable in the state of the technology as of the supply date.
- d) Damage caused by natural or unnatural events such as fire, earthquake, flood, or conflicts beyond our control.



	Ver.1.1			
Product Name	PIR MOTION SENSOR "PaPIRs"	Model No.	EKMB129111	Page: 2

4.Characteristics

4-1 Detection Performance

Conditions for measuring: Ambient temperature=25°C(77° F) Operating voltage=3VDC

	Temperature difference	Value	Conditions concerning the target
(Note1) Detection	8°C(14.4° F)	Max 3.5m	1.Movement speed: 0.5m/s 2.Target concept is human head
Range	4°C(7.2°F)	Max 2.5m	(Object size:Around 200 × 200mm)

Note1:Depending on the temperature difference between the target and the surroundings, detection range will change.

		Value	Notes
	Horizontal	97 $^{\circ}$ (\pm 48.5 $^{\circ}$)	
Detection Area	Vertical	97 $^{\circ}$ ($\pm48.5^{\circ}$)	Refer to the section 4-5.
	Detection zones	112	

4-2 Maximum Rated Values

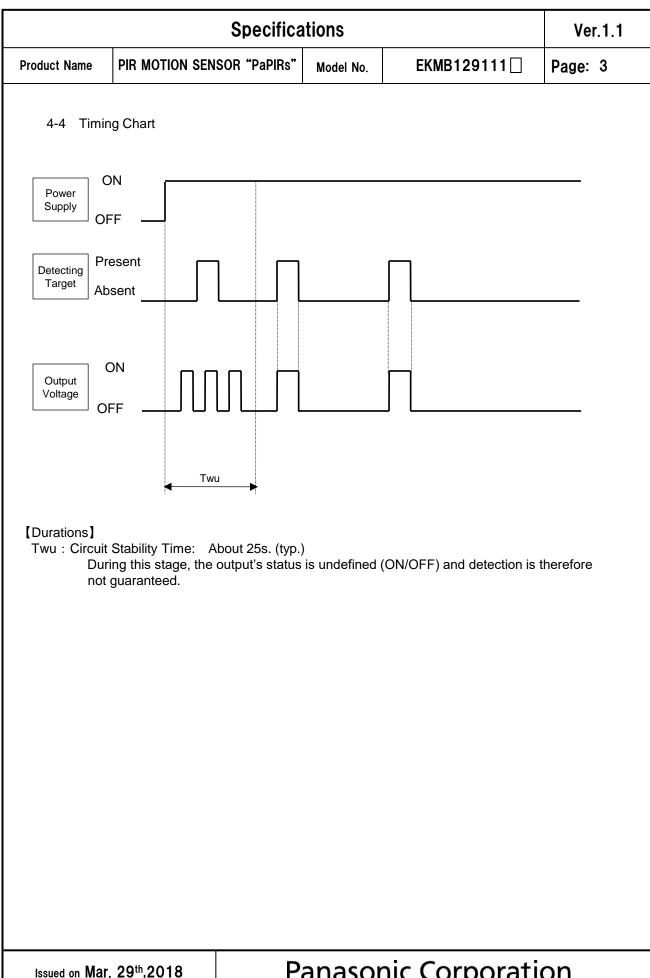
	Value	Unit
Power Supply Voltage	-0.3~4.5	VDC
Usable Ambient Temperature	-20∼+60°C (-4∼+140° F) Do not use in a freezing or condensation environment	
Storage Temperature	-20∼+70°C (-4∼+158° F)	

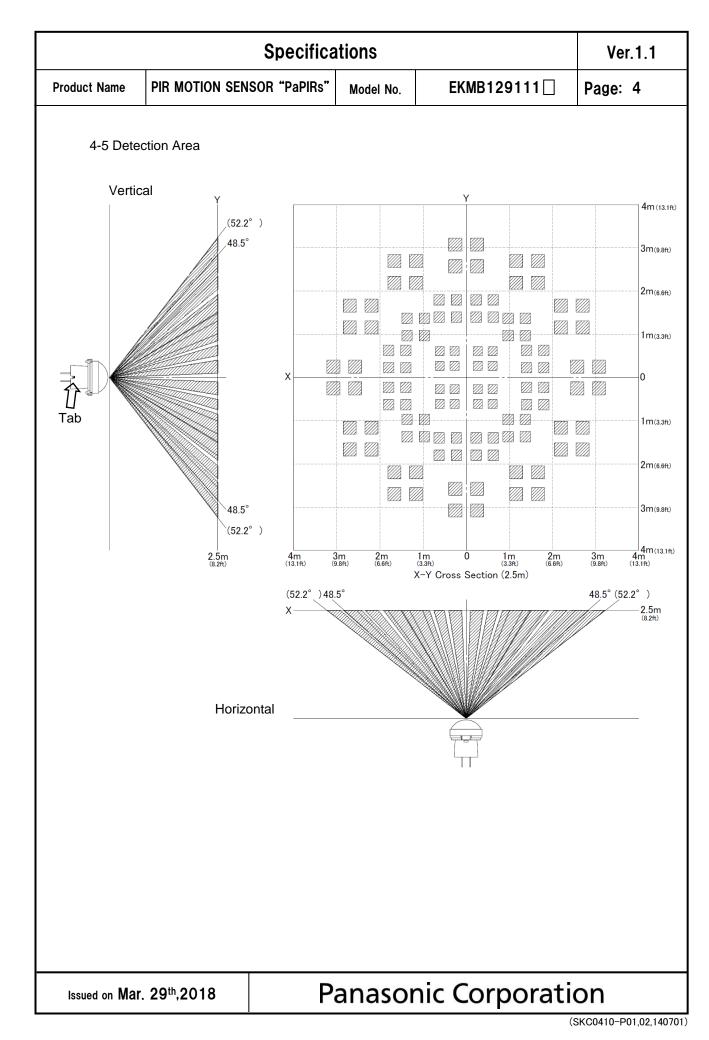
4-3 Electrical Characteristics

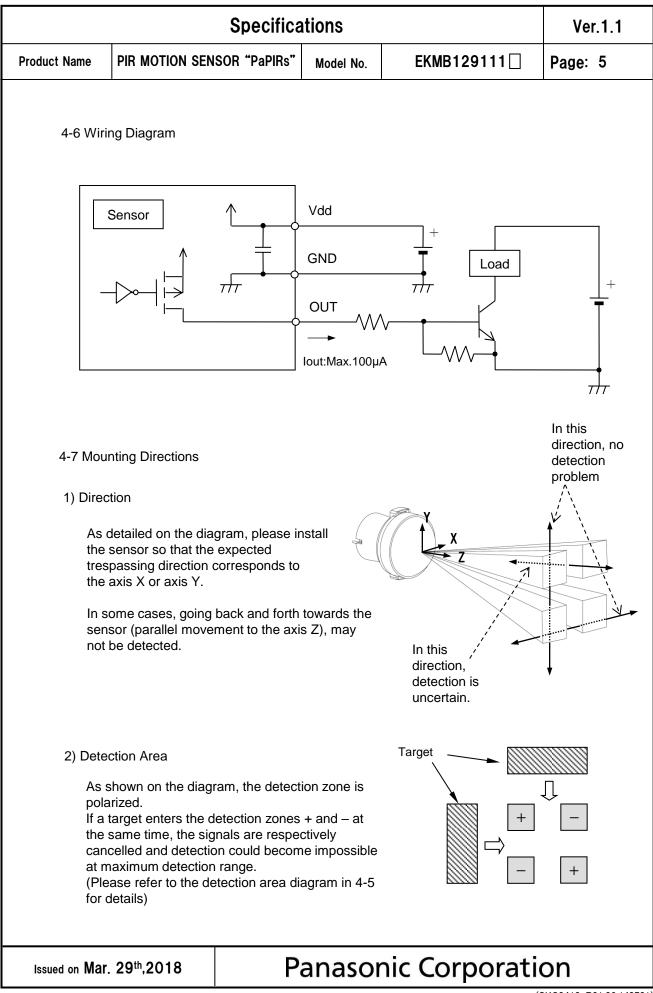
Conditions for Measuring: Ambient temperature=25°C(77° F)

	Symbol	Min	Avg.	Max	Unit	Special mentior
Operating Voltage	Vdd	2.3	—	4.0	VDC	_
Electrical Current Consumption	lw	_	1.9	3.0	μA	lout=0
Output Current	lout	—	_	100	μA	Vout≧Vdd−0.
Output Voltage	Vout	Vdd-0.5			VDC	_
Circuit Stability Time (when voltage is applied)	Twu	_	25	210	S	_

Issued on Mar. 29th,2018







⁽SKC0410-P01,02,140701)

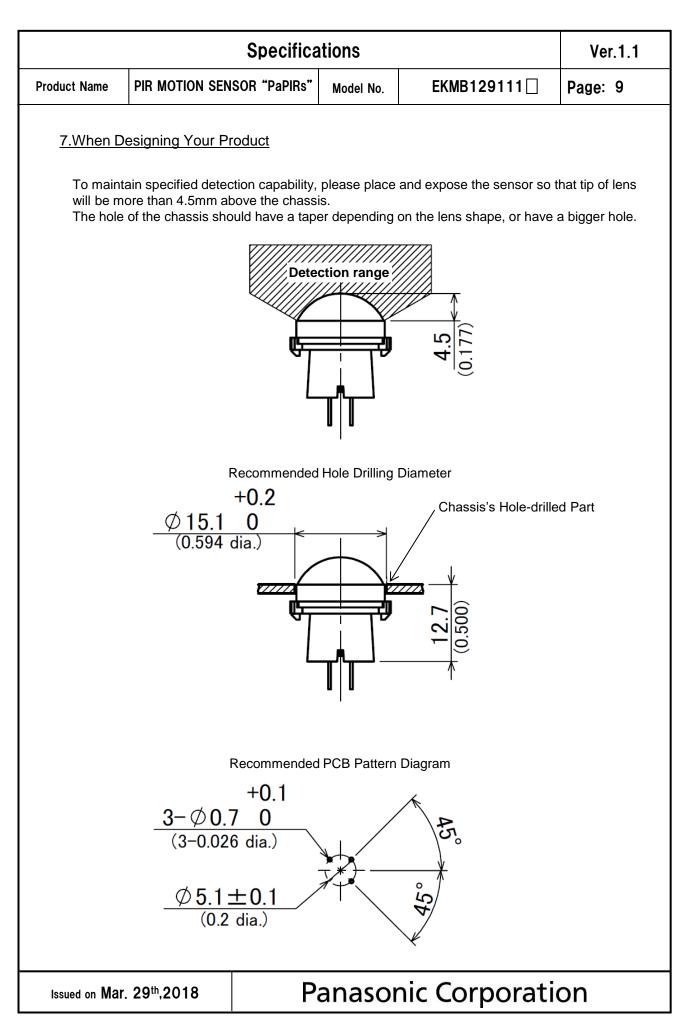
Specifications				
Product Name	PIR MOTION SENSOR "PaPIRs"	Model No.	EKMB129111	Page: 6
	•			

Head the following precautions to prevent injury or accidents.

- Do not use these sensors under any circumstance in which the range of their ratings, environment conditions or other specifications are exceeded. Using the sensors in any way which causes their specifications to be exceeded may generate abnormally high levels of heat, emit smoke, etc., resulting in damage to the circuitry and possibly causing an accident.
- 2) Our company is committed to making products of the highest quality and reliability. Nevertheless, all electrical components are subject to natural deterioration, and durability of a product will depend on the operating environment and conditions of use. Continued use after such deterioration could lead to overheating, smoke or fire. Always use the product in conjunction with proper fire-prevention, safety and maintenance measures to avoid accidents, reduction in product life expectancy or break-down.
- Before connecting, check the pin layout by referring to the connector wiring diagram, specifications diagram, etc., to verify that the connector is connected properly. Mistakes made in connection may cause unforeseen problems in operation, generate abnormally high levels of heat, emit smoke, etc., resulting in damage to the circuitry.
- 4) Do not use any motion sensor which has been disassembled or remodeled.
- 5) Failure modes of sensors include short-circuiting, open-circuiting and temperature rises. If this sensor is to be used in equipment where safety is a prime consideration, examine the possible effects of these failures on the equipment concerned, and ensure safety by providing protection circuits or protection devices. Example :
 - Safety equipments and devices
- Traffic signals
- Burglar and disaster prevention

	Specifica	tions		Ver.1.1
Product Name	PIR MOTION SENSOR "PaPIRs"	Model No.	EKMB129111	Page: 7
6.Operating	Precautions			
6-1 Basic	Principles			
However heat sou	s a pyroelectric infrared sensor th , it may not detect in the following rce. Besides, it could also detect t y and reliability of the system may	cases: lack o the presence	of movement, no temperatur of heat sources other than a	i human body.
1) Detec	cting heat sources other than the h	human body,	such as:	
b) Whe beam c) Sudo	Il animals entering the detection a en a heat source for example sun I n hit the sensor regardless inside o den temperature change inside or HVAC, or vapor from the humidifie	light, incandes or outside the around the de	detection area.	
2) Diffic	ulty in sensing the heat source			
 a) Glass, acrylic or similar materials standing between the target and the sensor may not allow a correct transmission of infrared rays, b) Non-movement or quick movements of the heat source inside the detection area. (Please refer to 4-1 for details about movement speed.) 				
3) Expa	nsion of the detection area			
	of considerable difference in the on area may be wider apart from t	•		y temperature,
4) Malfu	unction / Detection error			
output	essary detection signal might be o due to the nature of pyro-electric e on strictly, please implement the c	element. Whe	n the application does not a	ccept such
6-2 Optim	nal Operating Environment Condit	ions		
2) Humi 3) Press 4) Overl	perature : Please refer to the ma idity Degree :15~85% Rh (Avoid sure : 86~106kPa heating, oscillations, shocks can d sensor is not waterproof or dustpr	d condensatio	on or freezing of this product sor to malfunction.	
	ture, condensation, frost, containir I use in environments with corrosi	-	lust.	
-,				

		Specifica	ations		Ver.1.1
Product Name	PIR MOTION SEM	SOR "PaPIRs"	Model No.	EKMB129111	Page: 8
6-3 Har	ndling Cautions				
,	not solder with a so s sensor should be l	-	ove 350°C(662	2°F), or for more than 3 se	conds.
2) To	maintain stability of	he product, alv	vays mount or	a printed circuit board.	
,	not use liquids to wa formance.	ish the sensor.	If washing flu	id gets through the lens, it c	an reduce
4) Do	not use a sensor af	er it fell on the	ground.		
	e sensor may be dar pins and be very ca	• •		c electricity. Avoid direct ha	nd contact with
,	en wiring the produc se disturbances.	t, always use s	hielded cable	s and minimize the wiring le	ength to prevent
is l	nighly recommended rge resistance : b	l.		age surge. Use of surge abs e value indicated in the max	
Noi	se resistance : ±	20V or less (Sc	luare waves w	noise can cause operating /ith a width of 50ns or 1µs) capacitor on the sensor's p	
<i>,</i> .	erating errors can be io, broadcasting offi	•	se from static	electricity, lightning, cell ph	one, amateur
10) De	tection performance	can be reduce	d by dirt on th	e lens, please be careful.	
		•	• • •	lease avoid adding weight or reduced performance.	or impacts that
no hu the	t guarantee durabilit midity levels will acc	/ or environme elerate the dete	ntal resistance erioration of el	uggested to prolong usage. e. Generally, high temperatu ectrical components. Pleas he expected reliability and le	ures or high e consider both
	not attempt to clear these can cause sha			ent or solvent, such as ben:	zene or alcohol,
env	rironments containin	g corrosive gas	s, dust, salty a	ironments. As well, avoid st ir etc. It could cause perforr llic connectors could be dar	nance
	rage conditions Temperature: Humidity: ease use within 1 ye	+5 ~ +40°C (- 30 ~ 75% ar after product		F)	
	y -	•	2		
	ar. 29 th ,2018	P	anaso	nic Corporati	on



	Ver.1.1			
Product Name	PIR MOTION SENSOR "PaPIRs"	Model No.	EKMB129111	Page: 10

8.Special Notice

As improvements are continually being made, the specifications or design of this product are subject to change without notice.

