

We hereby inform you that PCBs for illuminated and non-illuminated Navimec and Controlmec modules have been changed. All versions have been integrated into one PCB that can be adjusted according to the required design.

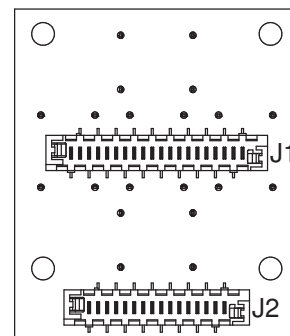
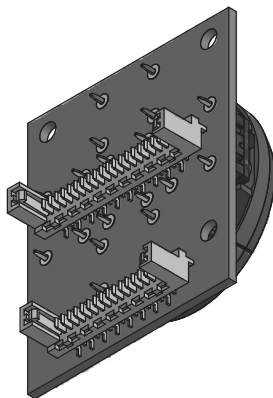
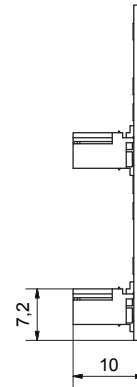
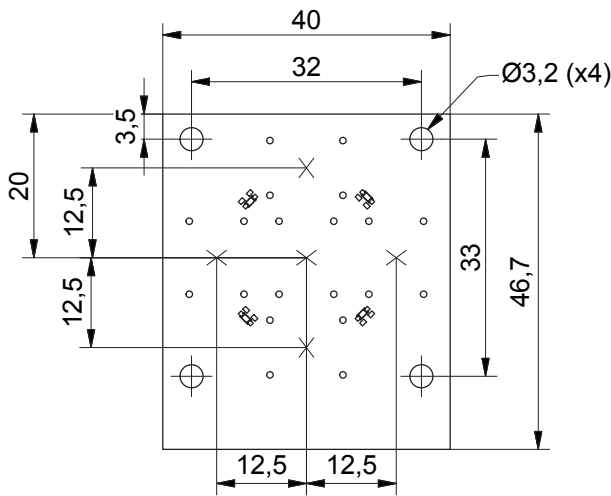
The integration of the various PCBs was decided upon to ease stock handling.

The change has already happened for the Controlmec modules. However, due to stock non-illuminated Navimec modules will be with the new PCB and connectors from 1. September and illuminated Navimec's change over will happen next year.

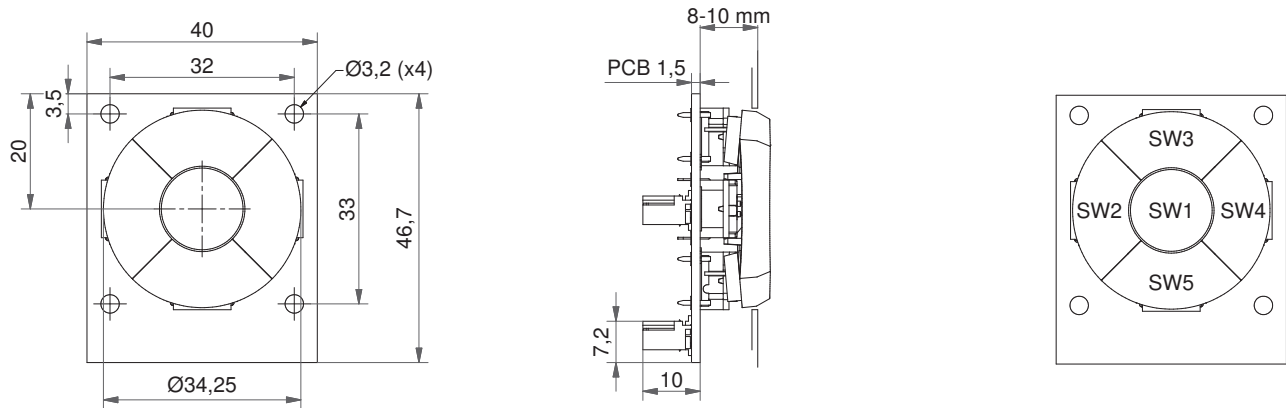
The new PCB has two connectors: upper one (J1) for switches and lower one (J2) for chip-LEDs to illuminate controlmec (see page 3 for circuit diagram and connector information).

