

FOS

technologies

FOS 17R Hybrid CMY



PRODUCT SPECIFICATIONS

TECHNICAL SPECIFICATIONS

Voltage: 110/240 Volt AC, 50/60 Hz.

Power Consumption: 500 Watt.

Light Source: 17R, 350 Watt

Lumen Output: 150.000 Lumens / 10 meters

Optical System: Beam, Spot, Wash modes, zoom range from 2,5 to 32 degrees.

Mechanical Effects: 12 fixed gobos, 9 rotating gobos, 2 combinable prisms, frost filter, zoom 2,5° to 32°, motorized focus, mechanical shutter for dimming / strobe.

Color Mixing System: **FOS 17R Hybrid** contains 3 color wheels, which includes the Cyan, Magenta and Yellow flag each, plus 5 dichroic color filters each which they can be combined. The colors and CMY mixing are offered on to different DMX channels, but they operate always as **LTP**.

Control: Sound Active, Master / Slave, Auto, DMX512.

DMX Channels: 21, 26, 23

Protection Class: IP20 (for indoor use only)

Width: 395 mm

Depth: 305 mm

Height: 640 mm

Weight: 20,9 Kg

SAFETY WARNING

This product must be installed by a qualified professional. All maintenance must be carried out by a qualified electrician. A minimum distance of 0.5 m must be maintained between the equipment and a combustible surface. The product must always be operated in a well-ventilated area. DO NOT stare directly into the light source. Always disconnect the power before carrying out any maintenance. The

earth must always be connected to the ground. Ensure that all parts of the equipment are kept clean and free of dust.

PROTECTION AGAINST SOLIDS AND WATER

Only for IP-rated fixtures

The protection level of a housing is set by applied standards. For classification there is used the IP-Code. It contains the declaration „IP“and two following numbers. The first number characterizes the protection against harmful effects of solids, the second is rating the water protection. It is important to distinguish whether encapsulation and harmful effect! There can be housing that is not capsuled completely but still avoids harmful effect of solids or water.

PROTECTION EXAMPLES:

IP20: Protection against intruding objects >12,5mm „Finger protected “; No waterproofing. **TYPICAL PROTECTION FOR INDOOR USE FIXTURES**

IP33: Protection against intruding objects >2,5mm; Falling water within an angle of 60° has no harmful effect **TYPICAL PROTECTION OF LED-LIGHTS USING RECESSED POWERCON AND DMX SOCKET.** This protection is linked to the mounting position of the fixture and always refers to typical mounting situation like a Floor spot used standing on the ground.

IP54: complete protection against solids and low-pressure water from any side **THIS TYPE OF FIXTURES CAN BE USED UNDER NORMAL OUTDOOR CONDITIONS.**

IP65: shielded against dust and pressurized water from any side. **TYPICAL PROTECTION FOR OUTDOOR RATED EVENTFIXTURES USING WATERPROOFED POWER AND SIGNAL LINK.**

IP67: shielded against dust and protected for accidental briefly submerge. **PROTECTION AGAINST ACCIDENTIAL SUBMERGING ON TEMPORARY FLOODED AREA.**

TEMPORARY USE

Event equipment is designed for temporary use. This are typical purpose as concerts, festivals, theatre, clubs and disco use and referable venues. Long-term use, specially under outdoor conditions and fixed outdoor installation can bring damage in aging materials and affect the coated surface. Sealings as well as cables are made from rubber material and will age by long-term UV-emission as sunlight and should be checked frequently.

LIMITATIONS OF IP PROTECTION

IP-Rating doesn't mean unlimited outdoor use and protection against any kind of environmental influence! Especially sunlight and included UV will bring accelerated aging. Some fixtures need special parts or processes to fit the rated IP-Protection, like mounting covers or caps or similar. Sealings and other plastic or rubber materials are aging parts. They must be checked frequently to ensure the protection and safety of the fixtures. Also specified torque of screws can affect protection!

Installation

Hanging: The fixture can be mounted in a hanging position using the supporting bracket. The bracket should be secured to the mounting truss or structure using a standard mounting clamp. Please note that when hanging the unit, a safety cable should also be used.

UPRIGHT: The fixture can be mounted in an upright or sitting position using the supporting brackets.



NOTE! If the signal cable is over 60 m between the DMX512 controller and fixture or between two fixtures, then a DMX signal amplifier is needed as well.



