Robe ROBIN Pointe

By: Mike Wood

From its relatively humble beginnings as a contract manufacturer, Robe has become one of the leading players in the automated lighting market. This Czech Republic-based manufacturer has established a strong base in Europe while building a large foothold in the USA and the rest of the world. Although, in the USA at least, Robe has become better-known for its LED-based products, this review takes a look at a luminaire using a discharge lamp, the ROBIN Pointe. It is one of the newer entries into the tight beam projection unit market that, to me, seems to be in its next phase, with a number of manufacturers introducing second versions of their products. These second-generation beam units have extended functionality and often, as is the case with the Robin Pointe, have a method to deliver both the wider, flatter beams that behave like those from a conventional image projecting spot luminaire as well as the trademark ultra-narrow laser emulator-style beams that have become ubiquitous in current shows. The Robe Robin Pointe has a novel method of switching between the two modes that seems to work very well, but more of that later.

Fig. 1: Fixture as tested.

As with previous tests on this type of unit, I'll try and mention when photometric measurements are useful, such as in gobo projection, and when they are less useful, such as in beam effects, to try and draw sensible conclusions. A successful beam effect has as much to do with beam contrast and edge definition as it does with raw power. Please read this review with this thought in mind: Effects projectors and conventional spot automated lights have differing needs and strengths, and a combination unit such as the Pointe needs to be judged differently depending on which mode it is in. As ever, I'll work my way through the unit from lamp to output lens, describing how it all works. All tests were run on a nominal 115V 60Hz supply; however, the Robin Pointe is rated to run on voltages from 100 – 240V 50/60Hz (Fig. 1).

Lamp

The Robin Pointe uses the Osram Sirius HRI 280W lamp (Fig. 2). This is Osram's answer to the Philips Platinum lamps we have seen in other products, with a very small arc gap and an accurate prefocused ellipsoidal reflector. Originally designed for the video projector market, these lamps are designed for use with a tiny gate size. Those small gates are ideal for the parallel beam use of these luminaires but need some clever optical work to make them good with larger gobos, but more of that later. The Sirius HRI 280W is rated to produce 11,500lm from its 1mm arc.

Fig. 2: Lamp.

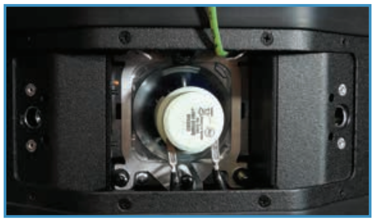

Fig. 3: Lamp change.

The lamp change in the Robin Pointe is the easiest I've seen so far in luminaires using these pre-focus lamps. Access is through a panel held in place with two quick release fasteners; the lamp just disconnects and pulls out from its retaining clips. There are no small screws or parts to lose; very neat (Fig. 3). Also visible in Figure 3 is the all-important temperature sensor (the small red blob to the left of the lamp) that helps the dynamic cooling system keep the lamp at its correct operating temperature. These bare lamps with no external envelope have a narrow temperature band where they are happy.

Normally, you would expect the lamp to be followed by a hot-mirror. However, here's where Robe has made a change to the usual optical system to allow it to switch between narrow beam and spot mode. Instead of a static hot mirror, there's a motorized arm that allows the unit to switch

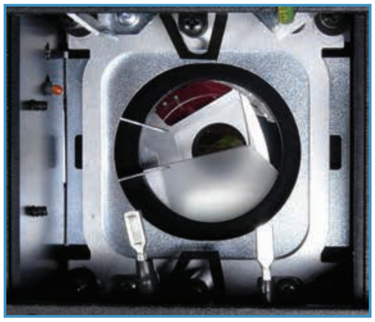

Fig. 4: View through gate.

between using either a conventional angled hot mirror or a homogenizing filter with a hot-mirror coating. Figure 4 shows a view into the gate. I've positioned the arm to show both options; the top half of the aperture is the hot mirror, while the bottom half is the homogenizing filter. In operation, only one or the other of these is across the beam, and the unit chooses which one depending on which mode you are in. Whenever a rotating gobo is being used, the Pointe will automatically insert the homogenizing filter, but when just the static gobo wheel is being used, the user can utilize the hot mirror and get much higher power in the center of the beam (Fig. 4). This system allows glass rotating gobos to be used without being damaged by the intense beam of the unit when it is in beam mode.