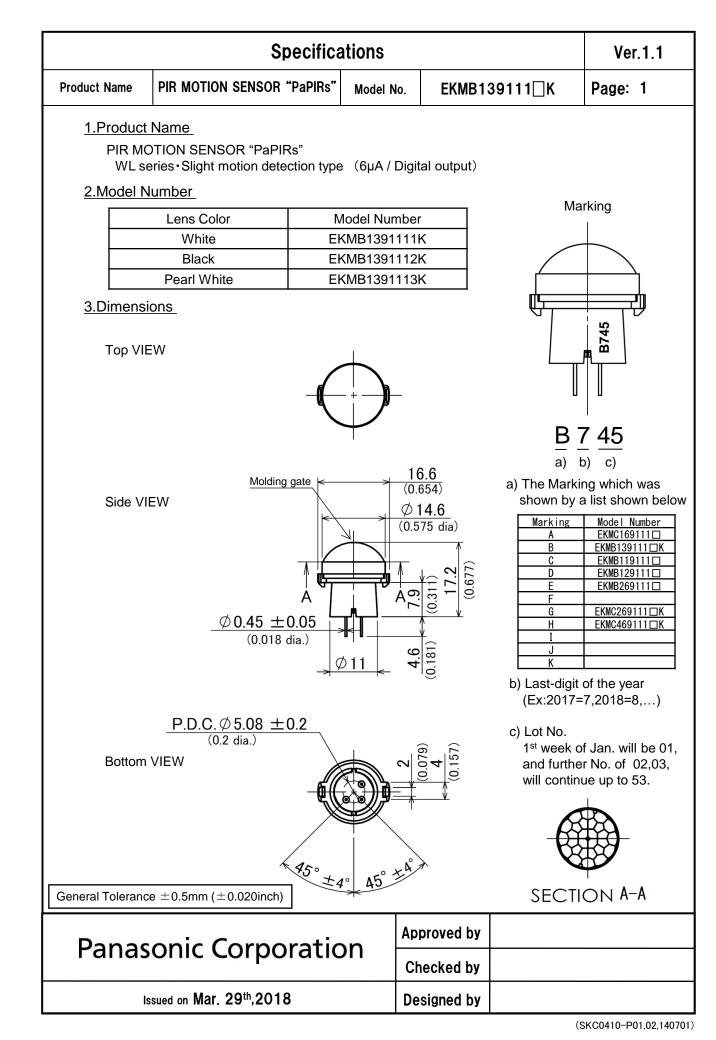
Please strictly follow the "Safety Precautions" and "Operating Precautions" on the specifications sheet. Normal functioning cannot be expected if used in environments or conditions other than those specified above.

We are deeply committed to providing the highest quality control for this product. Nevertheless:

- For issues not addressed above, we invite you to share your suggestions, or details about your company's usage conditions, installation, specifications, needs of end users, and applications for this sensor.
- 2) To reduce the risk of harm caused by product failure to human life or assets, this product should always be used in conjunction with other safety measures, such as protective circuitry, double layered circuit boards, etc., and used within the guaranteed performance, efficiency or special characteristics values stated in the specification sheet.
- 3) This product is warranted for a period of one year, from date of delivery, applicable only if the product is used in accordance with the precautions mentioned above and the specifications sheet. We will replace or repair at the delivery location any malfunctioning or defective part or entire product if such defect or malfunction is caused by us.

However, the above warranty shall be void in the following circumstances:

- a) Damage caused to something else than the product itself.
- b) Damage or loss resulting during transportation, storage or handling after the date of supply.
- c) Phenomenon unforeseeable in the state of the technology as of the supply date.
- d) Damage caused by natural or unnatural events such as fire, earthquake, flood, or conflicts beyond our control.



Specifications					
Product Name	PIR MOTION SENSOR "PaPIRs"	Model No.	EKMB139111□K	Page: 2	
4.Characteristics					

4-1 Detection Performance

Conditions for measuring: Ambient temperature=25°C(77° F) Operating voltage=3VDC

	Temperature difference	Value	Conditions concerning the target
(Note1) Detection	8°C(14.4° F)	Max 3.5m	1.Movement speed: 0.5m/s 2.Target concept is human head
Range	4°C(7.2°F)	Max 2.5m	(Object size:Around 200 × 200mm)

Note1:Depending on the temperature difference between the target and the surroundings, detection range will change.

		Value	Notes
	Horizontal	97 $^{\circ}$ ($\pm48.5^{\circ}$)	
Detection Area	Vertical	97 $^{\circ}$ ($\pm48.5^{\circ}$)	Refer to the section 4-5.
	Detection zones	112	

4-2 Maximum Rated Values

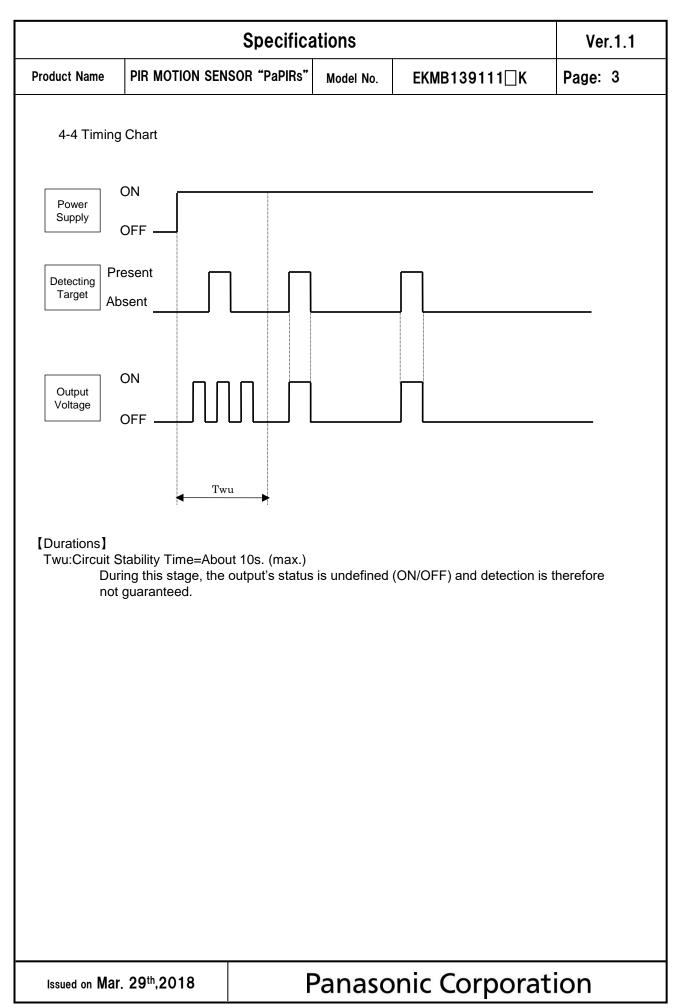
	Value	Unit
Power Supply Voltage	-0.3~4.5	VDC
Usable Ambient Temperature	-20∼+60°C (-4∼+140° F) Do not use in a freezing or condensation environment	
Storage Temperature	-20∼+70°C (-4∼+158° F)	

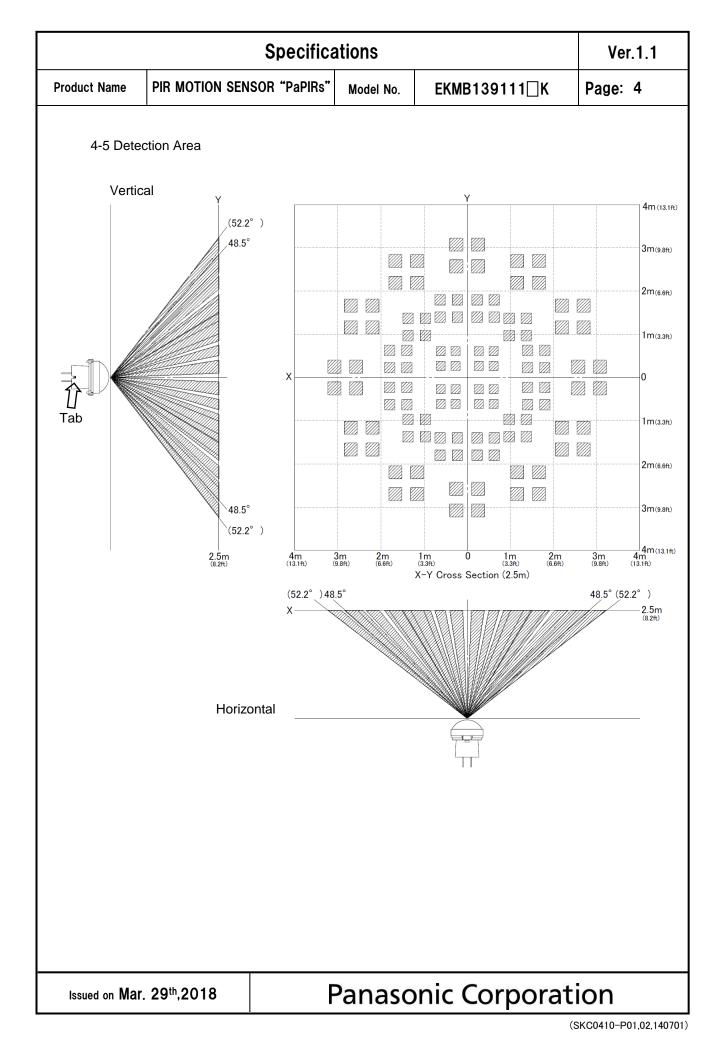
4-3 Electrical Characteristics

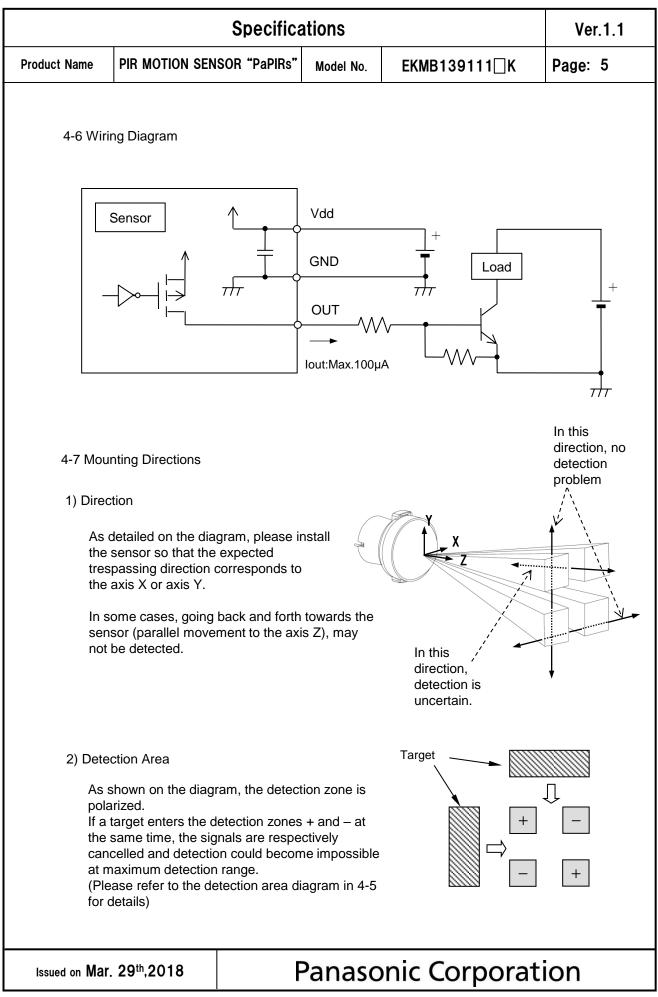
Conditions for Measuring: Ambient temperature=25°C(77° F)

	Symbol	Min	Avg.	Max	Unit	Special mentior
Operating Voltage	Vdd	2.3	_	4.0	VDC	—
Electrical Current Consumption	Iw	_	6	12	μA	lout=0
Output Current	lout	_	_	100	μA	Vout≧Vdd−0.
Output Voltage	Vout	Vdd-0.5			VDC	—
Circuit Stability Time (when voltage is applied)	Twu	_	_	10	S	This is when temperature of the sensor is stable.

Issued on Mar. 29th,2018







⁽SKC0410-P01,02,140701)

Specifications				
Product Name	PIR MOTION SENSOR "PaPIRs"	Model No.	EKMB139111□K	Page: 6
	•			•

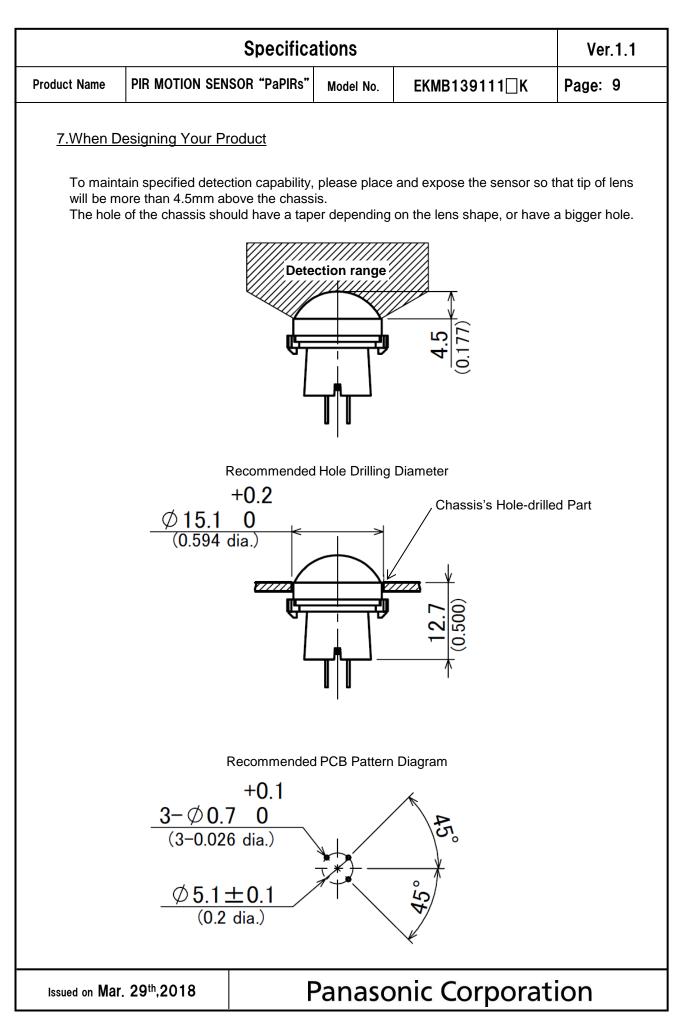
Head the following precautions to prevent injury or accidents.