Caution! HOT BEAM! In *beam mode*, the light beam can be very hot, even in distance. The fixture must be installed with a 5m distance from flammable objects. Do not point the beam in to flammable objects.

Menu Screen

You can easily navigate through menu's options with the four buttons under the screen. Navigating in the menu is simple! With the Up / Down buttons, you are moving through menu's choices, pressing Enter, you are entering the sub menu of the option you have chosen, with the Up / Down buttons you're moving through the sub menu's options, with Enter, you are confirming your choice. Other than that, the fixture has a **touch screen**, making the navigation much more fast and easy. The **FOS 17R Hybrid CMY** offers the following options:



Features menu

Run mode:

- Auto
- Wireless
- DMX

ChanMode:

- 21
- 23
- 26

X Reverse: On / Off

Y Reverse: On / Off

X Angle: 540 / 360

XY OCcheck: On / Off (*Pan / Tilt movement Feedback*)

SignalClear: On / Off (*activates or deactivates the default position when DMX signal is lost*)

Full Color: On / Off

Shortcut: On / Off (*activates or deactivates the disks shortest distance between the effects*)



Manual

Reset

- All Motor
- Part Motor (effects motor reset)
- XY Motor

Select one option and press yes

Test Run

- Auto
- Sound

Simulate DMX

Shows the list of 26 total channels, in which you can adjust the DMX value from the fader on the screen, to create a static effect



System Info

DMX Value: Shows the DMX value of all the DMX channels available on the fixture.

OTHER Info: Shows hardware info of the fixture, like the firmware version of each board, temperature and running time.

ERROR Info: Shows the errors, if any.



Display Setting

Brightness: Level 1 to 7

LightDelay: 10 / 20 / 30 / On

Manuback: 10 / 20 / 30 / On

Flicker: On / Off (activates or deactivates the flickering of the screen, when it's not used)



Lamp Setting

Default: On / Off

Manual: On / Off

Electronic: On / Off



Screen reverse



Language Set



Return to main screen

Channel Modes

21 Channels

1. Pan
2. Tilt
3. Pan / Tilt Speed
4. Functions
 - 0 – 100 No Function
 - 101 – 119 Blackout with Gobo Change OFF**
 - 120 – 129 Blackout with Gobo Change ON**
 - **130 – 139 Lamp On**
 - 140 – 149 Pan / Tilt Reset
 - 150 – 159 No Function
 - 160 – 169 Effects Motor Reset
 - 170 – 199 No Function
 - 200 – 209 Complete Reset
 - 210 – 229 No Function
 - **230 – 239 Lamp Off**
 - 240 – 255 No Function

**** For command activation, keep the value for at least 5 seconds.**

5. Color Wheel 1
 - 0 – 10 Open (White)
 - 11 – 30 White & Pink
 - 31 – 60 Pink
 - 61 – 80 Pink & CTB
 - 81 – 110 CTB
 - 111 – 131 CTB & CTO
 - 132 – 160 CTO
 - 161 – 182 CTO & CTO 3200
 - 183 – 214 CTO 3200
 - 215 – 235 CTO 3200 & UV
 - 236 – 255 UV

6. Color Wheel 2
 - 0 – 10 Open (White)
 - 11 – 30 White & Green
 - 31 – 60 Green

- **61 – 80 Green & CTB**
- **81 – 110 CTB**
- **111 – 131 CTB & Dewberry**
- **132 – 160 Dewberry**
- **161 – 182 Dewberry & White**
- **183 – 214 White**
- **215 – 235 White & Deep Red**
- **236 – 255 Deep Red**

7. Color Wheel 3

- **0 – 10 Open (White)**
- **11 – 30 White & Light Green**
- **31 – 60 Green**
- **61 – 80 Green & Light Pink**
- **81 – 110 Light Pink**
- **111 – 134 Light Pink & Turquoise**
- **135 – 160 Turquoise**
- **161 – 185 Turquoise & Orange**
- **186 – 214 Orange**
- **215 – 236 Orange & Sunset Yellow**
- **237 – 255 Sunset Yellow**