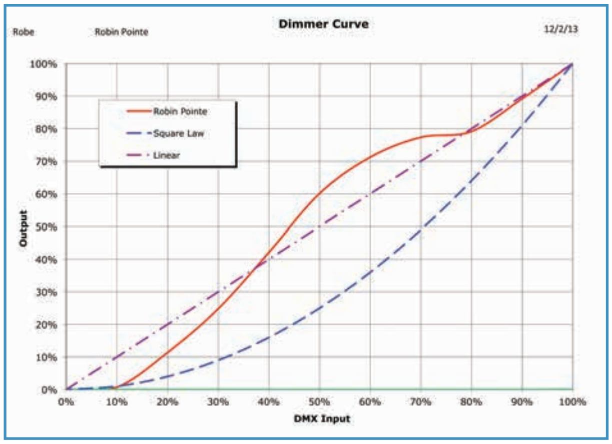

Fig. 5: Dimmer law.

Dimmer and strobe

Next in line is the combination dimmer-and-shutter system. This is a pair of opposing flags with scallops in the edge that close like scissors across the beam. Dimming quality, as with most lights of this type, is not the cleanest when in beam mode. However, with the homogenizing filter in place, it's a different story, and it gives very acceptable results. The dimming curve in flat beam mode is shown in Figure 5 and is very usable. It starts to vignette the beam at levels below 30%, but above that is clean. I measured the strobe as providing speeds from 0.4Hz – 15.7Hz with the usual range of pulse and random strobe effects available. Overall, the dimmer is the best I've seen so far with this class of ultra-narrow beam light.

Color wheel

The color wheel comes next. There are 13 fixed trapezoidal dichroic filters glued to the wheel with a small gap between

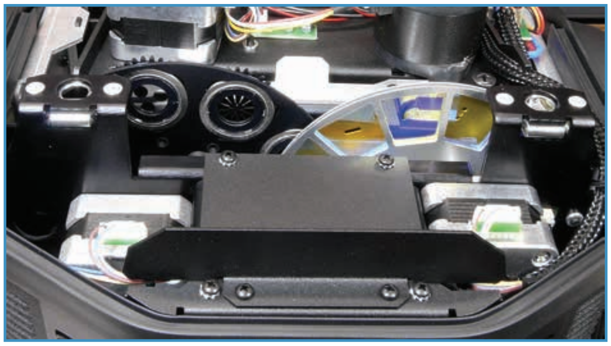

Fig. 6: Color and gobo wheels.

each to minimize the dead area and make the change as smooth as possible. Figure 6 shows the color wheel.

I measured the open white color temperature of the Pointe at 5,300K, and the CTO filter dropped it to 2,900K. The range of colors is good with mostly strong saturates. Half colors are also possible (Fig. 7). Snap color changes are very quick and particularly effective in beam mode.

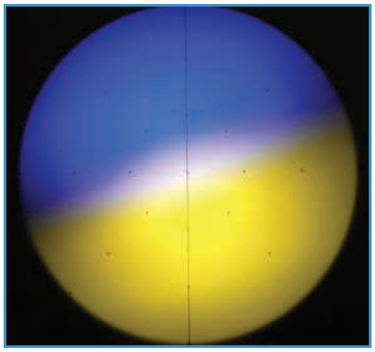

Fig. 7: Split color.

COLOR WHEEL

Color change speed – adjacent	< 0.1 sec
Color change speed – worst case	0.3 sec
Maximum wheel spin speed	1 sec/rev = 60rpm
Minimum wheel spin speed	167 sec/rev = 0.36rpm

The firmware offers wheel spin (rainbow) effects as well as continuous wheel rotation. In slow-speed rotation, the movement was very smooth with no jumps or steps.

Gobo wheels

The Robin Pointe has two gobo wheels: a static wheel mounted back-to-back with the color wheel and a rotating gobo wheel spaced off that. Both are visible in Figure 6. The fixed wheel has 14 positions plus the open hole. Ten of the positions are gobo patterns, while the remaining four provide different sizes of apertures designed to be used when in aerial beam mode. The smallest of these is tiny and provides an almost parallel beam. The static gobo wheel is

FIXED COLOR WHEEL

Color	Deep Red	Deep Blue	Yellow	Green	Magenta	Azure	Red	Cyan	Amber	Blue	Orange	CTO	UV
Transmission	2.4%	1.1%	81%	39%	14%	36%	9.4%	25%	61%	7.8%	38%	60%	0.3%

manufactured in one piece to be as lightweight as possible and moves very quickly between positions.

