

Felicity

LIGHTING



RAZOTM
HIGH EFFICIENCY LED STREET LIGHT

PRODUCT DATA SHEET:
AUSTRALIA and NEW ZEALAND
V-CAT AND P-CAT
3000K AND 4000K

MODERN SUPER SLEEK PROFILE

RAZO™ design and appearance is first and foremost sleek and contemporary. Paired with its many mechanical features and unique efficiency, RAZO is the defining design for current and future urban- and cityscapes.



OPTIMIZED FOR EASY MAINTENANCE

RAZO™ offers tool-free and immediate access to all internal active parts of the luminaire. The unique gear access system makes upgrades and site repair a feasible option. The hinge system makes it possible to replace both service electronics, as well as LEDs without unmounting the light.

Top part carries both the LED module and the Electronic gear tray. It can be opened without tool and be extracted for operation of maintenance or it can be replaced with a new one directly without re-wiring by keeping the bottom part installed.



Electrical connection CLASS II : Neutral /Phase are connected to safety switch; for Class I earth wire to be connected on earth stud in housing. DALI 2 incoming wiring is connected to a separate termination block.

Gear with TCI/OSRAM DALI 2 programmable driver, SPD and EMI as per request.

Level gauge for precise and easy horizontal installation.

SILICON GASKET

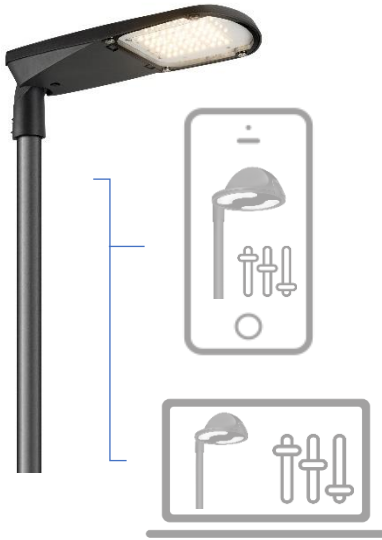
Housing is made of very corrosion-resistant die-cast aluminum. Polyester powder-coated painting after chemical washing treatment.

Mounting with two stainless steel bolts (extra long bolts for small column can be ordered with luminaire).

Spigot made of die-cast aluminum, standard in same color as body. Universal post top / side entry spigot for $\varnothing 60\text{mm}/76\text{mm}/50\text{mm}$.

Flat toughened glass to prevent upward light. Fixed to the frame with metal clips for easy replaceability. Very high light transmission to optimize the Light Output Ratio.





IN COMPLETE CONTROL - ANYWHERE YOU ARE

RAZO™ comes fully equipped with an NFC programmable DALI2 LED driver with advanced local and standalone dimming and control features like Astro dimming, Constant Lumen Output and much more.

Combined with optional pre-installed NEMA or ZHAGA socket, any wireless Lighting Control Unit can be added for centralized Control Management Systems.

For remote and central Control Management System, check out [NB AXIS™](#), our Lighting Control and IoT Smart City Solution.

ADAPTIVE LIGHTING DESIGN WITH MODULAR LENSES

The innovative and highly flexible lighting system of GYRO™ cover all P Category Roads and V Category Roads both in terms of power as well as optics. In addition, the LED modules are easily replaceable and thus a P CAT GYRO can easily be converted to a V CAT luminaire and Vice Versa.



RAZO-S-12

12 pcs. High Power LEDs
12W-20W Optional Power Setting
8 different optical lenses

P1, P2, P3, P4 CAT Roads
Park, Paths, Driveways



RAZO-S-20

20 pcs. High Power LEDs
20W-45W Optional Power Setting
8 different optical lenses

V3, V4 CAT Roads
Urban Space
Intersection
Round About
Parking Area



RAZO-M-42

42 pcs. High Power LEDs
50-80W Optional Power Setting

V1, V2 CAT ROADS
Urban Space
Intersection
Round About
Parking Area



GYRO-M-60

60 pcs. High Power LEDs
90-120W Optional Power Setting
8 optical lenses different

V1,V2 CAT ROADS
Urban Space
Intersection
Round About
Parking Area



LUMEN AND EFFICIENCY @4000K

	MODEL	LED QTY	LED CURRENT SETTING	SYSTEM POWER SETTING	LUMEN*	LUMEN/WATT
			mA	W	LM	LM/Watt
P-CAT	RAZO-S-12	12	350	15	1824	126
			400	17	2830	128
			500	21	2800	130
V-CAT	'RAZO-S-20	20	400	28	3620	138
			500	31	4285	135
			650	38	5523	134
	RAZO-M-42	42	400	50	7800	135
			450	63	8888	135
			500	68	15155	135
	RAZO-M-60	60	550	74	16418	135
			450	82	12206	141
			500	94	13690	142
			600	109	15511	143
			650	118	16375	142

*Lumen result will vary up to +/- 3% between lens types used.