8. Cyan

9. Magenta

10. Yellow

11. Static Gobo Wheel

- **0 – 4 Open**
- **5 – 9 Gobo 1**
- **10 – 14 Gobo 2**
- **15 – 19 Gobo 3**
- **20 – 24 Gobo 4**
- **25 – 29 Gobo 5**
- **30 – 34 Gobo 6**
- **35 – 39 Gobo 7**
- **40 – 44 Gobo 8**
- **45 – 49 Gobo 9**
- **50 – 54 Gobo 10**
- **55 – 59 Reducer 1**
- **60 – 64 Reducer 2**
- **65 – 89 Reducer 3**
- **90 – 94 Gobo 1 Shake**
- **95 – 99 Gobo 2 Shake**
- **100 – 104 Gobo 3 Shake**

- **105 – 109** Gobo 4 Shake
- **110 – 114** Gobo 5 Shake
- **115 – 119** Gobo 6 Shake
- **120 – 124** Gobo 7 Shake
- **125 – 129** Gobo 8 Shake
- **130 – 134** Gobo 9 Shake
- **135 – 139** Gobo 10 Shake
- **140 – 144** Beam Reducer 1 Shake
- **145 – 149** Beam Reducer 2 Shake
- **150 – 174** Beam Reducer 3 Shake
- **175 – 210** CW Gobo Scroll
- **211 – 224** Stop
- **225 – 255** CCW Gobo Scroll

12. Rotating Gobo Wheel

- **0 – 1** Beam mode aperture (Open)
- **2 – 4** Spot beam aperture (Open)
- **5 – 7** Gobo 1
- **8 – 10** Gobo 2
- **11 – 13** Gobo 3
- **14 – 16** Gobo 4
- **17 – 19** Gobo 5
- **20 – 22** Gobo 6
- **23 – 25** Gobo 7
- **26 – 28** Gobo 8
- **29 – 31** Gobo 9
- **31 – 34** Gobo 1
- **35 – 37** Gobo 2
- **38 – 40** Gobo 3
- **41 – 43** Gobo 4
- **44 – 46** Gobo 5
- **47 – 49** Gobo 6
- **50 – 52** Gobo 7
- **53 – 55** Gobo 8
- **56 – 59** Gobo 9
- **60 – 67** Gobo 1
- **68 – 75** Gobo 2
- **76 – 83** Gobo 3
- **84 – 91** Gobo 4
- **92 – 99** Gobo 5
- **100 – 107** Gobo 6

- 108 – 115 Gobo 7
- 116 – 123 Gobo 8
- 124 – 129 Gobo 9
- 130 – 137 Gobo 1
- 138 – 145 Gobo 2
- 146 – 153 Gobo 3
- 154 – 161 Gobo 4
- 162 – 169 Gobo 5
- 170 – 177 Gobo 6
- 178 – 185 Gobo 7
- 186 – 193 Gobo 8
- 194 – 199 Gobo 9
- 200 – 201 Spot Open
- 202 – 221 CW Gobo Scroll
- 222 – 223 Stop
- 224 – 255 CCW Gobo Scroll

- [Gobos with Indexing option](#)
- [Gobos with CW & CCW rotation](#)
- [Gobos shake with Indexing option](#)
- [Gobos shake with CW & CCW rotation](#)

13. Gobo Rotation / Index

14. Prisms

- 0 – 4 No Prism
- 5 – 99 16 Facet Prism
- 100 – 199 8 Facet Prism
- 200 – 255 Both prisms combined

15. 16F Prism Rotation & Indexing

- 0 – 128 Indexing
- 129 – 192 CW Rotation
- 193 – 255 CCW Rotation

16. 8F Prism Rotation & Indexing

- 0 – 128 Indexing
- 129 – 192 CW Rotation
- 193 – 255 CCW Rotation

17. Frost

18. Zoom

19. Focus

20. Shutter:

- 0 – 31 Shutter Closed

- **32 – 63** Shutter Open
- **64 – 95** Synchronous Strobe
- **96 – 127** Shutter Open
- **128 – 143** Closing Pulse
- **144 – 159** Opening Pulse
- **160 – 191** Shutter Open
- **192 – 223** Flash Effect
- **224 – 255** Shutter Open

21. Dimmer

23 Channels

1. Pan

2. Pan Fine

3. Tilt

4. Tilt Fine

5. Pan / Tilt Speed

6. Functions

- **0 – 100** No Function
- **101 – 119** Blackout with Gobo Change OFF**
- **120 – 129** Blackout with Gobo Change ON**
- **130 – 139 Lamp On**
- **140 – 149** Pan / Tilt Reset
- **150 – 159** No Function
- **160 – 169** Effects Motor Reset
- **170 – 199** No Function
- **200 – 209** Complete Reset
- **210 – 229** No Function
- **230 – 239 Lamp Off**
- **240 – 255** No Function