STATIC GOBO WHEEL

Gobo change time – adjacent apertures	< 0.1 sec
Gobo change time – max (Gobo 1 - 7)	0.3 sec
Maximum wheel spin speed	1.9 sec/rev = 32rpm
Minimum wheel spin speed	145 sec/rev = 0.4rpm

The rotating gobo wheel is familiar because of its similarity to those in other Robe luminaires. It uses the company's "slot and lock" system to allow any of the nine glass gobo cartridges to be easily changed. Figure 8 shows a close-up of the rotating gobo wheel, while Figure 9 shows that same gobo as it is removed from the wheel.

Fig. 8: Rotating gobo.

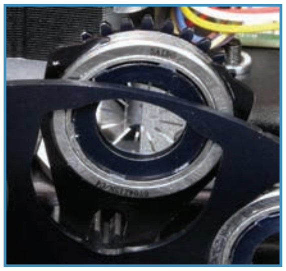

Fig. 9: Gobo change.

ROTATING GOBO WHEEL

Gobo change time – adjacent apertures	0.2 sec
Gobo change time – max (gobo 1 - 5)	0.5 sec
Maximum gobo spin speed	0.4 sec/rev = 150rpm
Minimum gobo spin speed	1656 sec/rev = 0.04rpm

The rotating gobo wheel has a dummy 11th position in the DMX-512 protocol; there are two options for the open hole: flat or open. This is how the user determines whether the homogenizing filter is in place or not and allows switching between beam and spot modes. Flat mode uses the homogenizing filter, while open mode uses the hot mirror and no filter.

With the unit in flat mode, the focus quality on all gobos was very good. There is some visible edge to center difference but nothing unreasonable for such tiny gobos. I would say that the Pointe is very usable as a spot unit for gobo projection.

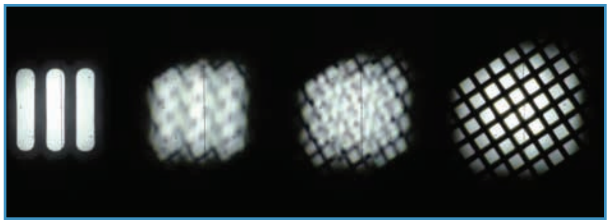

Fig. 10: Gobo morph.

With two gobo wheels, you can pull focus to morph between the wheels. Figure 10 shows a sequence as focus moves from the static to the rotating wheel. Both gobos are in the beam at all times; I just changed focus.

That's it for main optical effects. The next unit in the optical train is actually one of the lenses. However, let's skip that for now and move on to the prism and frost systems that are mounted between lenses.

Prism and frost

The Robin Pointe has two separate prisms that can individually be positioned across the beam. The first, an eight-facet circular prism, is in the same plane as the frost flag, while the second, a six-facet linear prism, is in a second plane. This arrangement means that either of the two prisms or frost can be used on their own, and the linear prism can also be used in combination with the frost. Figure 11 gives a view of the arrangement.

Fig. 11: Frost and prisms.

Figure 12 shows the effects produced by the two prisms when used with the rotating gobo wheel at full zoom. Image separation is good. Each prism can be inserted or removed in about 0.3 seconds and can then be rotated at speeds varying from 0.3 sec/rev (194rpm) down to 306 sec/rev (0.2rpm).

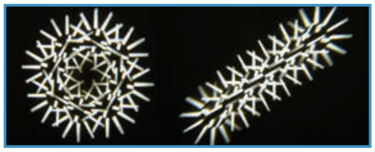

Fig. 12: Prisms.

The frost filter is variable; the intermediate effects are a little muddy, and it is best used at the extremes. Movement of the frost in or out of the beam took 0.4 seconds.

Lenses and output

The Robin Pointe has three lens groups. The first two, on either side of the frost and prisms, can move independently, providing focus and zoom, while the third group is fixed as the final output lens. Focus time from end to end was 0.3 seconds, while zoom was 0.4 seconds.

In flat (spot) mode, with the homogenizing filter in place, I measured the output as 5,818lm in minimum zoom at a field angle of 5.9° and 5,956lm in maximum zoom at a field angle of 20°. Beam distributions for these two modes are shown in Figures 13 and 14.

