PTB-3T Hemispherical Signal Light

Three-Colour Dome Warning Light - 30 / 50 / 70 / 90 mm

User Manual

Models PTB30-3T, PTB50-3T, PTB70-3T, PTB90-3T and -J versions

DC 12 V or DC 24 V - steady R/Y/G - buzzer approx. 85 dB

Kemotronics Industrial Lighting

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This manual covers the PTB-3T series in all four diameters, both voltage versions and both sound versions. A model code with the letter J at the end has a built-in buzzer; a code without J is the silent version.

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1. PRODUCT OVERVIEW

The PTB-3T is a hemispherical three-colour signal light for machine panels and control cabinets. Red, yellow and green LED groups sit inside one transparent PC dome, and each group is switched through its own core, so one lamp shows three machine states without extra panel space. The light is steady (not flashing) in all versions.

Mounting is by a panel cut-out and the supplied nut; an L-shape or flat bracket can be added for surface mounting and is sold separately. The buzzer version gives an audible alarm of about 85 dB in addition to the light. Typical users are machine tool and CNC operators, automation and packing line builders, panel builders and maintenance teams.

2. TECHNICAL SPECIFICATIONS

Model range	PTB30-3T / PTB50-3T / PTB70-3T / PTB90-3T
Buzzer versions	PTB30-3T-J / PTB50-3T-J / PTB70-3T-J / PTB90-3T-J
Light source	High-brightness LED chip, three independent groups
Light mode	Steady - red, yellow, green
Voltage	DC 12 V or DC 24 V, separate versions, not interchangeable
DC polarity	No polarity on the DC versions
LED current	Approx. 15 mA
Buzzer current	Approx. 35 mA
Buzzer volume	Approx. 85 dB
Dome material	PC, flame retardant, heat and impact resistant
Body material	Metal, black
Ambient temperature	-25 C to +60 C
Cable	5 cores, outer dia. 5 mm, approx. 0.6 m
Protection	Dust and splash resistant, do not immerse
Mounting	Panel cut-out plus mounting nut
Warranty	1 year

2.1 DIMENSIONS

Model	Dia.	Cut-out	Overall height
PTB30-3T / -J	30 mm	22 mm	46.5 mm
PTB50-3T / -J	50 mm	30 mm	49 mm
PTB70-3T / -J	70 mm	30 mm	62 mm
PTB90-3T / -J	90 mm	30 mm	72.5 mm

All values are measured manually; allow a tolerance of 1 to 2 mm. The cut-out diameter is the panel hole the lamp body passes through.

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3. PACKAGE CONTENTS

- 1 x PTB-3T signal light with 0.6 m pre-wired cable
- 1 x mounting nut
- 1 x user manual

Mounting bracket and fixing screws are NOT included. A flat bracket (119.8 x 39.55 x 24.8 mm, for a 30 mm cut-out) and an L-shape bracket are available separately.

Optional brackets, ordered separately:

Bracket	Size	Fits
Flat (Y type)	119.8 x 39.55 x 24.8 mm, 4 x dia. 5.5 holes	30 mm cut-out
L shape	See dimension drawing supplied with the bracket	30 mm cut-out

4. INSTALLATION INSTRUCTIONS

Step 1 - Check the voltage: read the nameplate and confirm the lamp is the 12 V or the 24 V version, then check the supply matches.

Step 2 - Cut the panel hole: 22 mm for the 30 mm lamp, 30 mm for the 50, 70 and 90 mm lamps.

Step 3 - Insert the lamp: pass the body through the hole from the front of the panel and check the dome sits square.

Step 4 - Tighten the nut: fit the nut on the rear thread and tighten by hand; do not over-tighten the PC dome against the panel.

Step 5 - Wire and test: connect per section 5 with the power off, restore power and check each colour and the buzzer separately.

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5. WIRING

Core	Function	Connection
Black	Common	Return for all colour groups and the buzzer
Red	Red group	Switch to the supply through a contact or PLC output
Yellow	Yellow group	Switch to the supply through a contact or PLC output
Green	Green group	Switch to the supply through a contact or PLC output
Brown	Buzzer	Buzzer version only; silent version has no brown core

The DC versions have no polarity, so the common core may be connected to either the positive or the negative of the supply. Keep the same polarity for all groups. Never connect the lamp to AC mains. Cores are thin, so use a small screwdriver terminal or a 0.5 mm2 splice and insulate every joint.

The buzzer version is not waterproof. Mount it where splashes cannot enter the buzzer opening.

6. COLOUR STATUS RECOMMENDATIONS

Colour	Meaning	Typical action
Green	Normal running	Machine in cycle, no action needed
Yellow	Attention	Process deviation, material low, changeover due
Red	Fault or stop	Machine stopped or alarm; operator must attend

The buzzer is normally wired to the red group so an alarm is heard as well as seen. Wire it to yellow instead when the buzzer should only warn.

7. MAINTENANCE AND CARE

- Wipe the dome with a soft dry cloth; use water only when needed and dry it at once.
- Do not use solvents, thinners or abrasive pads on the PC dome.
- Check the nut and the cable gland every few months on machines with heavy vibration.
- Store between -25 C and +60 C, dry, away from direct sunlight.

8. SAFETY WARNINGS

- ALWAYS isolate the supply before installation, wiring or maintenance.
- Never connect a 12 V or 24 V lamp to AC mains; the LED groups will be destroyed.
- Do not open the lamp body; the dome and the body are sealed as one unit and cannot be serviced in the field.
- The lamp is splash resistant, not waterproof. Do not immerse it and do not use it outdoors in rain.
- Keep the dome clear of hot parts; the stated ambient limit is +60 C.
- Installation must be carried out by a qualified electrician.
- Check local rules before use in safety-related circuits; this lamp is an indicator, not a safety device.

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9. TROUBLESHOOTING

Problem	Possible cause	Solution
No light at all	No supply, blown fuse, wrong version	Check supply and nameplate; confirm 12 V or 24 V
One colour dead	Open core or faulty output	Test the core with a meter; check the PLC output
Dim light	Supply too low or long thin cable	Measure at the lamp; use a shorter or thicker cable
Buzzer silent	Silent version, or brown core not wired	Check the model code ends with J; wire the brown core
Water inside dome	Buzzer version mounted in a wet area	Move the lamp; the buzzer version is not waterproof
Lamp loose	Nut not tightened	Tighten the nut by hand; do not crush the dome

10. WARRANTY POLICY

Every PTB-3T lamp carries a 1 year warranty from the date of delivery. The warranty covers manufacturing defects in materials and workmanship, including LED groups that fail in normal use and a buzzer that stops working.

Not covered: damage from wrong supply voltage, connection to AC mains, water ingress in the buzzer version, a cracked or scratched dome caused by impact, dismantling, and normal wear of the cable.

Claims require the order number and the model code printed in this manual.

11. AFTER-SALES SERVICE

Contact	Jude
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Email	sales01@birtechnology.com
Website	www.cnclight.com

Please quote the model code (for example PTB50-3T-J) and your order number when contacting us.

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