The LEDs on the module are either single colour LED (the same as used in 5 series switches - see specifications in the catalogue p. 46) or RGB LEDs (19-237/R6GHBHC-A04/2T from Everlight Electronics CO. LTD - see specifications on p.4-7 in this PCN).

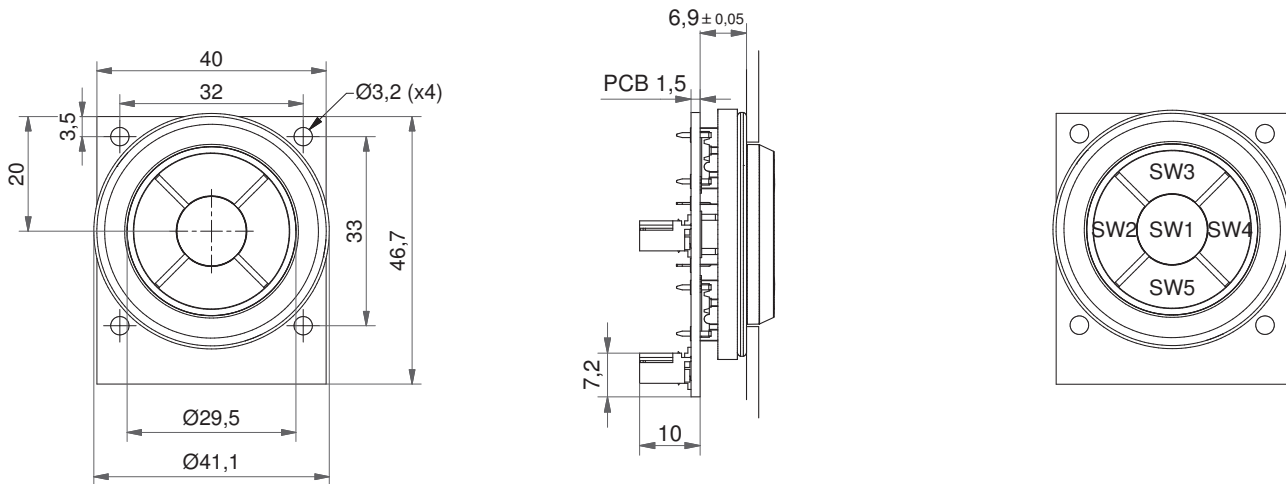
Part no. for PCB and connectors - 9810130



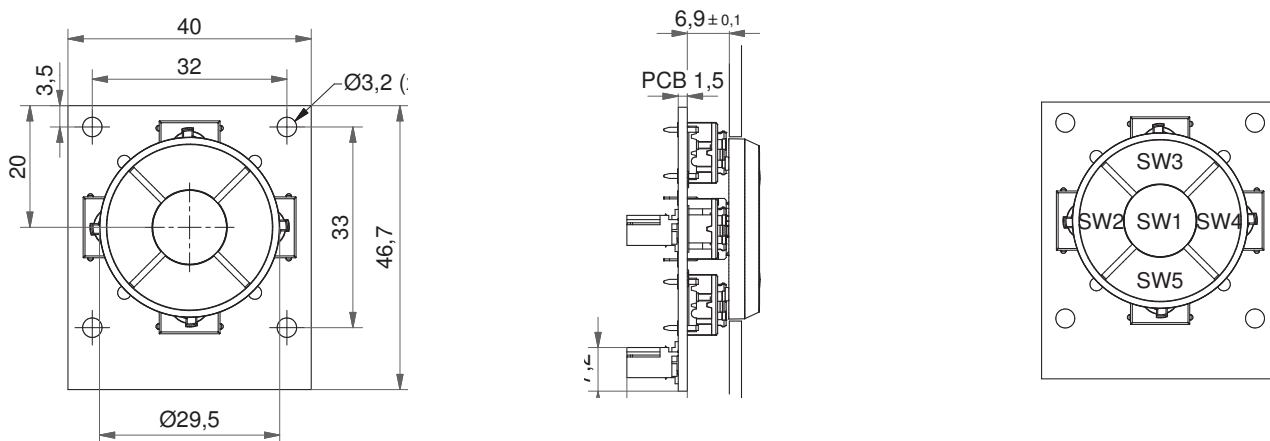
illuminated and non-illuminated Navimec module