In open (aerial beam) mode, and no homogenizing filter, lumens are a less-useful measurement. With the smallest aperture on the fixed gobo wheel in place, the beam reduces down to about 2.6°, and the center beam power

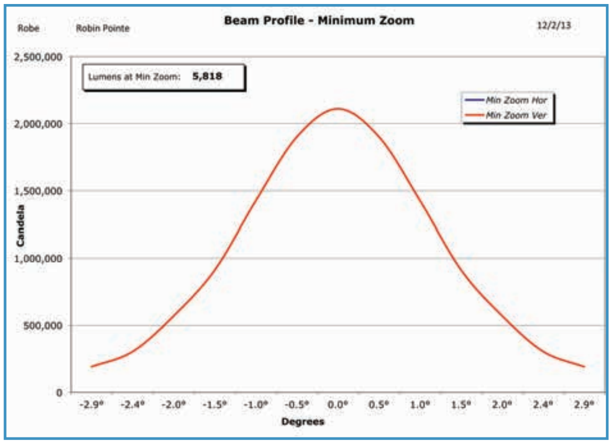

Fig. 13: Beam profile, minimum.

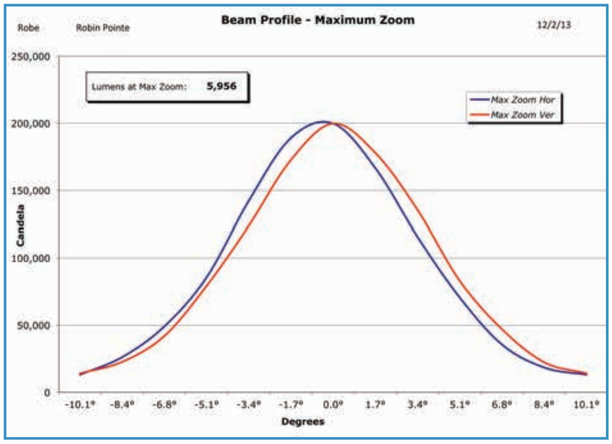

Fig. 14: Beam profile, maximum.

was measured at 18,000,000cd. Edge definition of the beam in this mode was good; I would expect it to show well in haze.

Fig. 15: Yoke and tilt.

Pan and tilt

The Robin Pointe has a full pan range of 540° and tilt of 270°. Pan time at full speed over the pan range of 540° was 2.5 seconds, and the time for a more normal 180° was 1.1 seconds. Corresponding times for tilt were 1.5 seconds for 270° and one second for 180°. The movement on both axes was very smooth, with very little stepping at slow speeds. Pan movement in particular was very good with no bounce or wobble when coming to rest. Tilt had some bounce when stopping. Hysteresis on both axes was minimal at 0.06°.

This equates to 0.2" at 20' throw (10mm at 10m). You can see the tilt mechanism, with its motor, drive belt, tensioner, encoder wheel, and sensor, in Figure 15, which also shows a good view of the locking mechanism on the tilt axis. Pan has a similar mechanism.

Noise

The thermostatically controlled fan provides the bulk of the noise from the Robin Pointe. I allowed the unit to heat up and stabilize for an hour before taking these readings. The noisiest item was rotating the linear prism.

SOUND LEVELS

Ambient	<35dBA at 1m
Stationary	47.5dBA at 1m
Homing/Initialization	48.0dBA at 1m
Pan	48.6dBA at 1m
Tilt	48.0dBA at 1m
Color	48.5dBA at 1m
Prism	52.6dBA at 1m
Gobo select	47.5dBA at 1m
Gobo spin	47.5dBA at 1m
Focus	50.6dBA at 1m
Strobe	47.5dBA at 1m
Frost	47.7dBA at 1m

Homing/initialization time

The Robin Pointe took 36 seconds to complete a full initialization either from power on or from issuing a reset command through DMX-512. The unit was well-behaved; the lamp was dimmed out before movement started and faded up again after all movement had finished.

Power, electronics, and control

Running on my 119V 60Hz supply, the Robin Pointe consumed 3.26A through its Powercon connector. This corresponded to a power consumption of 389W with a power factor of 0.98. The power during homing/initialization was lower, as the lamp power is reduced during those operations.

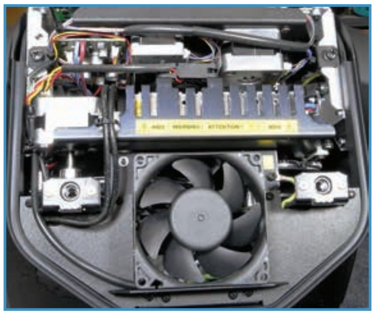

Fig. 16: Lamp supply.

Fig. 17: Yoke and drivers.

Fig. 18: Power supply.

Fig. 19: Display.

Fig. 20: Connectors.

Both power supplies and electronics are distributed throughout the unit as much as possible. The lamp supply, for example, is in the head right next to the lamp (Fig. 16). Motor drivers are in both the head and in the yoke (Fig. 17), and the main DC power supply is in the base (Fig. 18). The top box also contains a battery to allow setting unit parameters such as the DMX-512 address while power is off. Electrical construction and wiring was tidy.