- Do not use these sensors under any circumstance in which the range of their ratings, environment conditions or other specifications are exceeded. Using the sensors in any way which causes their specifications to be exceeded may generate abnormally high levels of heat, emit smoke, etc., resulting in damage to the circuitry and possibly causing an accident.
- 2) Our company is committed to making products of the highest quality and reliability. Nevertheless, all electrical components are subject to natural deterioration, and durability of a product will depend on the operating environment and conditions of use. Continued use after such deterioration could lead to overheating, smoke or fire. Always use the product in conjunction with proper fire-prevention, safety and maintenance measures to avoid accidents, reduction in product life expectancy or break-down.
- Before connecting, check the pin layout by referring to the connector wiring diagram, specifications diagram, etc., to verify that the connector is connected properly. Mistakes made in connection may cause unforeseen problems in operation, generate abnormally high levels of heat, emit smoke, etc., resulting in damage to the circuitry.
- 4) Do not use any motion sensor which has been disassembled or remodeled.
- 5) Failure modes of sensors include short-circuiting, open-circuiting and temperature rises. If this sensor is to be used in equipment where safety is a prime consideration, examine the possible effects of these failures on the equipment concerned, and ensure safety by providing protection circuits or protection devices. Example :
 - Safety equipments and devices
- Traffic signals
- Burglar and disaster prevention

	~					
	Specifica	ations		Ver.1.1		
Product Name	PIR MOTION SENSOR "PaPIRs"	Model No.	EKMB139111□K	Page: 7		
6.Operatin	g Precautions					
6-1 Basic	c Principles					
Howeve heat so	s is a pyroelectric infrared sensor the er, it may not detect in the following purce. Besides, it could also detect acy and reliability of the system may	g cases: lack of the presence	of movement, no temperatur of heat sources other than a	a human body.		
1) Det	ecting heat sources other than the	human body,	such as:			
b) Wh bea c) Su	all animals entering the detection a nen a heat source for example sun m hit the sensor regardless inside dden temperature change inside or n HVAC, or vapor from the humidifi	light, incande or outside the around the d	e detection area.			
2) Diffi	culty in sensing the heat source					
a c b) Nor	 a) Glass, acrylic or similar materials standing between the target and the sensor may not allow a correct transmission of infrared rays, b) Non-movement or quick movements of the heat source inside the detection area. (Please refer to 4-1 for details about movement speed.) 					
3) Exp	pansion of the detection area					
	se of considerable difference in the tion area may be wider apart from t			y temperature,		
4)Ma	lfunction / Detection error					
outpu	cessary detection signal might be o t due to the nature of pyro-electric tion strictly, please implement the o	element. Whe	en the application does not a	ccept such		
6-2 Opti	imal Operating Environment Condit	tions				
2) Hur 3) Pre	nperature : Please refer to the ma nidity Degree :15~85% Rh (Avoi ssure : 86~106kPa erheating, oscillations, shocks can d	d condensatio	on or freezing of this product)		
5) This moi	s sensor is not waterproof or dustpr isture, condensation, frost, containi	roof. Avoid us ng salt air or e	e in environments subject to	excessive		
6) Avo	id use in environments with corros	ive gases.				

Issued on Mar. 29th,2018

	Ver.1.1					
Product Name	PIR MOTION SEM	ISOR "PaPIRs"	Model No.	EKMB139111□K	Page: 8	
6-3 Har	dling Cautions					
,	not solder with a so s sensor should be l	•	ove 350°C (66	2°F), or for more than 3 se	conds.	
2) To	naintain stability of	the product, alv	ways mount o	n a printed circuit board.		
	not use liquids to wa ormance.	ash the sensor.	If washing flu	id gets through the lens, it c	an reduce	
4) Do	not use a sensor aft	er it fell on the	ground.			
,	sensor may be dar pins and be very ca	• •		c electricity. Avoid direct ha duct.	nd contact with	
	en wiring the producted ended and the disturbances.	ct, always use s	shielded cable	s and minimize the wiring le	ength to prevent	
is h	ighly recommended ge resistance : be	J.		age surge. Use of surge abs le value indicated in the ma:		
Noi	Please use a stabilized power supply. Power supply noise can cause operating errors. Noise resistance : $\pm 20V$ or less (Square waves with a width of 50ns or 1µs) To reduce the effect of power supply noise, install a capacitor on the sensor's power supply pin.					
<i>,</i> .	erating errors can be o, broadcasting offic	•	ise from static	electricity, lightning, cell ph	one, amateur	
10) De	Detection performance can be reduced by dirt on the lens, please be careful.					
,		•	,	Please avoid adding weight on reduced performance.	or impacts that	
not hui the	guarantee durabilit nidity levels will acc	y or environme elerate the det	ntal resistance erioration of e	uggested to prolong usage. e. Generally, high temperatu lectrical components. Pleas ne expected reliability and le	ures or high e consider both	
	not attempt to clear hese can cause sha			ent or solvent, such as ben	zene or alcohol,	
env	ronments containin	g corrosive gas	s, dust, salty a	ironments. As well, avoid st ir etc. It could cause perforr Ilic connectors could be dar	nance	
	rage conditions Temperature: Humidity: ase use within 1 ye	+5 ~ +40°C (- 30 ~ 75% ar after product		F)		
	ar. 29 th ,2018	-	-	nic Corporat	•	



(SKC0410-P01,02,140701)

	Ver.1.1			
Product Name	PIR MOTION SENSOR "PaPIRs"	Model No.	EKMB139111□K	Page: 10

8.Special Notice

As improvements are continually being made, the specifications or design of this product are subject to change without notice.

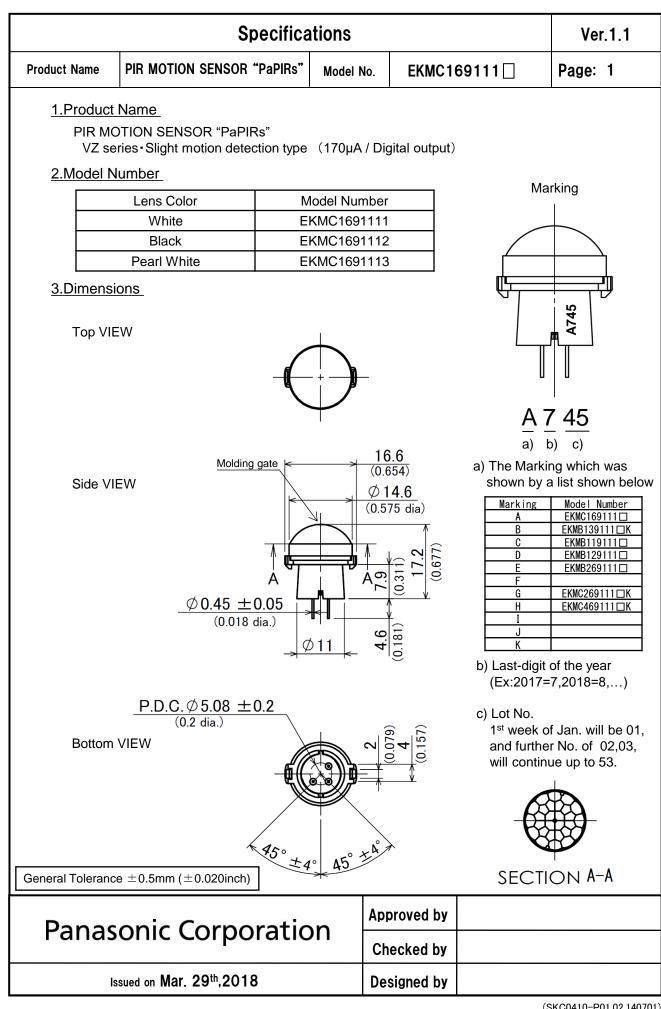
Please strictly follow the "Safety Precautions" and "Operating Precautions" on the specifications sheet. Normal functioning cannot be expected if used in environments or conditions other than those specified above.

We are deeply committed to providing the highest quality control for this product. Nevertheless:

- For issues not addressed above, we invite you to share your suggestions, or details about your company's usage conditions, installation, specifications, needs of end users, and applications for this sensor.
- 2) To reduce the risk of harm caused by product failure to human life or assets, this product should always be used in conjunction with other safety measures, such as protective circuitry, double layered circuit boards, etc., and used within the guaranteed performance, efficiency or special characteristics values stated in the specification sheet.
- 3) This product is warranted for a period of one year, from date of delivery, applicable only if the product is used in accordance with the precautions mentioned above and the specifications sheet. We will replace or repair at the delivery location any malfunctioning or defective part or entire product if such defect or malfunction is caused by us.

However, the above warranty shall be void in the following circumstances:

- a) Damage caused to something else than the product itself.
- b) Damage or loss resulting during transportation, storage or handling after the date of supply.
- c) Phenomenon unforeseeable in the state of the technology as of the supply date.
- d) Damage caused by natural or unnatural events such as fire, earthquake, flood, or conflicts beyond our control.



⁽SKC0410-P01,02,140701)

	Ver.1.1				
Product Name	Product Name PIR MOTION SENSOR "PaPIRs" Model No. EKMC169111				

4.Characteristics

4-1 Detection Performance

Conditions for measuring: Ambient temperature=25°C(77° F) Operating voltage=5VDC

	Temperature difference	Value	Conditions concerning the target	
(Note1) Detection	8°C(14.4° F)	Max 3.5m	1.Movement speed: 0.5m/s	
Range	4°C(7.2°F)	Max 2.5m	2.Target concept is human head (Object size:Around 200×200mm)	

Note1:Depending on the temperature difference between the target and the surroundings, detection range will change.

		Value	Notes
	Horizontal	97 $^{\circ}$ (\pm 48.5 $^{\circ}$)	
Detection Area	Vertical	97 $^\circ$ ($\pm48.5^\circ$)	Refer to the section 4-5.
	Detection zones	112	

4-2 Maximum Rated Values

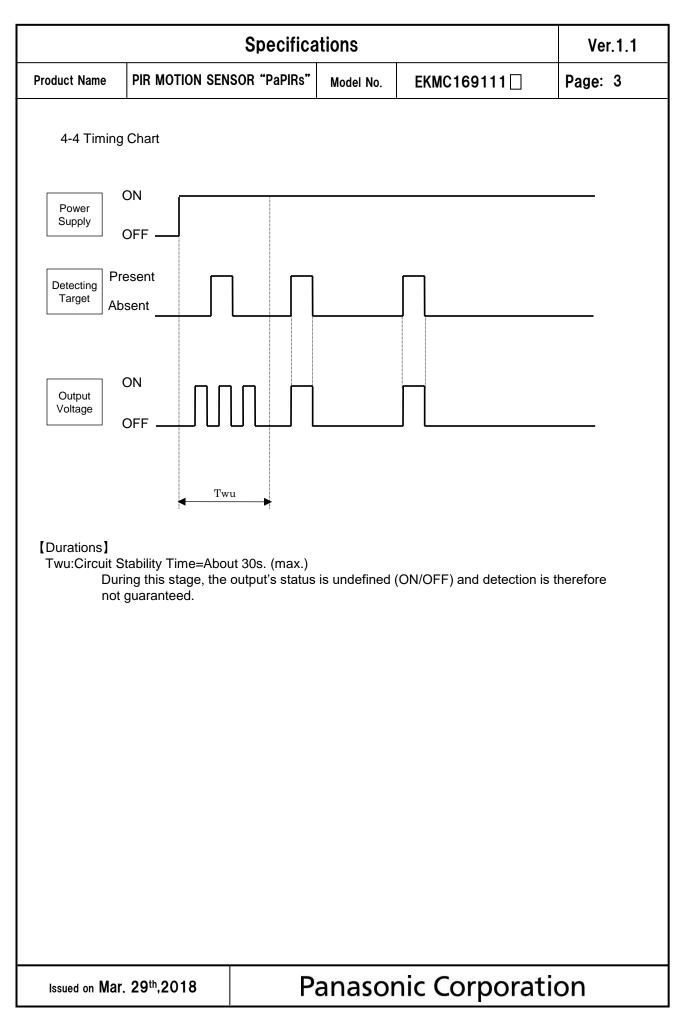
	Value	Unit
Power Supply Voltage	-0.3~7.0	VDC
Usable Ambient Temperature	-20∼+60°C (-4∼+140° F) Do not use in a freezing or condensation environment	
Storage Temperature	-20∼+70°C (-4∼+158° F)	

4-3 Electrical Characteristics

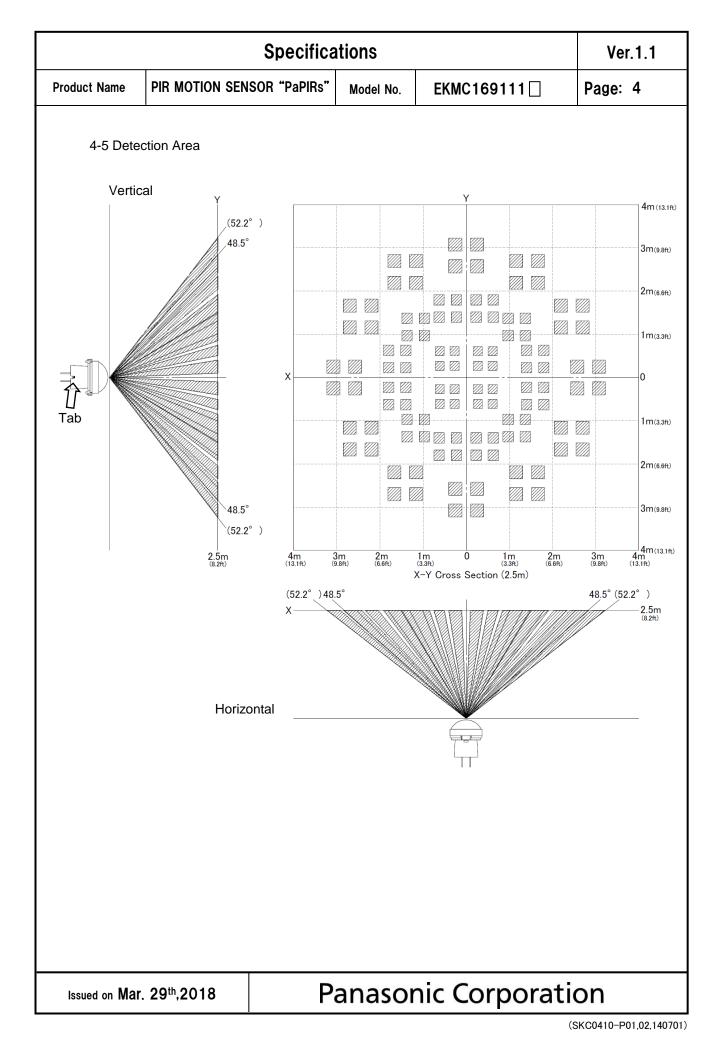
Conditions for Measuring: Ambient temperature=25°C(77° F)