Lumen results for 3000K LEDs can vary up to - 3% while Lumen for 5000K LEDs is the same.



LIFETIME AND WARRANTY

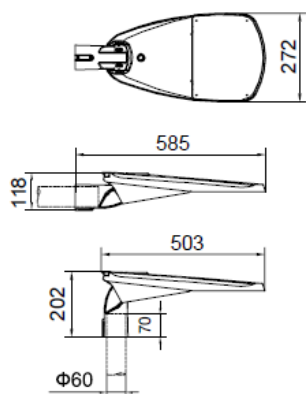
CALCULATION	L90@25°	STANADARD WARRANTY
LLMF	>118.000 hours	10 Years
TM-21	>118.000 hours	



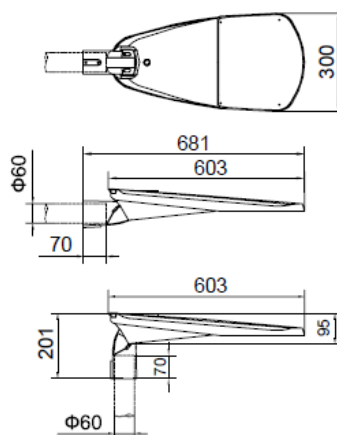
DIMENSIONS AND WEIGHT

MODEL	LENGTH mm	HEIGHT mm	WIDTH mm	WEIGHT Kg
RAZO-S-12	603	131	300	5.7
RAZO-S-20	603	131	300	5.7
RAZO-M-42	791	131	381	7.9
RAZO-M-60	791	131	381	7.9

RAZO-S

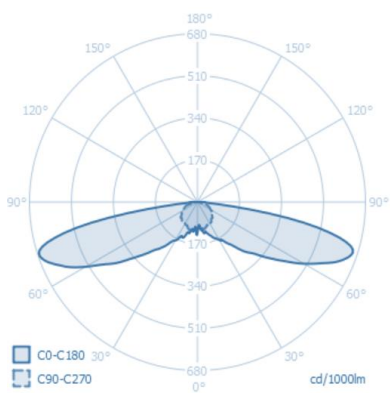
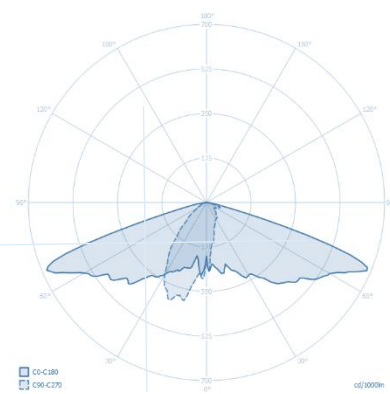
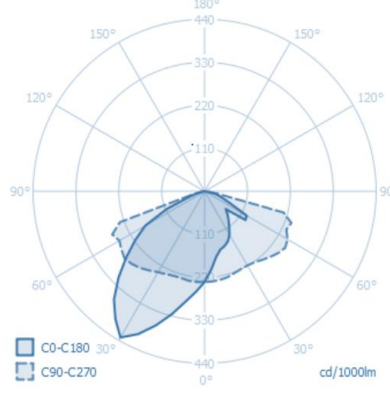
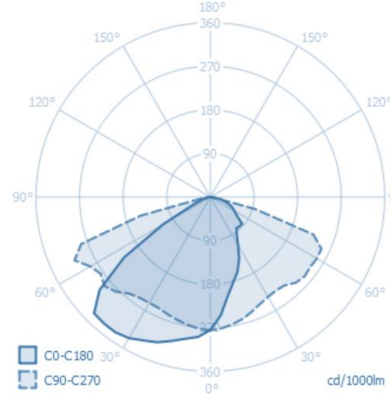
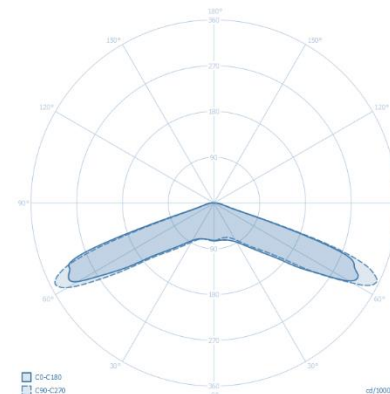
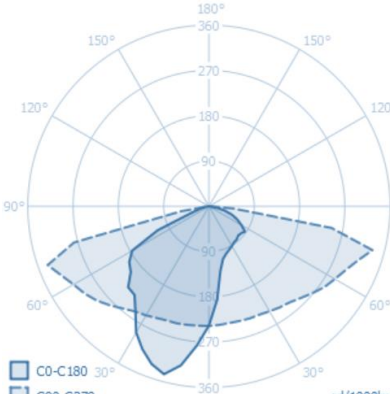
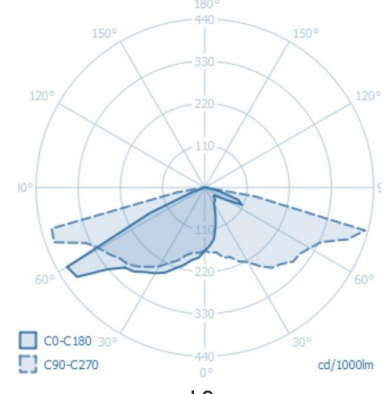