**** For command activation, keep the value for at least 5 seconds.**

7. Color Wheel 1

- **0 – 10** Open (White)
- **11 – 30** White & Pink
- **31 – 60** Pink
- **61 – 80** Pink & CTB
- **81 – 110** CTB
- **111 – 131** CTB & CTO
- **132 – 160** CTO
- **161 – 182** CTO & CTO 3200

- **183 – 214** CTO 3200
- **215 – 235** CTO 3200 & UV
- **236 – 255** UV

8. Color Wheel 2

- **0 – 10** Open (White)
- **11 – 30** White & Green
- **31 – 60** Green
- **61 – 80** Green & CTB
- **81 – 110** CTB
- **111 – 131** CTB & Dewberry
- **132 – 160** Dewberry
- **161 – 182** Dewberry & White
- **183 – 214** White
- **215 – 235** White & Deep Red
- **236 – 255** Deep Red

9. Color Wheel 3

- **0 – 10** Open (White)
- **11 – 30** White & Light Green
- **31 – 60** Green
- **61 – 80** Green & Light Pink
- **81 – 110** Light Pink
- **111 – 134** Light Pink & Turquoise
- **135 – 160** Turquoise
- **161 – 185** Turquoise & Orange
- **186 – 214** Orange
- **215 – 236** Orange & Sunset Yellow
- **237 – 255** Sunset Yellow

10. Cyan

11. Magenta

12. Yellow

13. Static Gobo Wheel

- **0 – 4** Open
- **5 – 9** Gobo 1
- **10 – 14** Gobo 2
- **15 – 19** Gobo 3
- **20 – 24** Gobo 4
- **25 – 29** Gobo 5
- **30 – 34** Gobo 6
- **35 – 39** Gobo 7

- 40 – 44 Gobo 8
- 45 – 49 Gobo 9
- 50 – 54 Gobo 10
- 55 – 59 Reducer 1
- 60 – 64 Reducer 2
- 65 – 89 Reducer 3
- 90 – 94 Gobo 1 Shake
- 95 – 99 Gobo 2 Shake
- 100 – 104 Gobo 3 Shake
- 105 – 109 Gobo 4 Shake
- 110 – 114 Gobo 5 Shake
- 115 – 119 Gobo 6 Shake
- 120 – 124 Gobo 7 Shake
- 125 – 129 Gobo 8 Shake
- 130 – 134 Gobo 9 Shake
- 135 – 139 Gobo 10 Shake
- 140 – 144 Beam Reducer 1 Shake
- 145 – 149 Beam Reducer 2 Shake
- 150 – 174 Beam Reducer 3 Shake
- 175 – 210 CW Gobo Scroll
- 211 – 224 Stop
- 225 – 255 CCW Gobo Scroll

14. Rotating Gobo Wheel

- 0 – 1 Beam mode aperture (Open)
- 2 – 4 Spot beam aperture (Open)
- 5 – 7 Gobo 1
- 8 – 10 Gobo 2
- 11 – 13 Gobo 3
- 14 – 16 Gobo 4
- 17 – 19 Gobo 5
- 20 – 22 Gobo 6
- 23 – 25 Gobo 7
- 26 – 28 Gobo 8
- 29 – 31 Gobo 9
- 31 – 34 Gobo 1
- 35 – 37 Gobo 2
- 38 – 40 Gobo 3
- 41 – 43 Gobo 4
- 44 – 46 Gobo 5
- 47 – 49 Gobo 6

- 50 – 52 Gobo 7
- 53 – 55 Gobo 8
- 56 – 59 Gobo 9
- 60 – 67 Gobo 1
- 68 – 75 Gobo 2
- 76 – 83 Gobo 3
- 84 – 91 Gobo 4
- 92 – 99 Gobo 5
- 100 – 107 Gobo 6
- 108 – 115 Gobo 7
- 116 – 123 Gobo 8
- 124 – 129 Gobo 9
- 130 – 137 Gobo 1
- 138 – 145 Gobo 2
- 146 – 153 Gobo 3
- 154 – 161 Gobo 4
- 162 – 169 Gobo 5
- 170 – 177 Gobo 6
- 178 – 185 Gobo 7
- 186 – 193 Gobo 8
- 194 – 199 Gobo 9
- 200 – 201 Spot Open
- 202 – 221 CW Gobo Scroll
- 222 – 223 Stop
- 224 – 255 CCW Gobo Scroll