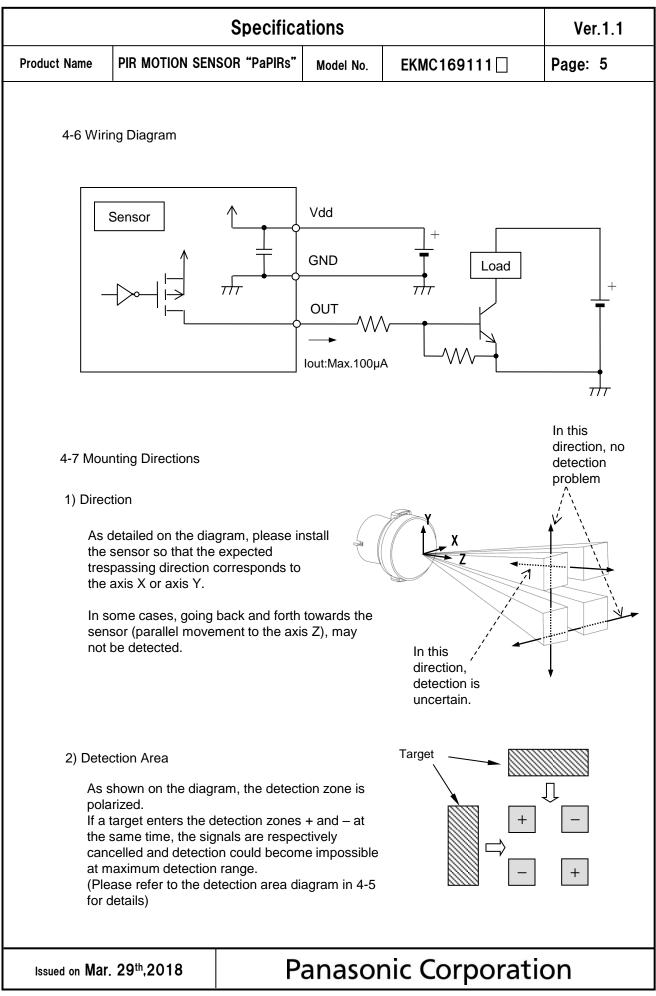
	Symbol	Min	Avg.	Max	Unit	Special mention
Operating Voltage	Vdd	3.0		6.0	VDC	—
Electrical Current Consumption	Iw	—	170	300	μA	lout=0
Output Current	lout	—	_	100	μA	Vout≧Vdd−0.
Output Voltage	Vout	Vdd-0.5	_	_	VDC	_
Circuit Stability Time (when voltage is applied)	Twu	_	_	30	s	_

Issued on Mar. 29th,2018



(SKC0410-P01,02,140701)





Specifications					
Product Name	PIR MOTION SENSOR "PaPIRs"	Model No.	EKMC169111	Page: 6	
	•				

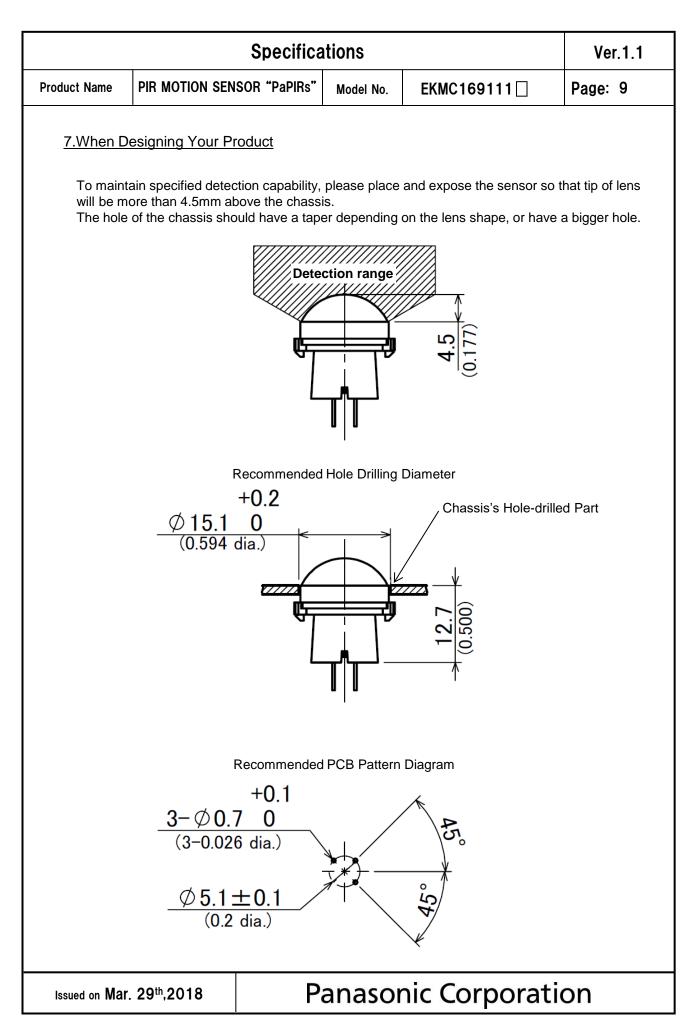
Head the following precautions to prevent injury or accidents.

- Do not use these sensors under any circumstance in which the range of their ratings, environment conditions or other specifications are exceeded. Using the sensors in any way which causes their specifications to be exceeded may generate abnormally high levels of heat, emit smoke, etc., resulting in damage to the circuitry and possibly causing an accident.
- 2) Our company is committed to making products of the highest quality and reliability. Nevertheless, all electrical components are subject to natural deterioration, and durability of a product will depend on the operating environment and conditions of use. Continued use after such deterioration could lead to overheating, smoke or fire. Always use the product in conjunction with proper fire-prevention, safety and maintenance measures to avoid accidents, reduction in product life expectancy or break-down.
- Before connecting, check the pin layout by referring to the connector wiring diagram, specifications diagram, etc., to verify that the connector is connected properly. Mistakes made in connection may cause unforeseen problems in operation, generate abnormally high levels of heat, emit smoke, etc., resulting in damage to the circuitry.
- 4) Do not use any motion sensor which has been disassembled or remodeled.
- 5) Failure modes of sensors include short-circuiting, open-circuiting and temperature rises. If this sensor is to be used in equipment where safety is a prime consideration, examine the possible effects of these failures on the equipment concerned, and ensure safety by providing protection circuits or protection devices. Example :
 - Safety equipments and devices
- Traffic signals
- Burglar and disaster prevention

	Ver.1.1							
Product Nar	ne	PIR MOTION SENSOR "PaPIRs"	Model No.	EKMC169111	Page: 7			
<u>6.Opera</u>	6.Operating Precautions							
6-1 B	asic P	rinciples						
PaPIRs is a pyroelectric infrared sensor that detects variations in infrared rays. However, it may not detect in the following cases: lack of movement, no temperature change in the heat source. Besides, it could also detect the presence of heat sources other than a human body. Efficiency and reliability of the system may vary depending on actual operating conditions:								
1) [Detect	ting heat sources other than the	human body,	such as:				
b) k c)	Wher beam Suddo	animals entering the detection a a heat source for example sun hit the sensor regardless inside en temperature change inside or IVAC, or vapor from the humidifi	light, incande: or outside the around the d	detection area.				
2) [Difficu	Ity in sensing the heat source						
b)	 a) Glass, acrylic or similar materials standing between the target and the sensor may not allow a correct transmission of infrared rays, b) Non-movement or quick movements of the heat source inside the detection area. (Please refer to 4-1 for details about movement speed.) 							
3) E	Expan	sion of the detection area						
		of considerable difference in the n area may be wider apart from t			y temperature,			
4)	Malfu	nction / Detection error						
ou	itput d	ssary detection signal might be o ue to the nature of pyro-electric o n strictly, please implement the o	element. Whe	en the application does not a	ccept such			
6-2 (Optima	al Operating Environment Condit	tions					
 Temperature : Please refer to the maximum rated values of 4-2. Humidity Degree : 15~85% Rh (Avoid condensation or freezing of this product) Pressure : 86~106kPa Overheating assiltations shocks can excee the concerts malfunction 								
5)	 Overheating, oscillations, shocks can cause the sensor to malfunction. This sensor is not waterproof or dustproof. Avoid use in environments subject to excessive moisture, condensation, frost, containing salt air or dust. 							
6) A	Avoid	use in environments with corrosi	ive gases.					

Issued on Mar. 29th,2018

			Specifica	ations		Ver.1.1
Product Name PIR MOTION SEN		SOR "PaPIRs"	Model No.	EKMC169111	Page: 8	
6-3	Handli	ng Cautions				
,		t solder with a sol ensor should be h	0	ove 350°C (662	2°F), or for more than 3 se	conds.
2)	To ma	intain stability of t	he product, alv	ways mount or	n a printed circuit board.	
,		t use liquids to wa mance.	sh the sensor.	If washing flu	id gets through the lens, it c	an reduce
4)	Do no	t use a sensor afte	er it fell on the	ground.		
		ensor may be dan ns and be very ca			c electricity. Avoid direct hai duct.	nd contact with
,		wiring the produc disturbances.	t, always use s	shielded cable	s and minimize the wiring le	ength to prevent
7)	 The inner circuit board could be destroyed by a voltage surge. Use of surge absorption elements is highly recommended. Surge resistance : below the power supply voltage value indicated in the maximum rated values section. 					
	Noise	resistance : ±2	OV or less (So	quare waves w	noise can cause operating /ith a width of 50ns or 1µs) capacitor on the sensor's po	
	-	ting errors can be broadcasting offic	-	ise from static	electricity, lightning, cell ph	one, amateur
10)	Detec	tion performance	can be reduce	d by dirt on th	e lens, please be careful.	
11)			•	• • •	lease avoid adding weight c r reduced performance.	or impacts that
12)) Operating "temperatures" and "humidity level" are suggested to prolong usage. However, they do not guarantee durability or environmental resistance. Generally, high temperatures or high humidity levels will accelerate the deterioration of electrical components. Please consider both the planned usage and environment to determine the expected reliability and length of life of the product.					
		ot attempt to clean se can cause sha			ent or solvent, such as benz	zene or alcohol,
	Avoid storage in high, low temperature or liquid environments. As well, avoid storage in environments containing corrosive gas, dust, salty air etc. It could cause performance deterioration and the sensor's main part or the metallic connectors could be damaged.					
15)	Te Hu	ge conditions emperature: umidity: e use within 1 yea	+5 ~ +40°C (· 30 ~ 75% ır after produc		F)	
Issued or	n Mar.	29 th ,2018	Р	anasoi	nic Corporati	on



(SKC0410-P01,02,140701)

	Ver.1.1			
Product Name	PIR MOTION SENSOR "PaPIRs"	Model No.	EKMC169111	Page: 10

As improvements are continually being made, the specifications or design of this product are subject to change without notice.

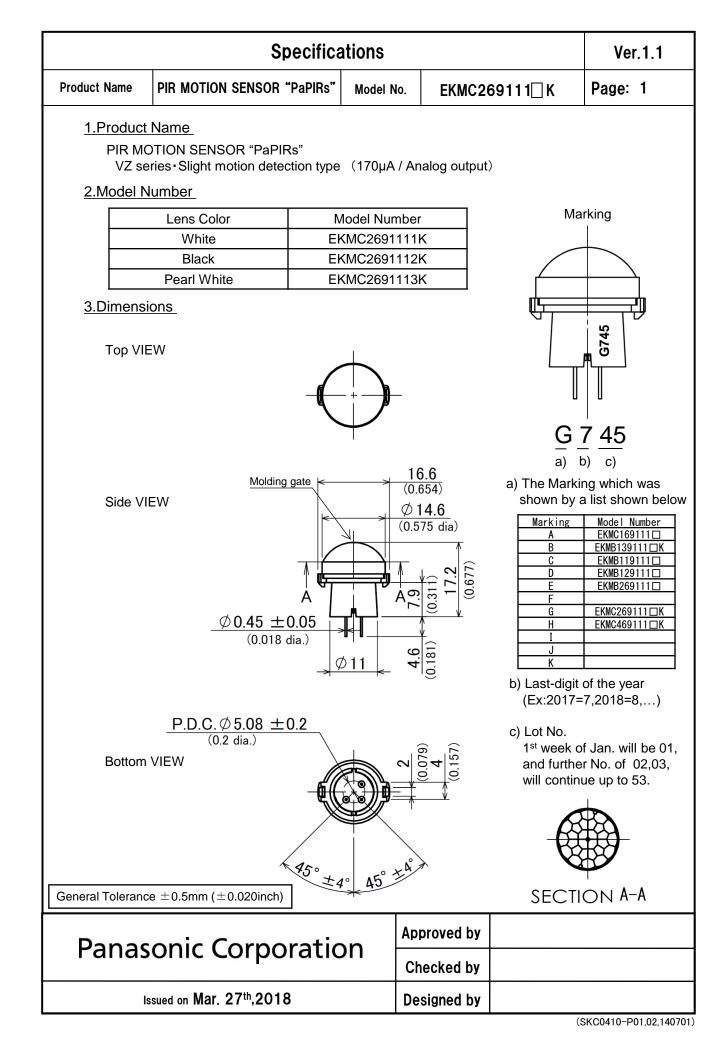
Please strictly follow the "Safety Precautions" and "Operating Precautions" on the specifications sheet. Normal functioning cannot be expected if used in environments or conditions other than those specified above.

We are deeply committed to providing the highest quality control for this product. Nevertheless:

- For issues not addressed above, we invite you to share your suggestions, or details about your company's usage conditions, installation, specifications, needs of end users, and applications for this sensor.
- 2) To reduce the risk of harm caused by product failure to human life or assets, this product should always be used in conjunction with other safety measures, such as protective circuitry, double layered circuit boards, etc., and used within the guaranteed performance, efficiency or special characteristics values stated in the specification sheet.
- 3) This product is warranted for a period of one year, from date of delivery, applicable only if the product is used in accordance with the precautions mentioned above and the specifications sheet. We will replace or repair at the delivery location any malfunctioning or defective part or entire product if such defect or malfunction is caused by us.

However, the above warranty shall be void in the following circumstances:

- a) Damage caused to something else than the product itself.
- b) Damage or loss resulting during transportation, storage or handling after the date of supply.
- c) Phenomenon unforeseeable in the state of the technology as of the supply date.
- d) Damage caused by natural or unnatural events such as fire, earthquake, flood, or conflicts beyond our control.



	Ver.1.1			
Product Name	PIR MOTION SENSOR "PaPIRs"	Model No.	EKMC269111 [] K	Page: 2

4.Characteristics

4-1 Detection Performance

Conditions for measuring: Ambient temperature=25°C(77° F) Operating voltage=5VDC

		Value		Conditions concerning the target	
*Detection Sensitivity		±0.22V≦		1.The temperature difference between the target and the surroundings should	
	Horizontal	97° ($\pm 48.5^{\circ}$)	be superior to 4°C.(7.2° F) 2.Movement speed: 0.5m/s	
Detection Area	Vertical	97° (\pm 48.5 $^{\circ}$)	3.Target concept is human head	
	Detection zones*		112	(Size:Around 200×200 mm) 4.Detection range is 2.5m.	

The detection range is about 2.5m however, depending on the target's speed and its temperature difference with the surroundings, detection can occur at a range superior to the value above. Therefore, before using, please confirm the detection characteristics under the usage environment.
 *Refer to the "detection area" diagram in section 4-5.