RAZO-M



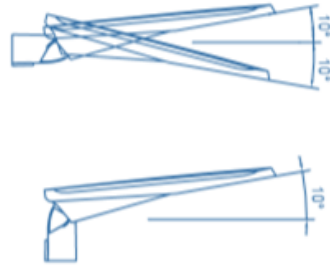


LIGHT DISTRIBUTION

LENS TYPE	ROAD CATEGORY	LENS TYPE	ROAD CATEGORY
 <p>L1</p>	<p>IESNA (US/CAN): Type 1 EN13201</p> <p>GENERAL APPLICATION Middle Road Suspension</p> <p>INTENSITY: Gamma 90°: 0 Cd</p>	 <p>L2</p>	<p>IESNA (US/CAN): Type 2 EN13201 Traffic Roads AS/NZS 1158: V-CAT/P-CAT GENERAL APPLICATION Pole/Width Ratio >2 Narrow Roads INTENSITY: Gamma 90°: 0 Cd</p>
 <p>L3</p>	<p>IESNA (US/CAN): Type 3 EN13201: Traffic Roads AS/NZS 1158: V-CAT GENERAL APPLICATION Pole/Width Ratio: 1><2 Wide Roads</p> <p>INTENSITY: Gamma 90°: 0 Cd</p>	 <p>L4</p>	<p>IESNA (US/CAN): Type 3 EN13201: ME4 AS/NZS 1158: V-CAT GENERAL APPLICATION Pole/Width Ratio: 1><2 Wide Roads</p> <p>INTENSITY: Gamma 90°: 0 Cd</p>
 <p>L5</p>	<p>IESNA (US/CAN): Type 5</p> <p>AS/NZS 1158: P-CAT</p> <p>GENERAL APPLICATION Park/path lighting Parking Areas</p> <p>INTENSITY: Gamma 90°: 0 Cd</p>	 <p>L7</p>	<p>IESNA (US/CAN): Type 3 EN13201: Traffic Roads AS/NZS 1158: V-CAT GENERAL APPLICATION Pole/Width Ratio: 1><2 Wide Roads</p> <p>INTENSITY: Gamma 90°: 0 Cd</p>
 <p>L9</p>	<p>IESNA (US/CAN): Type 3 EN13201: Traffic Roads AS/NZS 1158: P-CAT GENERAL APPLICATION Pole/Width Ratio: <1 Wide Roads</p> <p>INTENSITY: Gamma 90°: 0 Cd</p>		