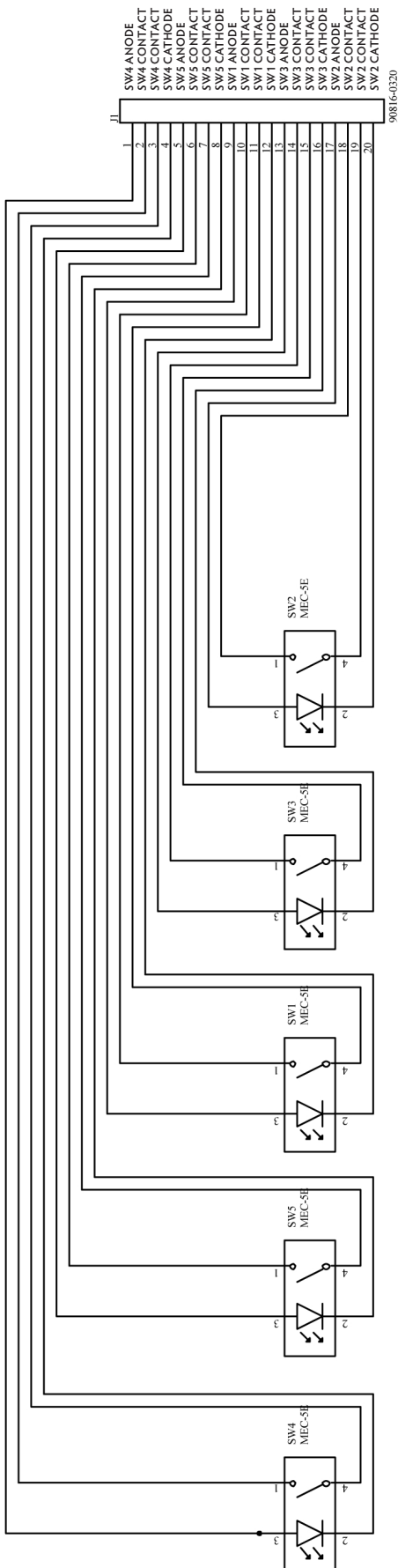
illuminated and non-illuminated Sealed Controlmec module



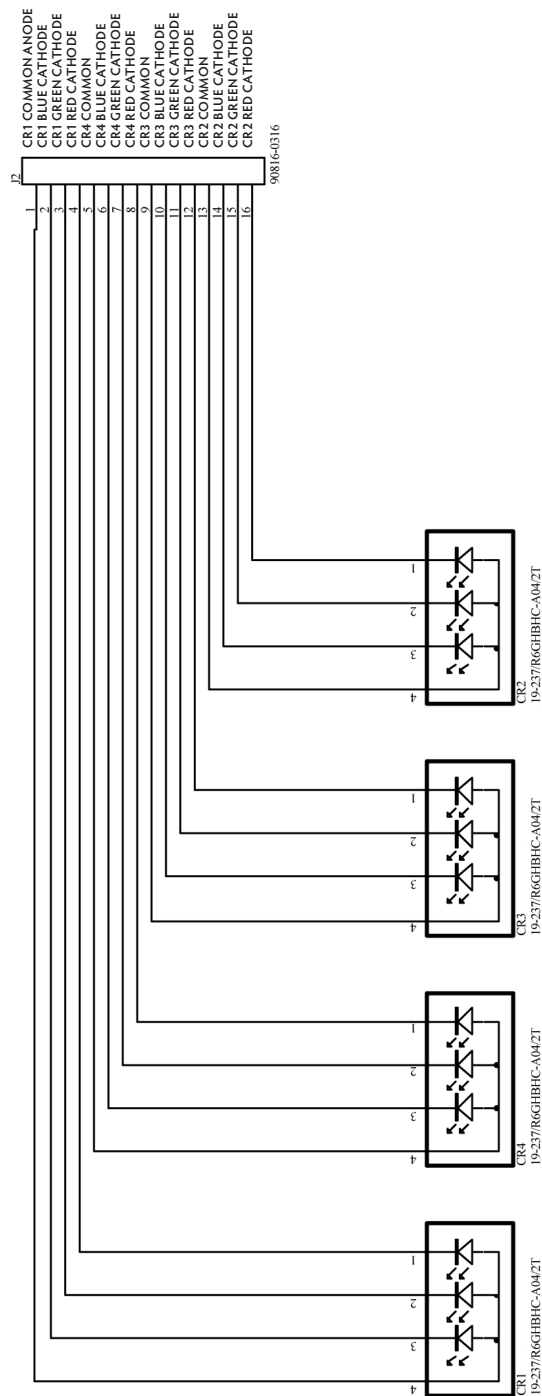
illuminated and non-illuminated non-Sealed Controlmec module



Circuit diagram for switches



Circuit diagram for additional LEDs for controlmec™



Connectors on the module are Molex picoflex series 90816-0320 for switches and 90816-0316 for additional LEDs.