4-2 Maximum Rated Values

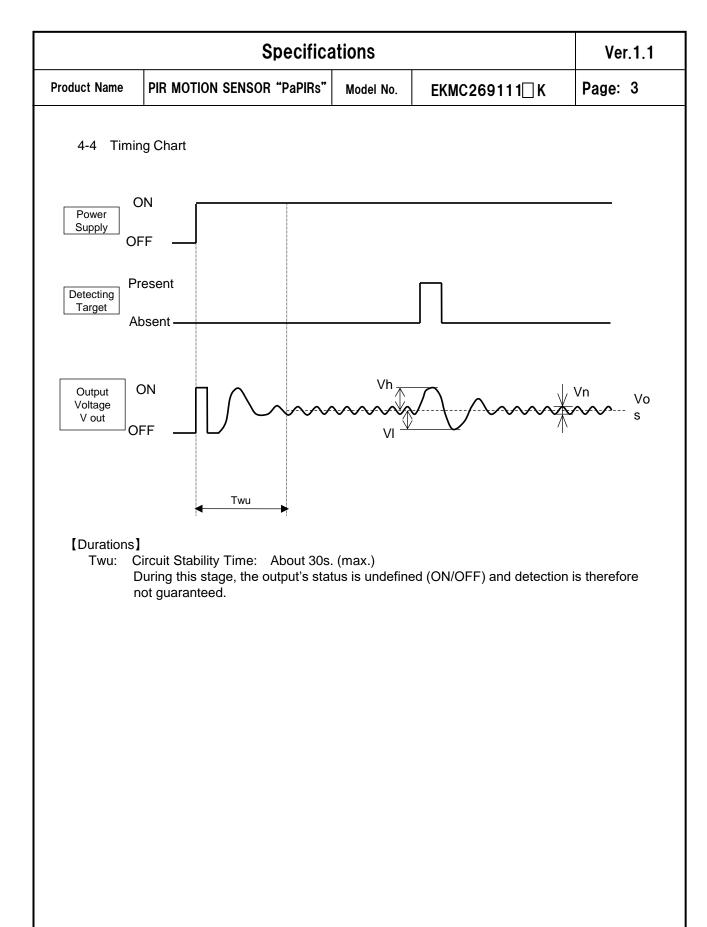
	Value	Unit
Power Supply Voltage	-0.3~7.0	VDC
Usable Ambient Temperature	-20∼+60°C (-4∼+140° F) Do not use in a freezing or condensation environment	
Storage Temperature	-20∼+70°C (-4∼+158° F)	

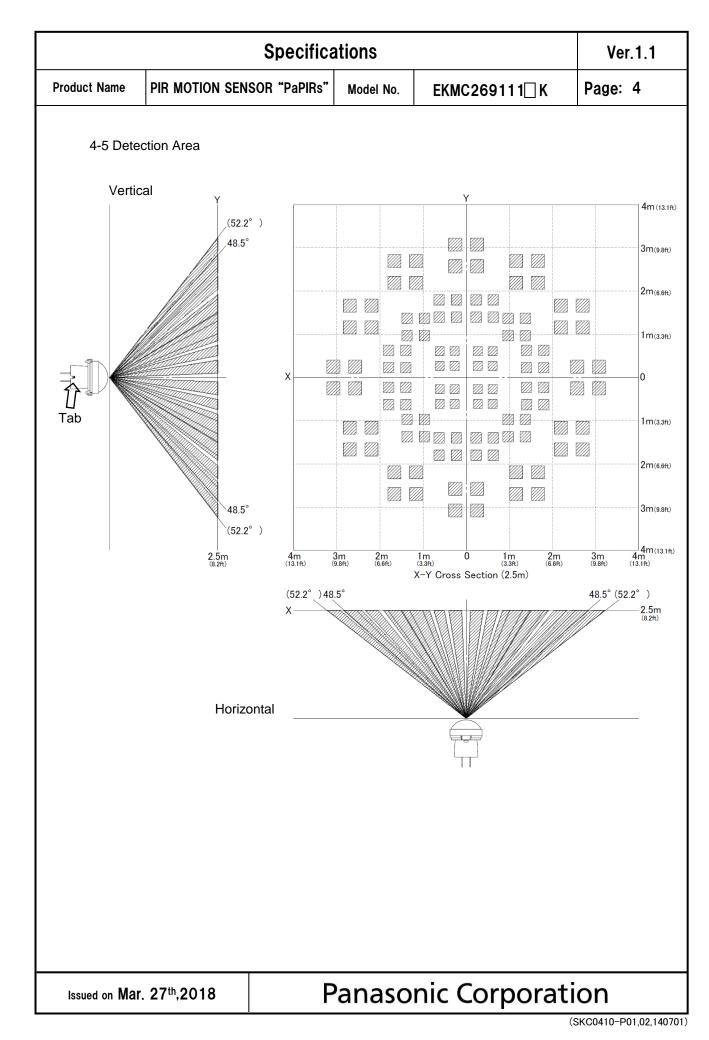
4-3 Electrical Characteristics

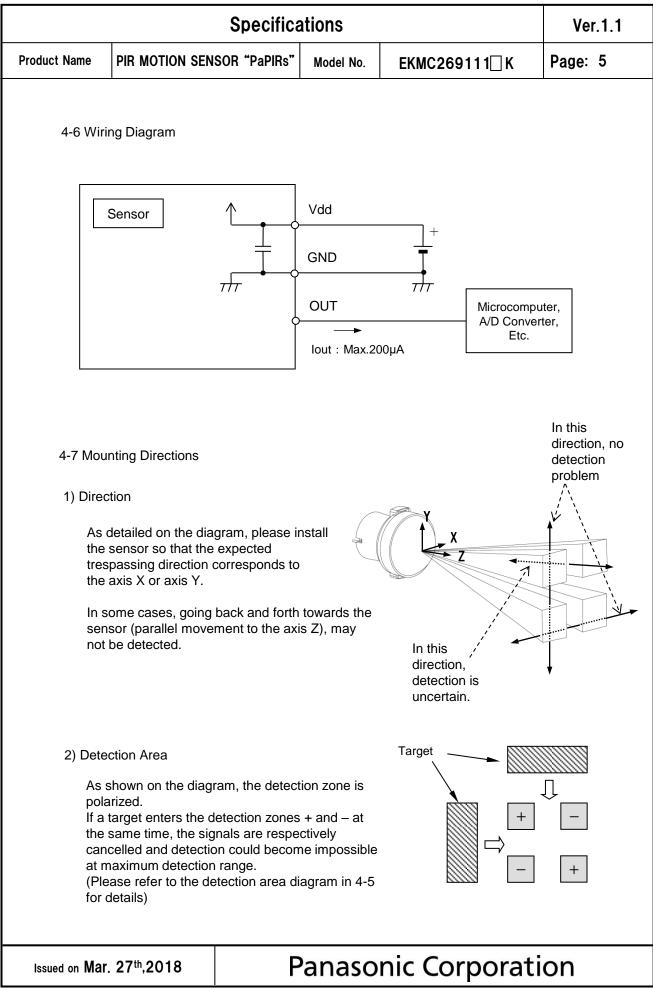
Conditions for Measuring: Ambient temperature: 25°C(77° F)

Subject	Symbol	Min	Avg.	Max	Unit	Special mention	
Operating Voltage	Operating Voltage		3.0		5.5	VDC	—
Electrical Current Consur	nption	lw	—	170	350	μA	lout=0
Output Current	lout	_		200	μA	—	
Analog Output	High	Vh	1.9	_	_	V	_
Saturated Voltage	Low	VI	_	_	0.2	V	—
Output offset average vo	Output offset average voltage			1.1	1.2	V	Steady-state output voltage when not detecting.
Steady-state noise	Steady-state noise		—	80	150	mV	—
Circuit Stability Time (when voltage is appli	Twu	_	_	30	S	_	

Issued on Mar. 27th,2018







Specifications				
Product Name	PIR MOTION SENSOR "PaPIRs"	Model No.	EKMC269111 [] K	Page: 6

5. Safety Precautions

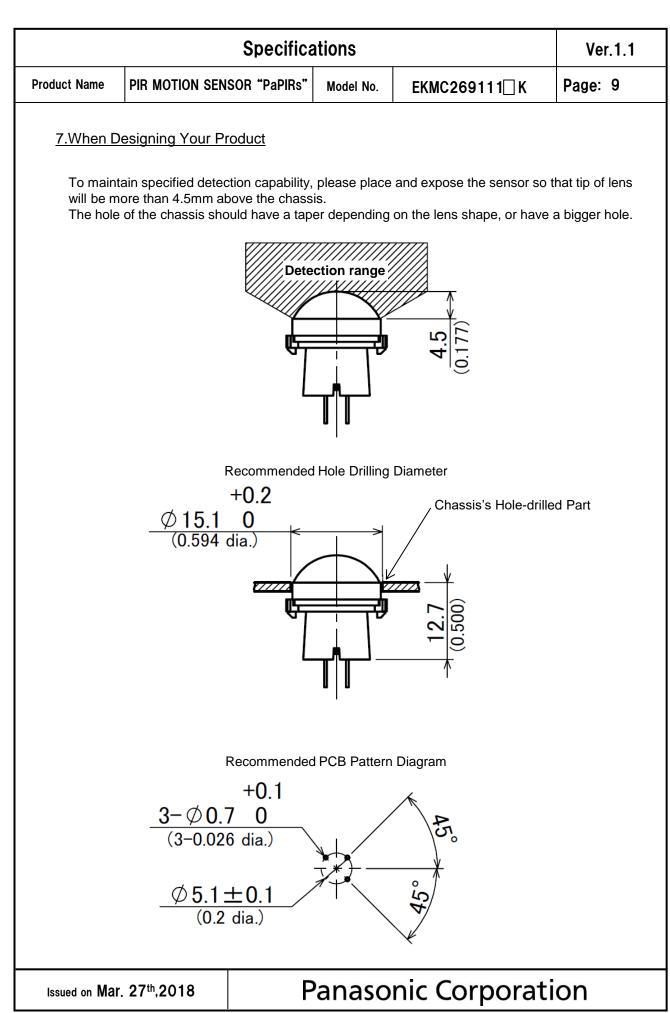
Head the following precautions to prevent injury or accidents.

- Do not use these sensors under any circumstance in which the range of their ratings, environment conditions or other specifications are exceeded. Using the sensors in any way which causes their specifications to be exceeded may generate abnormally high levels of heat, emit smoke, etc., resulting in damage to the circuitry and possibly causing an accident.
- 2) Our company is committed to making products of the highest quality and reliability. Nevertheless, all electrical components are subject to natural deterioration, and durability of a product will depend on the operating environment and conditions of use. Continued use after such deterioration could lead to overheating, smoke or fire. Always use the product in conjunction with proper fire-prevention, safety and maintenance measures to avoid accidents, reduction in product life expectancy or break-down.
- Before connecting, check the pin layout by referring to the connector wiring diagram, specifications diagram, etc., to verify that the connector is connected properly. Mistakes made in connection may cause unforeseen problems in operation, generate abnormally high levels of heat, emit smoke, etc., resulting in damage to the circuitry.
- 4) Do not use any motion sensor which has been disassembled or remodeled.
- 5) Failure modes of sensors include short-circuiting, open-circuiting and temperature rises. If this sensor is to be used in equipment where safety is a prime consideration, examine the possible effects of these failures on the equipment concerned, and ensure safety by providing protection circuits or protection devices. Example :
 - Safety equipments and devices
- Traffic signals
- Burglar and disaster prevention

	Specifica	ations		Ver.1.1				
Product Name	PIR MOTION SENSOR "PaPIRs"	Model No.	EKMC269111 [] K	Page: 7				
6.Operating	6.Operating Precautions							
6-1 Basic Pr	inciples							
However, i heat sourc	PaPIRs is a pyroelectric infrared sensor that detects variations in infrared rays. However, it may not detect in the following cases: lack of movement, no temperature change in the heat source. Besides, it could also detect the presence of heat sources other than a human body. Efficiency and reliability of the system may vary depending on actual operating conditions:							
1) Detecti	ng heat sources other than the h	uman body, s	uch as:					
b) When beam h c) Sudde	 a) small animals entering the detection area b) When a heat source for example sun light, incandescent lamp, car headlights etc, or strong light beam hit the sensor regardless inside or outside the detection area. c) Sudden temperature change inside or around the detection area caused by hot or cold wind from HVAC, or vapor from the humidifier, etc. 							
2) Difficult	y in sensing the heat source							
a corre b) Non-m	acrylic or similar materials stand ect transmission of infrared rays, ovement or quick movements of e refer to 4-1 for details about mo	the heat sour	ce inside the detection area	-				
3) Expans	sion of the detection area							
	f considerable difference in the a area may be wider apart from th			temperature,				
4) Malfun	ction / Detection error							
output du	sary detection signal might be ou le to the nature of pyro-electric el strictly, please implement the co	lement. When	the application does not ac	cept such				
6-2 Optima	I Operating Environment Condition	ons						
 Temperature : Please refer to the maximum rated values of 4-2. Humidity Degree :15~85% Rh (Avoid condensation or freezing of this product) Pressure : 86~106kPa Overheating, oscillations, shocks can cause the sensor to malfunction. This sensor is not waterproof or dustproof. Avoid use in environments subject to excessive moisture, condensation, frost, containing salt air or dust. Avoid use in environments with corrosive gases. 								

Issued on Mar. 27th,2018

	Specifications					Ver.1.1		
Product N	lame	PIR MOTION SEN	SOR "PaPIRs"	Model No.	EKMC269111 [] K	Page: 8		
6-3	6-3 Handling Cautions							
1)		t solder with a sole ensor should be h	•	ove 350°C (662	2°F), or for more than 3 se	conds.		
2)	To ma	aintain stability of t	he product, alv	ways mount or	n a printed circuit board.			
3)		t use liquids to wa mance.	sh the sensor.	If washing flu	id gets through the lens, it c	an reduce		
4)	Do no	t use a sensor afte	er it fell on the	ground.				
5)		ensor may be dan ns and be very cai			c electricity. Avoid direct har duct.	nd contact with		
6)		wiring the produc disturbances.	t, always use s	shielded cable	s and minimize the wiring le	ength to prevent		
7)	 The inner circuit board could be destroyed by a voltage surge. Use of surge absorption elements is highly recommended. Surge resistance : below the power supply voltage value indicated in the maximum rated values section. 							
8)	Noise	resistance : ±2	20V or less (So	quare waves w	noise can cause operating vith a width of 50ns or 1µs) capacitor on the sensor's po			
9)	-	ating errors can be broadcasting offic	•	ise from static	electricity, lightning, cell ph	one, amateur		
10)	Detec	ction performance	can be reduce	d by dirt on th	e lens, please be careful.			
11)			,	• • •	lease avoid adding weight c r reduced performance.	or impacts that		
12)	Operating "temperatures" and "humidity level" are suggested to prolong usage. However, they do not guarantee durability or environmental resistance. Generally, high temperatures or high humidity levels will accelerate the deterioration of electrical components. Please consider both the planned usage and environment to determine the expected reliability and length of life of the product.							
13)		ot attempt to clean ese can cause sha			ent or solvent, such as benz	zene or alcohol,		
14)	Avoid storage in high, low temperature or liquid environments. As well, avoid storage in environments containing corrosive gas, dust, salty air etc. It could cause performance deterioration and the sensor's main part or the metallic connectors could be damaged.							
15)	 15) Storage conditions Temperature: +5 ~ +40°C (+41 ~ +104° F) Humidity: 30 ~ 75% Please use within 1 year after products delivery. 							
		. 27 th ,2018			nic Corporati			



(SKC0410-P01,02,140701)

	Ver.1.1			
Product Name	PIR MOTION SENSOR "PaPIRs"	Model No.	EKMC269111 [] K	Page: 10

As improvements are continually being made, the specifications or design of this product are subject to change without notice.