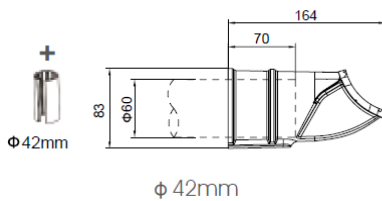
TILT SETTINGS

RAZO-S/M
-10° - +10°

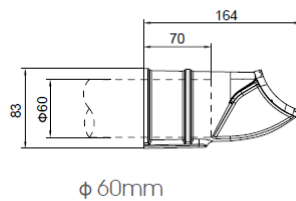


SPIGOT SIZES and ADAPTERS

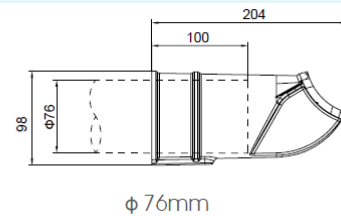
Ø32-42mm Adapter



Ø42-Ø60mm Standard



Ø60-Ø72mm Adapter



GENERAL SPECIFICATIONS FOR ALL RAZO VERSIONS

FREQUENCY (Hz)	50/60
POWER FACTOR (COS)	>90
VOLTAGE	AC 100-270 V
DRIVER CONTROL INTERFACE	DALI2
COLOR	DARK GREY (RAL 7026), LIGHT GRAY (RAL 9006)
BODY PARTS MATERIAL	Alu Alloy: LM6 (Die Cast)
ISOLATION CLASS	CLASS I / CLASS II
SURGE PROTECTION	Max Surge Current: 20kA 8/20us; Max Open Circuit Voltage 10 kV
INGRESS PROTECTION	IP66
WIND LOAD FACTOR	S 0.048 / M 0.058
IMPACT PROTECTION	IK09
OPERATING TEMPERATURE	-20°C / +50°C



CERTIFICATIONS/TEST REPORTS

AS/NZS	IEC (CB) LVD	CE LVD	CE EMC
AS/NZS 1158.6:2015 AS/NZS 60958.1:2013 AS/NZS 60958.2.3:2015 AT Approved M30 listed (PENDING)	IEC 60958-1:2014 IEC EN60958-2-3:2002 IEC 60958-2-3:2002/AMD1:2011 IEC 62471:2006 IEC 62493:2015 IEC LM-80-08	EN 60958-1:2015 EN 60958-2-3:2003/A1:2011 EN 62471:2008 EN 62493:2015	EN 55015:2013/A1:2015 EN 61547:2009 EN 61000-3-2:2014 EN 61000-3-3:2013
Lighting Tests	Salt Spray Test >1000 hrs	Vibration Test	EU RoHS
IESNA LM-79-2008	ISO 9227	IEC60068-2-6:2007	EN 62321:2009

ORDER CODE – LUMINAIRE CONFIGURATION

ORDER CODE POSITION	CODE TYPE	OPTIONS	WHAT IS THIS?
1	Company	NB	Short for NB Smart Cities or your OEM Partner Code
2	Luminaire Type	SL FL AL	SL=Street Light FL= Flood Light AL= Architectural Light
3	Product Family	CRUX GYRO RAZO-S RAZO-M	Name of Product Family
4	Quality Model	P E	P= PLUS = Programmable Driver + High Power LEDs E=ESSENTIAL= Dimmable Driver + Medium Power LEDs
5	LED Qty	Look up in Data Sheet Lumen Table	Choose your LED Qty for desired wattage and lumen area
6	LED Current Setting	Look up in Data Sheet Lumen Table	Choose your LED Current Setting and corresponding System Power for exact wattage and lumen required. The driver will then be pre-programmed to this specific setting during production or installation
7	CRI + CCT	730 740 750	Colour Rendering Index (Ra) = 70 Choose Colour Temperature: 30= 3000K 40=4000K 50=5000K
8	Body Colour	DG LG C	DG=Dark Grey (RAL XXX) LG= Light Grey (RAL XXX) C = Custom Colour (Specify in Order Text)
9	Lens Type	L1, L2, L3, L4 L5, L7, L9	Choose Lens Type for desired lighting distribution according to your Lighting Design Requirements
10	Mounting Type	SM TM PM SU PE	SM=Side Mounted TM=Top Mounted PM=Park Mounted WS=Wire Suspended PE=Pendant Mounted
11	External Control Connector	N ZU ZD ZUD	N =NEMA ZU =ZHAGA – facing UP ZD = ZHAGA – facing DOWN ZUD = ZHAGA – 2 pcs. facing UP and DOWN

1	2	3	4	5	6	7	8	9	10	11
NB	SL	RAZO-M	PLUS	42	350	740	LG	L9	SM	N

NB-SL-RAZO-M-P-42-350-740-LG-L9-SM-N



RAZO Street Light

Top/Side Mounted Street Light with Programmable Driver for **20 LEDs** in **4000K** Colour Temperature set at **350 mA**. Equipped with **L9** optical lenses. **Light Grey** Die-Cast Alu Body. Fitted with **NEMA 7-PIN** for external control device.

GET IN TOUCH...

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IMPORTANT!

Due to continuous technological innovation, changes in external conditions, and availability of parts and services, the products and specifications displayed in this data sheet are subject to change. Please ask your NB Smart Cities representative for full up-to date technical details.