- *Gobos with Indexing option*
- *Gobos with CW & CCW rotation*
- *Gobos shake with Indexing option*
- *Gobos shake with CW & CCW rotation*

15. Gobo Rotation / Index

16. Prisms

- 0 – 4 No Prism
- 5 – 99 16 Facet Prism
- 100 – 199 8 Facet Prism
- 200 – 255 Both prisms combined

17. 16F Prism Rotation & Indexing

- 0 – 128 Indexing
- 129 – 192 CW Rotation
- 193 – 255 CCW Rotation

18. 8F Prism Rotation & Indexing

- **0 – 128** Indexing
- **129 – 192** CW Rotation
- **193 – 255** CCW Rotation

19. Frost

20. Zoom

21. Focus

22. Shutter:

- **0 – 31** Shutter Closed
- **32 – 63** Shutter Open
- **64 – 95** Synchronous Strobe
- **96 – 127** Shutter Open
- **128 – 143** Closing Pulse
- **144 – 159** Opening Pulse
- **160 – 191** Shutter Open
- **192 – 223** Flash Effect
- **224 – 255** Shutter Open

23. Dimmer

26 Channels

1. Pan

2. Pan Fine

3. Tilt

4. Tilt Fine

5. Pan / Tilt Speed

6. Functions

- **0 – 100** No Function
- **101 – 119** Blackout with Gobo Change OFF**
- **120 – 129** Blackout with Gobo Change ON**
- **130 – 139 Lamp On**
- **140 – 149** Pan / Tilt Reset
- **150 – 159** No Function
- **160 – 169** Effects Motor Reset
- **170 – 199** No Function
- **200 – 209** Complete Reset
- **210 – 229** No Function
- **230 – 239 Lamp Off**
- **240 – 255** No Function

**** For command activation, keep the value for at least 5 seconds.**

7. Color Wheel 1

- **0 – 10** Open (White)
- **11 – 30** White & Pink
- **31 – 60** Pink
- **61 – 80** Pink & CTB
- **81 – 110** CTB
- **111 – 131** CTB & CTO
- **132 – 160** CTO
- **161 – 182** CTO & CTO 3200
- **183 – 214** CTO 3200
- **215 – 235** CTO 3200 & UV
- **236 – 255** UV

8. Color Wheel 2

- **0 – 10** Open (White)
- **11 – 30** White & Green
- **31 – 60** Green
- **61 – 80** Green & CTB
- **81 – 110** CTB
- **111 – 131** CTB & Dewberry
- **132 – 160** Dewberry
- **161 – 182** Dewberry & White
- **183 – 214** White
- **215 – 235** White & Deep Red
- **236 – 255** Deep Red

9. Color Wheel 3

- **0 – 10** Open (White)
- **11 – 30** White & Light Green
- **31 – 60** Green
- **61 – 80** Green & Light Pink
- **81 – 110** Light Pink
- **111 – 134** Light Pink & Turquoise
- **135 – 160** Turquoise
- **161 – 185** Turquoise & Orange
- **186 – 214** Orange
- **215 – 236** Orange & Sunset Yellow
- **237 – 255** Sunset Yellow

10. Static Gobo Wheel

- **0 – 4** Open
- **5 – 9** Gobo 1

- **10 – 14** Gobo 2
- **15 – 19** Gobo 3
- **20 – 24** Gobo 4
- **25 – 29** Gobo 5
- **30 – 34** Gobo 6
- **35 – 39** Gobo 7
- **40 – 44** Gobo 8
- **45 – 49** Gobo 9
- **50 – 54** Gobo 10
- **55 – 59** Reducer 1
- **60 – 64** Reducer 2
- **65 – 89** Reducer 3
- **90 – 94** Gobo 1 Shake
- **95 – 99** Gobo 2 Shake
- **100 – 104** Gobo 3 Shake
- **105 – 109** Gobo 4 Shake
- **110 – 114** Gobo 5 Shake
- **115 – 119** Gobo 6 Shake
- **120 – 124** Gobo 7 Shake
- **125 – 129** Gobo 8 Shake
- **130 – 134** Gobo 9 Shake
- **135 – 139** Gobo 10 Shake
- **140 – 144** Beam Reducer 1 Shake
- **145 – 149** Beam Reducer 2 Shake
- **150 – 174** Beam Reducer 3 Shake
- **175 – 210** CW Gobo Scroll
- **211 – 224** Stop
- **225 – 255** CCW Gobo Scroll