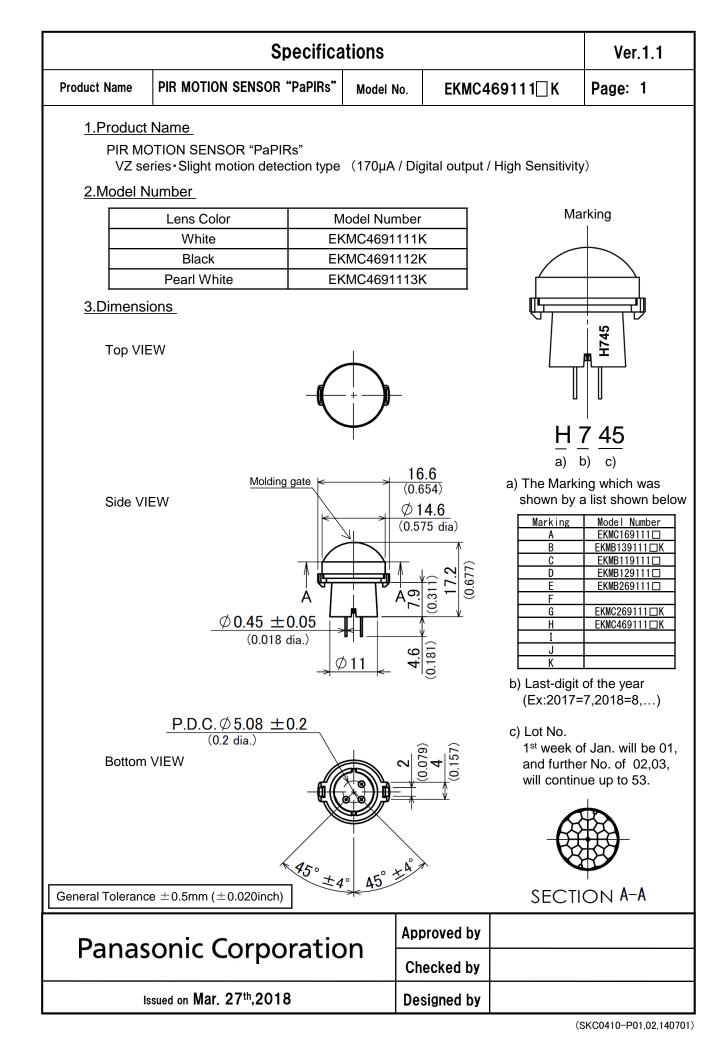
Please strictly follow the "Safety Precautions" and "Operating Precautions" on the specifications sheet. Normal functioning cannot be expected if used in environments or conditions other than those specified above.

We are deeply committed to providing the highest quality control for this product. Nevertheless:

- For issues not addressed above, we invite you to share your suggestions, or details about your company's usage conditions, installation, specifications, needs of end users, and applications for this sensor.
- 2) To reduce the risk of harm caused by product failure to human life or assets, this product should always be used in conjunction with other safety measures, such as protective circuitry, double layered circuit boards, etc., and used within the guaranteed performance, efficiency or special characteristics values stated in the specification sheet.
- 3) This product is warranted for a period of one year, from date of delivery, applicable only if the product is used in accordance with the precautions mentioned above and the specifications sheet. We will replace or repair at the delivery location any malfunctioning or defective part or entire product if such defect or malfunction is caused by us.

However, the above warranty shall be void in the following circumstances:

- a) Damage caused to something else than the product itself.
- b) Damage or loss resulting during transportation, storage or handling after the date of supply.
- c) Phenomenon unforeseeable in the state of the technology as of the supply date.
- d) Damage caused by natural or unnatural events such as fire, earthquake, flood, or conflicts beyond our control.



	Ver.1.1			
Product Name	PIR MOTION SENSOR "PaPIRs"	Model No.	EKMC469111 ∏K	Page: 2
	•			

4.Characteristics

4-1 Detection Performance

Conditions for measuring: Ambient temperature=25°C(77° F) Operating voltage=5VDC

	Temperature difference	Value	Conditions concerning the target
(Note1)	4°C(7.2°F)	Max 3.5m	1.Movement speed: 0.5m/s 2.Target concept is human head
Detection Range	2°C(3.6°F)	Max 2.5m	(Object size:Around 200 × 200mm)

Note1:Depending on the temperature difference between the target and the surroundings, detection range will change.

		Value	Notes
	Horizontal	97° $(\pm48.5^{\circ}$)	
Detection Area	Vertical	97° $(\pm48.5^{\circ}$)	Refer to the section 4-5.
7 00	Detection zones	112	

4-2 Maximum Rated Values

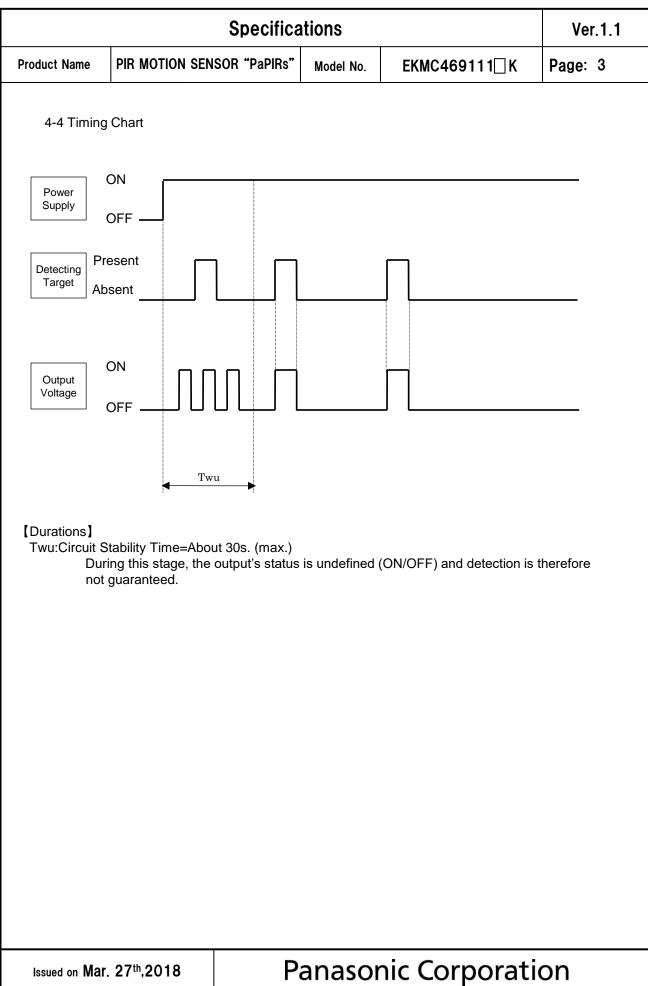
	Value	Unit
Power Supply Voltage	-0.3~7.0	VDC
Usable Ambient Temperature	-20∼+55°C (-4∼+131° F) Do not use in a freezing or condensation environment	
Storage Temperature	-20∼+70°C (-4∼+158° F)	

4-3 Electrical Characteristics

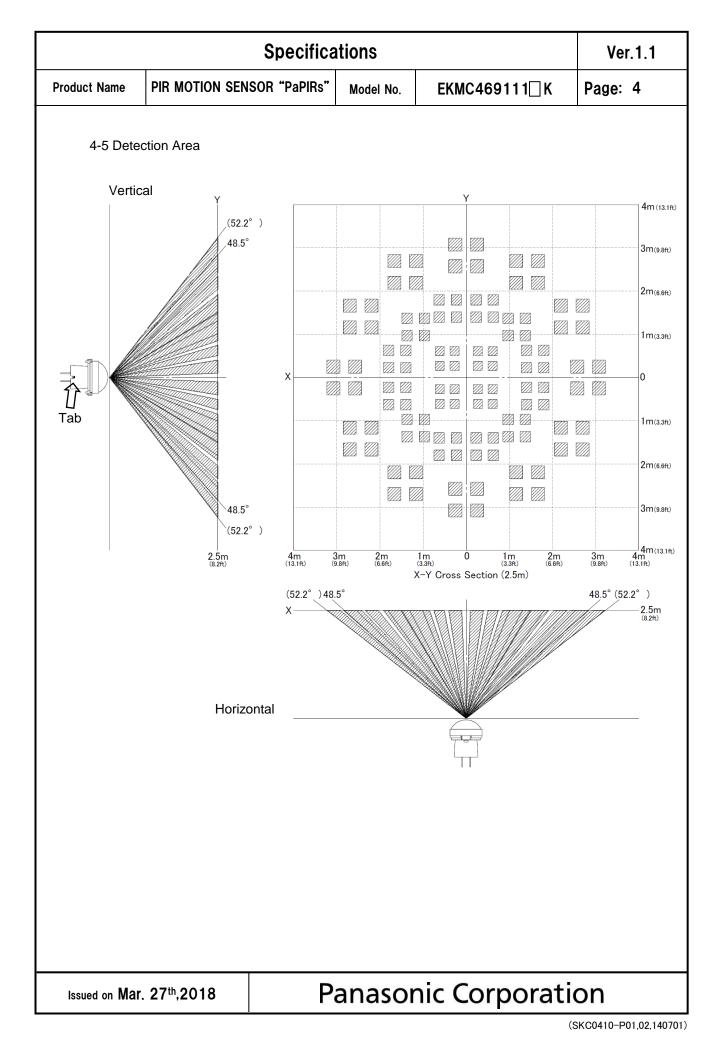
Conditions for Measuring: Ambient temperature=25°C(77° F)

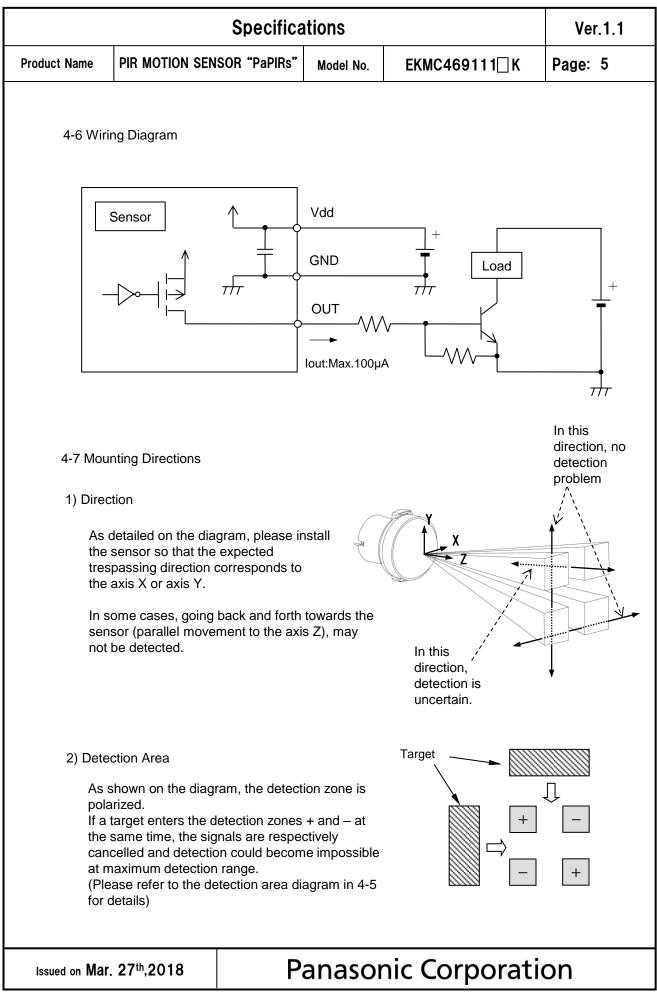
Operating Voltage Electrical Current Consumption Output Current	Symbol Vdd Iw	Min 3.0 —	Avg. 	Max 6.0	Unit VDC	Special mention
Electrical Current Consumption		3.0	- 170		VDC	_
	lw	_	170			
Output Current			170	300	μA	lout=0
Capa Suron	lout	_		100	μA	Vout≧Vdd−0.
Output Voltage	Vout	Vdd-0.5			VDC	_
Circuit Stability Time (when voltage is applied)	Twu	_	_	30	s	_

Issued on Mar. 27th,2018



(SKC0410-P01,02,140701)





⁽SKC0410-P01,02,140701)

	Ver.1.1			
Product Name	PIR MOTION SENSOR "PaPIRs"	Model No.	EKMC469111 [] K	Page: 6
	•			

5. Safety Precautions

Head the following precautions to prevent injury or accidents.

- Do not use these sensors under any circumstance in which the range of their ratings, environment conditions or other specifications are exceeded. Using the sensors in any way which causes their specifications to be exceeded may generate abnormally high levels of heat, emit smoke, etc., resulting in damage to the circuitry and possibly causing an accident.
- 2) Our company is committed to making products of the highest quality and reliability. Nevertheless, all electrical components are subject to natural deterioration, and durability of a product will depend on the operating environment and conditions of use. Continued use after such deterioration could lead to overheating, smoke or fire. Always use the product in conjunction with proper fire-prevention, safety and maintenance measures to avoid accidents, reduction in product life expectancy or break-down.
- Before connecting, check the pin layout by referring to the connector wiring diagram, specifications diagram, etc., to verify that the connector is connected properly. Mistakes made in connection may cause unforeseen problems in operation, generate abnormally high levels of heat, emit smoke, etc., resulting in damage to the circuitry.
- 4) Do not use any motion sensor which has been disassembled or remodeled.
- 5) Failure modes of sensors include short-circuiting, open-circuiting and temperature rises. If this sensor is to be used in equipment where safety is a prime consideration, examine the possible effects of these failures on the equipment concerned, and ensure safety by providing protection circuits or protection devices. Example :
 - Safety equipments and devices
- Traffic signals
- Burglar and disaster prevention

Specifications				Ver.1.1
Product Name	PIR MOTION SENSOR "PaPIRs"	Model No.	EKMC469111 ∏K	Page: 7

6.Operating Precautions

6-1 Basic Principles

PaPIRs is a pyroelectric infrared sensor that detects variations in infrared rays. However, it may not detect in the following cases: lack of movement, no temperature change in the heat source. Besides, it could also detect the presence of heat sources other than a human body. Efficiency and reliability of the system may vary depending on actual operating conditions: And this model number is a high sensitivity item with a low threshold level. Please be aware that the false alarm probability will increase as compared with standard sensitivity items.

- 1) Detecting heat sources other than the human body, such as:
- a) small animals entering the detection area
- b) When a heat source for example sun light, incandescent lamp, car headlights etc, or strong light beam hit the sensor regardless inside or outside the detection area.
- c) Sudden temperature change inside or around the detection area caused by hot or cold wind from HVAC, or vapor from the humidifier, etc.
- 2) Difficulty in sensing the heat source
 - a) Glass, acrylic or similar materials standing between the target and the sensor may not allow a correct transmission of infrared rays,
 - b) Non-movement or quick movements of the heat source inside the detection area.
- 3) Expansion of the detection area

In case of considerable difference in the ambient temperature and the human body temperature, detection area may be wider apart from the configured detection area.