Robe has its usual color LCD touch screen providing control and configuration. This is simple to navigate and contains all the expected options (Fig. 19). The Robin Pointe offers a wide range of options for control; as well as the usual full selection of XLR connectors for DMX-512, there's also an RJ45 Ethercon providing support for Art-Net, MA Net, and MA Net2 and an option for wireless DMX control through an internal LumenRadio module. The Ethernet input can also be used as an Art-Net to DMX-512 converter node, where the first Pointe in a link receives Art-Net and then passes on that universe through its DMX512 output to further units (Fig. 20).

I ran the Pointe through a full set of RDM tests using the Open Lighting Architecture RDM test suite. It came through with flying colors, passing all tests. The test results are shown in Figure 21 along with the device info returned through RDM.

Construction and serviceability

I found disassembly for maintenance to be very straightforward, with fasteners being logically placed. The construction follows current standard practice with lightweight external covers over an aluminum chassis with optical modules attached. I don't anticipate any problems with normal servicing and cleaning.

As I said at the beginning of this review, I see the Robe Robin Pointe as one of the second-generation beam units that have recently appeared. As with its competitors, it seeks to make this class of unit more flexible in its use by adding spot features and means to switch between them. Has Robe succeeded? I've given you the data, now it's up to you to decide.

Mike Wood provides technical, design, and intellectual property consulting services to the entertainment technology industry. He can be contacted at mike@mikewoodconsulting.com.

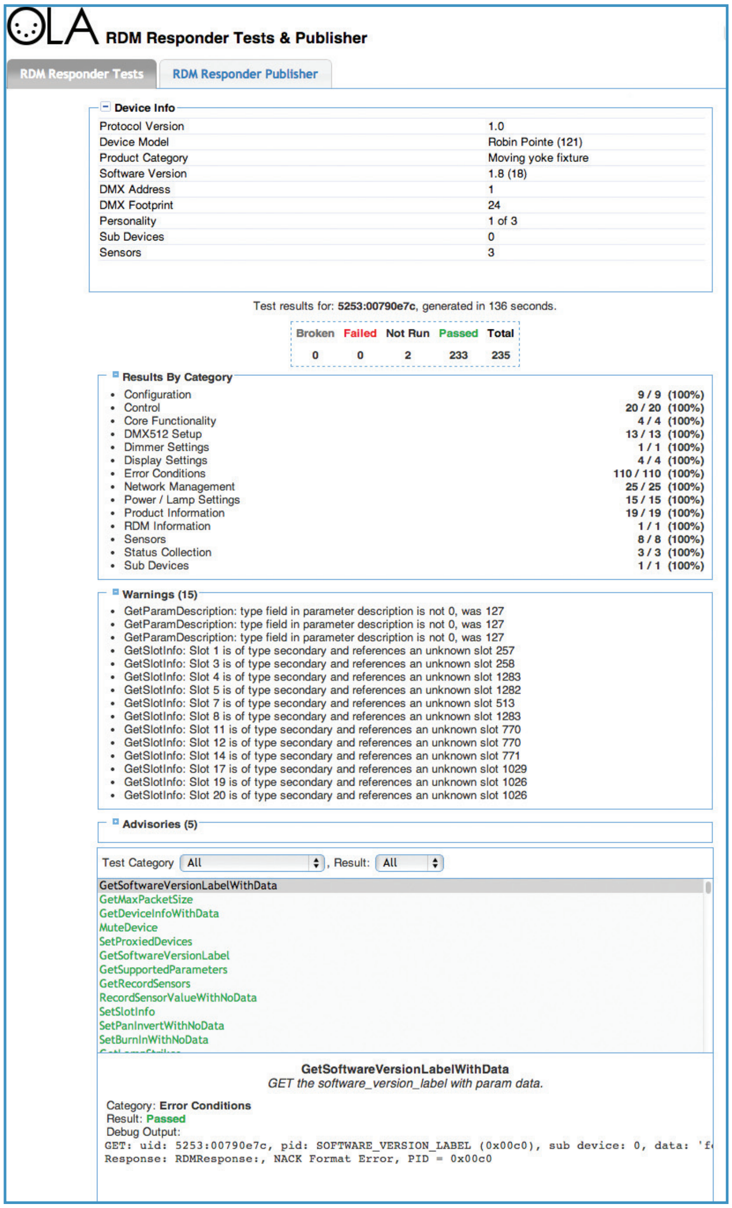

Fig. 21: RDM results.