11. Rotating Gobo Wheel

- **0 – 1** Beam mode aperture (Open)
- **2 – 4** Spot beam aperture (Open)
- **5 – 7** Gobo 1
- **8 – 10** Gobo 2
- **11 – 13** Gobo 3
- **14 – 16** Gobo 4
- **17 – 19** Gobo 5
- **20 – 22** Gobo 6
- **23 – 25** Gobo 7
- **26 – 28** Gobo 8
- **29 – 31** Gobo 9

- 31 – 34 Gobo 1
- 35 – 37 Gobo 2
- 38 – 40 Gobo 3
- 41 – 43 Gobo 4
- 44 – 46 Gobo 5
- 47 – 49 Gobo 6
- 50 – 52 Gobo 7
- 53 – 55 Gobo 8
- 56 – 59 Gobo 9
- 60 – 67 Gobo 1
- 68 – 75 Gobo 2
- 76 – 83 Gobo 3
- 84 – 91 Gobo 4
- 92 – 99 Gobo 5
- 100 – 107 Gobo 6
- 108 – 115 Gobo 7
- 116 – 123 Gobo 8
- 124 – 129 Gobo 9
- 130 – 137 Gobo 1
- 138 – 145 Gobo 2
- 146 – 153 Gobo 3
- 154 – 161 Gobo 4
- 162 – 169 Gobo 5
- 170 – 177 Gobo 6
- 178 – 185 Gobo 7
- 186 – 193 Gobo 8
- 194 – 199 Gobo 9
- 200 – 201 Spot Open
- 202 – 221 CW Gobo Scroll
- 222 – 223 Stop
- 224 – 255 CCW Gobo Scroll

- *Gobos with Indexing option*
- *Gobos with CW & CCW rotation*
- *Gobos shake with Indexing option*
- *Gobos shake with CW & CCW rotation*

12. Gobo Rotation / Index

13. Prisms

- 0 – 4 No Prism
- 5 – 99 16 Facet Prism

- **100 – 199** 8 Facet Prism
- **200 – 255** Both prisms combined

14. 16F Prism Rotation & Indexing

- **0 – 128** Indexing
- **129 – 192** CW Rotation
- **193 – 255** CCW Rotation

15. 8F Prism Rotation & Indexing

- **0 – 128** Indexing
- **129 – 192** CW Rotation
- **193 – 255** CCW Rotation

16. Frost

17. Zoom

18. Zoom Fine

19. Focus

20. Focus Fine

21. Auto Focus

- **0 – 3:** Auto focus is off
- **4 – 128:** Zoom macro function (fast - slow)
- **129 – 193:** Automatic focus 5M start range
- **193 – 255:** Automatic focus 12M start range

22. Shutter:

- **0 – 31** Shutter Closed
- **32 – 63** Shutter Open
- **64 – 95** Synchronous Strobe
- **96 – 127** Shutter Open
- **128 – 143** Closing Pulse
- **144 – 159** Opening Pulse
- **160 – 191** Shutter Open
- **192 – 223** Flash Effect
- **224 – 255** Shutter Open

23. Dimmer

24. Cyan

25. Magenta

26. Yellow

General Information

Replacing a fuse:

Always disconnect the fixture from main power before replacing a fuse. Use only the appropriate fuse, with the same type and rating. A fuse with different rating, can damage the fixture in case of failure.

Risk of electric shock and / or fire:

The fixture must be earthed, supplied always with its nominal voltage and cleaned periodically from dust. For cleaning use only, a moist cloth. Never use liquids or force water. After cleaning, let the fixture dry before use.

Lamp:

Disconnect power supply when changing the lamp. The lamp become extremely hot during operation, so let the fixture cool down before opening the cover. Never touch the lamp with bare hands. If the lamp is deformed or cracked, must be replaced immediately. Only recycle the lamp after replacement, as it contains harmful for the environment materials. Use only the same type of lamp for replacement. Never use the fixture without the covers, when the lamp is on.