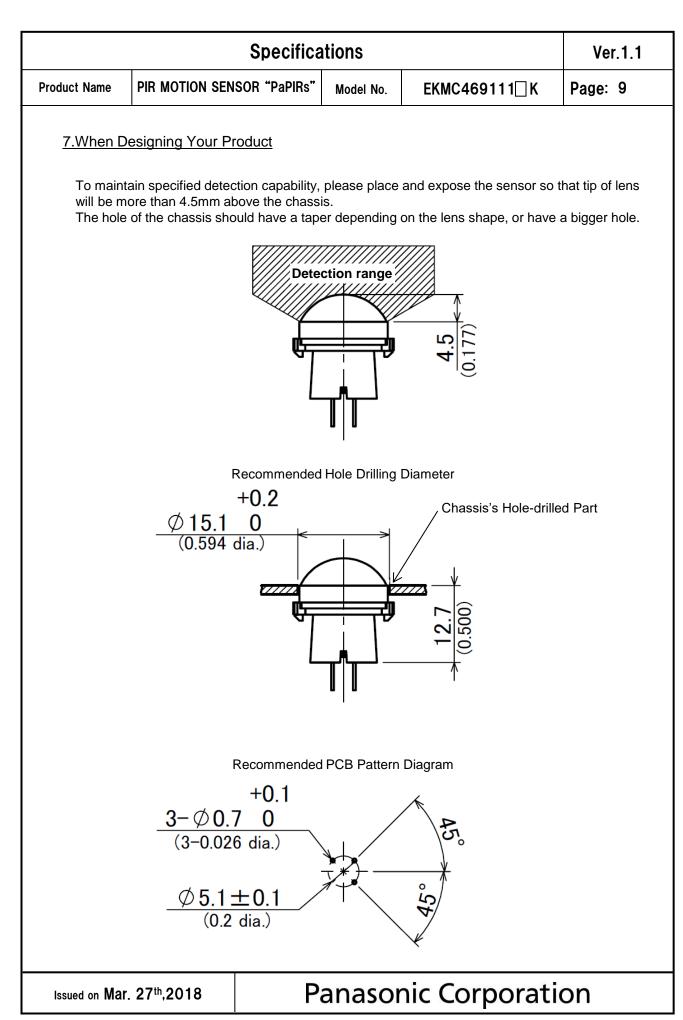
4) Malfunction / Detection error

Unnecessary detection signal might be outputted, on rare occasions, come from sudden outbreak output due to the nature of pyro-electric element. When the application does not accept such condition strictly, please implement the countermeasure by introducing pulse count circuit etc.

- 6-2 Optimal Operating Environment Conditions
 - 1) Temperature : Please refer to the maximum rated values of 4-1.
 - 2) Humidity Degree :15~85% Rh (Avoid condensation or freezing of this product)
 - 3) Pressure : 86~106kPa
 - 4) Overheating, oscillations, shocks can cause the sensor to malfunction.
 - 5) This sensor is not waterproof or dustproof. Avoid use in environments subject to excessive moisture, condensation, frost, containing salt air or dust.
 - 6) Avoid use in environments with corrosive gases.

Issued on Mar. 27th,2018 Panasonic Corporation

his sensor should be o maintain stability of o not use liquids to we orformance. To not use a sensor af the sensor may be date the pins and be very can hen wiring the produ- hise disturbances. The inner circuit board highly recommende urge resistance : b ve the sensor stabilized bise resistance : \pm o reduce the effect of	oldering iron abo hand soldered. The product, alw vash the sensor. fter it fell on the g maged by ±200 areful when oper act, always use s could be destro ed. below the power values section. to power supply. 10V or less (Sq	vays mount or If washing flu ground. O volts of station rating the proo shielded cable byed by a volta supply voltag	s and minimize the wiring lange surge. Use of surge ab e value indicated in the ma	can reduce and contact with ength to prevent sorption elemen
o not solder with a so- nis sensor should be o maintain stability of o not use liquids to we offormance. To not use a sensor af- ne sensor may be date e pins and be very ca- hen wiring the produ- sise disturbances. The inner circuit board highly recommende urge resistance : b ve ease use a stabilized bise resistance : \pm o reduce the effect of	hand soldered. the product, alw rash the sensor. fter it fell on the g maged by ± 200 areful when open areful when open ot, always use s could be destro- rad. below the power values section. d power supply. 10V or less (Sq	vays mount or If washing flu ground. O volts of station rating the proo shielded cable byed by a volta supply voltag	n a printed circuit board. id gets through the lens, it of c electricity. Avoid direct ha duct. s and minimize the wiring h age surge. Use of surge ab e value indicated in the ma	can reduce and contact with ength to prevent sorption elemen
his sensor should be o maintain stability of o not use liquids to we orformance. To not use a sensor af the sensor may be date the pins and be very can hen wiring the produ- hise disturbances. The inner circuit board highly recommende urge resistance : b ve the sensor stabilized bise resistance : \pm o reduce the effect of	hand soldered. the product, alw rash the sensor. fter it fell on the g maged by ± 200 areful when open areful when open ot, always use s could be destro- rad. below the power values section. d power supply. 10V or less (Sq	vays mount or If washing flu ground. O volts of station rating the proo shielded cable byed by a volta supply voltag	n a printed circuit board. id gets through the lens, it of c electricity. Avoid direct ha duct. s and minimize the wiring h age surge. Use of surge ab e value indicated in the ma	can reduce and contact with ength to prevent sorption elemen
o not use liquids to we provide the sensor may be date the sensor may be date the sensor may be date the pins and be very can hen wiring the produ- tise disturbances. The inner circuit board highly recommender urge resistance : b ve the sensor may be date the pins and be very can the pins	rash the sensor. ter it fell on the graded by ± 200 areful when open areful when open to could be destro ed. below the power values section. d power supply. 10V or less (Sq	If washing flu ground. O volts of station rating the prod shielded cable byed by a volta supply voltag	id gets through the lens, it of c electricity. Avoid direct ha duct. s and minimize the wiring la age surge. Use of surge ab e value indicated in the ma	and contact with ength to prevent sorption elemen
erformance. o not use a sensor af the sensor may be dat the pins and be very can hen wiring the produ- tise disturbances. the inner circuit board highly recommende urge resistance : b v the sease use a stabilized bise resistance : ± o reduce the effect of	tter it fell on the g maged by ± 200 areful when open act, always use s d could be destro ed. below the power values section. d power supply. c 10V or less (Sq	ground. O volts of station rating the produ- shielded cable byed by a volta supply voltag	c electricity. Avoid direct ha duct. s and minimize the wiring h age surge. Use of surge ab e value indicated in the ma	and contact with ength to prevent sorption elemen
The sensor may be date the pins and be very can be wiring the produ- bise disturbances. The inner circuit board highly recommende urge resistance : b v ease use a stabilized bise resistance : \pm o reduce the effect of	maged by ±200 areful when oper act, always use s d could be destro ed. below the power values section. d power supply. 10V or less (Sq	D volts of station rating the process whielded cable byed by a volta supply voltag	duct. s and minimize the wiring le age surge. Use of surge ab e value indicated in the ma	ength to prevent sorption elemen
e pins and be very can hen wiring the produ- bise disturbances. The inner circuit board highly recommende urge resistance : b v ease use a stabilized bise resistance : \pm o reduce the effect of	areful when oper act, always use s d could be destro ed. below the power values section. d power supply. c10V or less (Sq	rating the prod hielded cable byed by a volta supply voltag	duct. s and minimize the wiring le age surge. Use of surge ab e value indicated in the ma	ength to prevent sorption elemen
ise disturbances. he inner circuit board highly recommende urge resistance : b v ease use a stabilized bise resistance : ± o reduce the effect of	l could be destro ed. pelow the power values section. d power supply. 10V or less (Sq	byed by a volta	age surge. Use of surge ab e value indicated in the ma	sorption elemen
highly recommende urge resistance : b v ease use a stabilized bise resistance : ± o reduce the effect of	ed. below the power values section. d power supply. c10V or less (Sq	supply voltag	e value indicated in the ma	
bise resistance \pm bise reduce the effect of	10V or less (Sq	Power supply		
parating arrars can b	power supply n		noise can cause operating vith a width of 50ns or 1µs) capacitor on the sensor's p	
dio, broadcasting offi	•	se from static	electricity, lightning, cell pl	none, amateur
etection performance	e can be reduce	d by dirt on th	e lens, please be careful.	
		,	v v	or impacts that
ot guarantee durabilit umidity levels will acc	ty or environme celerate the dete	ntal resistance erioration of el	e. Generally, high temperat lectrical components. Pleas	ures or high se consider both
 Do not attempt to clean this product with any detergent or solvent, such as benzene or alcohol, as these can cause shape or color alterations. 				
vironments containir	ng corrosive gas	s, dust, salty a	ir etc. It could cause perfor	mance
orage conditions Temperature: Humidity: lease use within 1 ye	30 ~ 75%		F)	
	e lens is made of so ight change its shap erating "temperatur t guarantee durabili midity levels will ac e planned usage an oduct. not attempt to clea these can cause sh oid storage in high, vironments containin erioration and the s prage conditions Temperature: Humidity: ease use within 1 ye	e lens is made of soft materials (Poinght change its shape, causing operating "temperatures" and "humidit guarantee durability or environment midity levels will accelerate the determinity levels will accelerate the determinity levels will accelerate the determinity levels and environment to obtain the sense of the second storage in high, low temperature vironments containing corrosive gas erioration and the sensor's main parage conditions Temperature: $+5 \sim +40^{\circ}$ C (Humidity: $30 \sim 75\%$ ease use within 1 year after product	e lens is made of soft materials (Polyethylene). P ight change its shape, causing operating errors of perating "temperatures" and "humidity level" are s it guarantee durability or environmental resistance midity levels will accelerate the deterioration of el- e planned usage and environment to determine the oduct. In not attempt to clean this product with any deterg these can cause shape or color alterations. oid storage in high, low temperature or liquid environments containing corrosive gas, dust, salty a erioration and the sensor's main part or the meta orage conditions Temperature: $+5 \sim +40^{\circ}$ C ($+41 \sim +104^{\circ}$ Humidity: $30 \sim 75^{\circ}$ ease use within 1 year after products delivery.	a not attempt to clean this product with any detergent or solvent, such as ben these can cause shape or color alterations. oid storage in high, low temperature or liquid environments. As well, avoid s vironments containing corrosive gas, dust, salty air etc. It could cause perfor erioration and the sensor's main part or the metallic connectors could be da prage conditions Temperature: $+5 \sim +40^{\circ}$ C ($+41 \sim +104^{\circ}$ F) Humidity: $30 \sim 75\%$



	Specifications			
Product Name	PIR MOTION SENSOR "PaPIRs"	Model No.	EKMC469111□K	Page: 10

As improvements are continually being made, the specifications or design of this product are subject to change without notice.

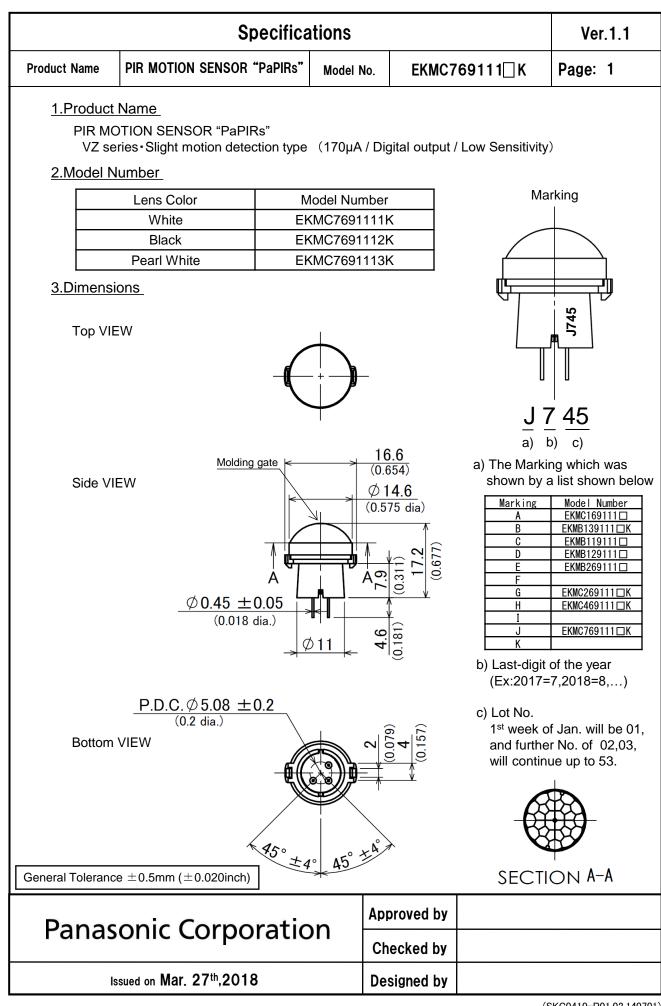
Please strictly follow the "Safety Precautions" and "Operating Precautions" on the specifications sheet. Normal functioning cannot be expected if used in environments or conditions other than those specified above.

We are deeply committed to providing the highest quality control for this product. Nevertheless:

- For issues not addressed above, we invite you to share your suggestions, or details about your company's usage conditions, installation, specifications, needs of end users, and applications for this sensor.
- 2) To reduce the risk of harm caused by product failure to human life or assets, this product should always be used in conjunction with other safety measures, such as protective circuitry, double layered circuit boards, etc., and used within the guaranteed performance, efficiency or special characteristics values stated in the specification sheet.
- 3) This product is warranted for a period of one year, from date of delivery, applicable only if the product is used in accordance with the precautions mentioned above and the specifications sheet. We will replace or repair at the delivery location any malfunctioning or defective part or entire product if such defect or malfunction is caused by us.

However, the above warranty shall be void in the following circumstances:

- a) Damage caused to something else than the product itself.
- b) Damage or loss resulting during transportation, storage or handling after the date of supply.
- c) Phenomenon unforeseeable in the state of the technology as of the supply date.
- d) Damage caused by natural or unnatural events such as fire, earthquake, flood, or conflicts beyond our control.



⁽SKC0410-P01,02,140701)

	Specifications				
Product Name	PIR MOTION SENSOR "PaPIRs"	Model No.	EKMC769111 ∏K	Page: 2	

4.Characteristics

4-1 Detection Performance

Conditions for measuring: Ambient temperature=25°C(77° F) Operating voltage=5VDC

	Temperature difference	Value	Conditions concerning the target
(Note1) Detection	16°C(28.8° F)	Max 3.5m	1.Movement speed: 0.5m/s
Range	8°C(14.4° F)) Max 2.5m 2.Target concept is human head (Object size:Around 200×200r	(Object size:Around 200 × 200mm)

Note1:Depending on the temperature difference between the target and the surroundings, detection range will change.