We recommend using:

Cable socket: 90327-0320 for switches and 90327-0316 for additional LEDs

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RGB LED specifications

**Device Selection Guide**

Code	Chip Materials	Emitted Color	Resin Color
R6	AlGaInP	Brilliant Red	
GH	InGaN	Brilliant Green	Water Clear
BH	InGaN	Blue	

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## RGB LED specifications

**Absolute Maximum Ratings (Ta=25°C)**

Parameter	Symbol	Code	Rating	Unit
Reverse Voltage	$V_R$		5	V
Forward Current	$I_F$		25	mA
Peak Forward Current (Duty 1/10 @1KHz)	$I_{FP}$	R6	60	mA
		GH	100	
		BH	100	
Power Dissipation	$P_d$	R6	60	mW
		GH	95	
		BH	95	
Electrostatic Discharge(HBM)	ESD	R6	2000	V
		GH	150	
		BH	150	
Operating Temperature	$T_{opr}$		-40 ~ +85	°C
Storage Temperature	$T_{stg}$		-40 ~ +90	°C
Soldering Temperature	$T_{sol}$		Reflow Soldering : 260 °C for 10 sec. Hand Soldering : 350 °C for 3 sec.	

## RGB LED specifications

**Electro-Optical Characteristics (Ta=25°C)**

Parameter	Symbol	Code	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I <sub>v</sub>	R6	18.0	-----	57.0	mcd	
		GH	28.5		112		
		BH	11.5		28.5		
Viewing Angle	2θ <sub>1/2</sub>		-----	120	-----	Deg	
Peak Wavelength	λ <sub>p</sub>	R6	-----	632	-----	nm	
		GH	-----	518	-----		
		BH	-----	468	-----		
Dominant Wavelength	λ <sub>d</sub>	R6	613	-----	627	nm	I <sub>F</sub> =5mA
		GH	520	-----	530		
		BH	465	-----	475		
Spectrum Radiation Bandwidth	Δλ	R6	-----	20	-----	nm	
		GH	-----	35	-----		
		BH	-----	25	-----		
Forward Voltage	V <sub>F</sub>	R6	1.7	-----	2.2	V	
		GH	2.6	-----	3.0		
		BH	2.6	-----	3.0		
Reverse Current	I <sub>R</sub>	R6			10	μA	V <sub>R</sub> =5V
		GH			50		
		BH	-----	-----	50		

## Note:

1. Tolerance of Luminous Intensity: ±11%
2. Tolerance of Dominant Wavelength: ±1nm
3. Tolerance of Forward Voltage: ±0.1V

## RGB LED specifications

**R6****Bin Range of Luminous Intensity**

Bin Code	Min.	Max.	Unit	Condition
M	18.0	28.5	mcd	I <sub>F</sub> =5mA
N	28.5	45.0		
P	45.0	57.0		

**GH****Bin Range of Luminous Intensity**

Bin Code	Min.	Max.	Unit	Condition
N	28.5	45.0	mcd	I <sub>F</sub> =5mA
P	45.0	72.0		
Q	72.0	112		

**Bin Range Of Forward Voltage**

Bin Code	Min.	Max.	Unit	Condition
1	2.6	2.8	V	I <sub>F</sub> =5mA
2	2.8	3.0		

**BH****Bin Range of Luminous Intensity**

Bin Code	Min.	Max.	Unit	Condition
L	11.5	18.0	mcd	I <sub>F</sub> =5mA
M	18.0	28.5		

**Bin Range Of Forward Voltage**

Bin Code	Min.	Max.	Unit	Condition
1	2.6	2.8	V	I <sub>F</sub> =5mA
2	2.8	3.0		

## Note:

1. Tolerance of Luminous Intensity: ±11%
2. Tolerance of Forward Voltage: ±0.1V