		Value	Notes
	Horizontal	97 $^{\circ}$ (\pm 48.5 $^{\circ}$)	
Detection Area	Vertical	97 $^{\circ}$ (\pm 48.5 $^{\circ}$)	Refer to the section 4-5.
7 00	Detection zones	112	

4-2 Maximum Rated Values

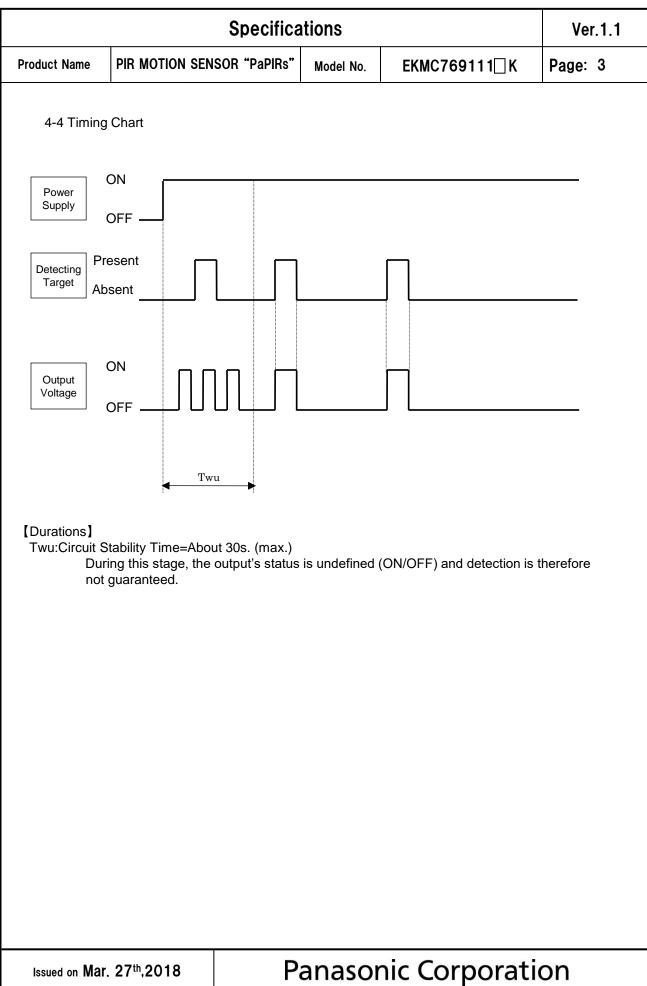
	Value	Unit
Power Supply Voltage	-0.3~7.0	VDC
Usable Ambient Temperature	-20∼+60°C (-4∼+140° F) Do not use in a freezing or condensation environment	
Storage Temperature	-20∼+70°C (-4∼+158° F)	

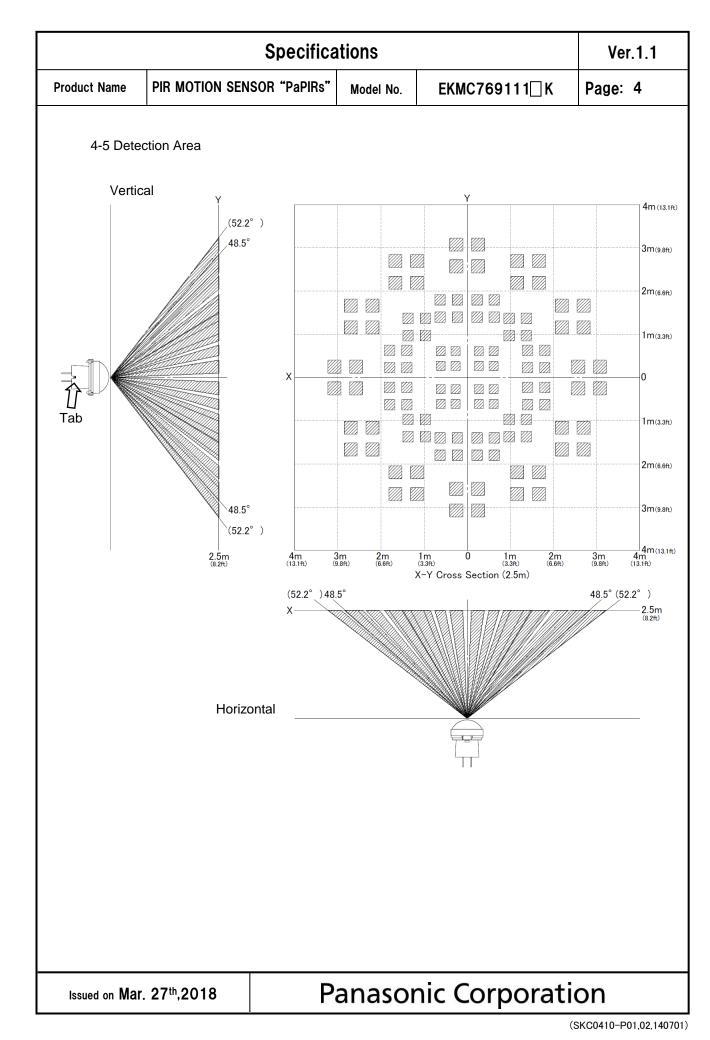
4-3 Electrical Characteristics

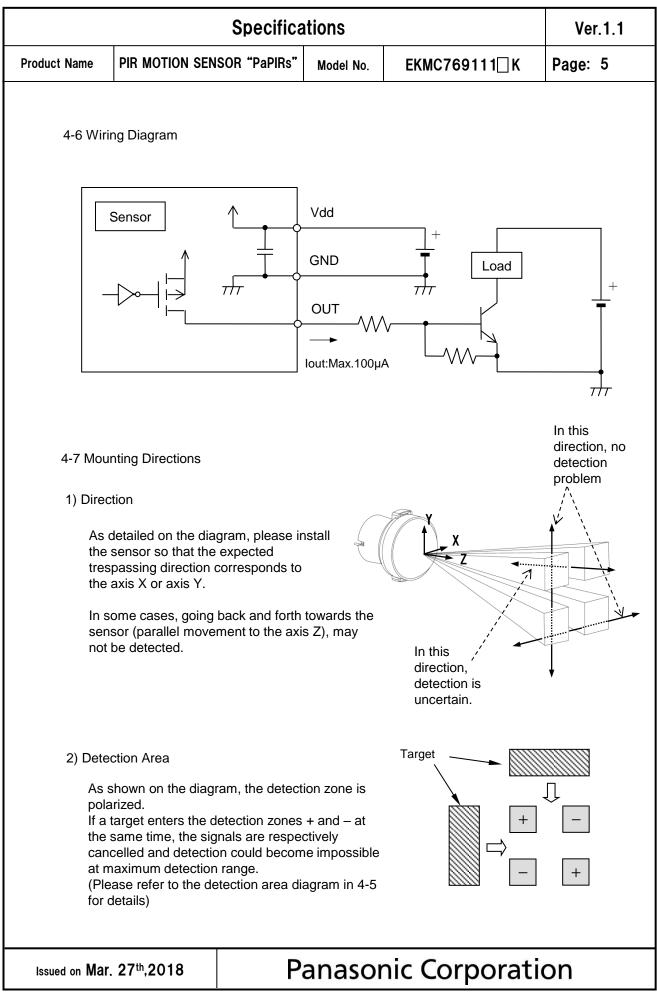
Conditions for Measuring: Ambient temperature=25°C(77° F)

	Symbol	Min	Avg.	Max	Unit	Special mention
Operating Voltage	Vdd	3.0	_	6.0	VDC	_
Electrical Current Consumption	lw	_	170	300	μA	lout=0
Output Current	lout	_	_	100	μA	Vout≧Vdd-0.5
Output Voltage	Vout	Vdd-0.5			VDC	_
Circuit Stability Time (when voltage is applied)	Twu	_		30	S	_

Issued on Mar. 27th,2018







⁽SKC0410-P01,02,140701)

Specifications					
Product Name	PIR MOTION SENSOR "PaPIRs"	Model No.	EKMC769111 ∏K	Page: 6	
	·				

5. Safety Precautions

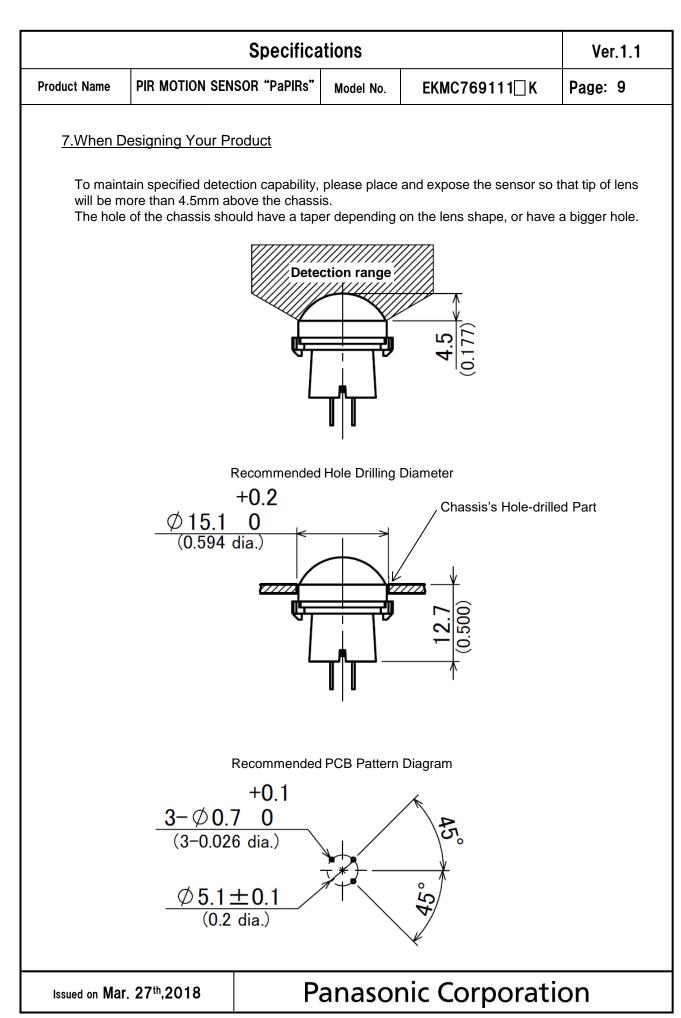
Head the following precautions to prevent injury or accidents.

- Do not use these sensors under any circumstance in which the range of their ratings, environment conditions or other specifications are exceeded. Using the sensors in any way which causes their specifications to be exceeded may generate abnormally high levels of heat, emit smoke, etc., resulting in damage to the circuitry and possibly causing an accident.
- 2) Our company is committed to making products of the highest quality and reliability. Nevertheless, all electrical components are subject to natural deterioration, and durability of a product will depend on the operating environment and conditions of use. Continued use after such deterioration could lead to overheating, smoke or fire. Always use the product in conjunction with proper fire-prevention, safety and maintenance measures to avoid accidents, reduction in product life expectancy or break-down.
- Before connecting, check the pin layout by referring to the connector wiring diagram, specifications diagram, etc., to verify that the connector is connected properly. Mistakes made in connection may cause unforeseen problems in operation, generate abnormally high levels of heat, emit smoke, etc., resulting in damage to the circuitry.
- 4) Do not use any motion sensor which has been disassembled or remodeled.
- 5) Failure modes of sensors include short-circuiting, open-circuiting and temperature rises. If this sensor is to be used in equipment where safety is a prime consideration, examine the possible effects of these failures on the equipment concerned, and ensure safety by providing protection circuits or protection devices. Example :
 - Safety equipments and devices
- Traffic signals
- Burglar and disaster prevention

-					1			
	Ver.1.1							
Product Nar	me	PIR MOTION SENSOR "PaPIRs"	Model No.	EKMC769111 ∏K	Page: 7			
<u>6.Opera</u>	ating I	Precautions						
6-1 B	asic F	Principles						
How hea	PaPIRs is a pyroelectric infrared sensor that detects variations in infrared rays. However, it may not detect in the following cases: lack of movement, no temperature change in the heat source. Besides, it could also detect the presence of heat sources other than a human body. Efficiency and reliability of the system may vary depending on actual operating conditions:							
1)	Detec	ting heat sources other than the	human body,	such as:				
 a) small animals entering the detection area b) When a heat source for example sun light, incandescent lamp, car headlights etc, or strong light beam hit the sensor regardless inside or outside the detection area. c) Sudden temperature change inside or around the detection area caused by hot or cold wind from HVAC, or vapor from the humidifier, etc. 								
2) [Difficu	Ity in sensing the heat source						
 a) Glass, acrylic or similar materials standing between the target and the sensor may not allow a correct transmission of infrared rays, b) Non-movement or quick movements of the heat source inside the detection area. (Please refer to 4-1 for details about movement speed.) 								
3)	Expan	sion of the detection area						
	In case of considerable difference in the ambient temperature and the human body temperature, detection area may be wider apart from the configured detection area.							
4)	4) Malfunction / Detection error							
Unnecessary detection signal might be outputted, on rare occasions, come from sudden outbreak output due to the nature of pyro-electric element. When the application does not accept such condition strictly, please implement the countermeasure by introducing pulse count circuit etc.								
6-2 (Optima	al Operating Environment Condit	tions					
2) 3)	 Temperature : Please refer to the maximum rated values of 4-2. Humidity Degree :15~85% Rh (Avoid condensation or freezing of this product) Pressure : 86~106kPa Overheating, oscillations, shocks can cause the sensor to malfunction. 							
5)	5) This sensor is not waterproof or dustproof. Avoid use in environments subject to excessive moisture, condensation, frost, containing salt air or dust.							
6) Avoid use in environments with corrosive gases.								

Issued on Mar. 27th,2018

Specifications						Ver.1.1
Product Name		PIR MOTION SEN	SOR "PaPIRs"	Model No.	EKMC769111 [] K	Page: 8
6-3	Handli	ng Cautions		·		
1)		t solder with a sol ensor should be h	-		2° F), or for more than 3 s	econds.
2)	To ma	intain stability of t	he product, al	ways mount or	n a printed circuit board.	
3)	Do not use liquids to wash the sensor. If washing fluid gets through the lens, it can reduce performance.					
4)	Do not	t use a sensor aft	er it fell on the	ground.		
5)	The sensor may be damaged by ± 200 volts of static electricity. Avoid direct hand contact with the pins and be very careful when operating the product.					
6)	When wiring the product, always use shielded cables and minimize the wiring length to prevent noise disturbances.					
7)	The inner circuit board could be destroyed by a voltage surge. Use of surge absorption elements is highly recommended. Surge resistance : below the power supply voltage value indicated in the maximum rated values section.					
8)	Please use a stabilized power supply. Power supply noise can cause operating errors. Noise resistance : $\pm 20V$ or less (Square waves with a width of 50ns or 1µs) To reduce the effect of power supply noise, install a capacitor on the sensor's power supply pin.					
9)	Operating errors can be caused by noise from static electricity, lightning, cell phone, amateur radio, broadcasting offices etc					
10)	Detection performance can be reduced by dirt on the lens, please be careful.					
11)	The lens is made of soft materials (Polyethylene). Please avoid adding weight or impacts that might change its shape, causing operating errors or reduced performance.					
12)	Operating "temperatures" and "humidity level" are suggested to prolong usage. However, they c not guarantee durability or environmental resistance. Generally, high temperatures or high humidity levels will accelerate the deterioration of electrical components. Please consider both the planned usage and environment to determine the expected reliability and length of life of the product.					
13)	Do not attempt to clean this product with any detergent or solvent, such as benzene or alcohol, as these can cause shape or color alterations.					
14)	Avoid storage in high, low temperature or liquid environments. As well, avoid storage in environments containing corrosive gas, dust, salty air etc. It could cause performance deterioration and the sensor's main part or the metallic connectors could be damaged.					
15)	Te Hu	ge conditions emperature: umidity:	+5 ~ +40°C (30 ~ 75% ar after produc	°+41 ∼ +104°	F)	



	Ver.1.1			
Product Name	PIR MOTION SENSOR "PaPIRs"	Model No.	EKMC769111□K	Page: 10

As improvements are continually being made, the specifications or design of this product are subject to change without notice.

Please strictly follow the "Safety Precautions" and "Operating Precautions" on the specifications sheet. Normal functioning cannot be expected if used in environments or conditions other than those specified above.

We are deeply committed to providing the highest quality control for this product. Nevertheless:

- For issues not addressed above, we invite you to share your suggestions, or details about your company's usage conditions, installation, specifications, needs of end users, and applications for this sensor.
- 2) To reduce the risk of harm caused by product failure to human life or assets, this product should always be used in conjunction with other safety measures, such as protective circuitry, double layered circuit boards, etc., and used within the guaranteed performance, efficiency or special characteristics values stated in the specification sheet.
- 3) This product is warranted for a period of one year, from date of delivery, applicable only if the product is used in accordance with the precautions mentioned above and the specifications sheet. We will replace or repair at the delivery location any malfunctioning or defective part or entire product if such defect or malfunction is caused by us.

However, the above warranty shall be void in the following circumstances:

- a) Damage caused to something else than the product itself.
- b) Damage or loss resulting during transportation, storage or handling after the date of supply.
- c) Phenomenon unforeseeable in the state of the technology as of the supply date.
- d) Damage caused by natural or unnatural events such as fire, earthquake, flood, or conflicts beyond our control.