

# COLDVision Light Sources

Cold illumination for Machine Vision applications



**SCHOTT**  
glass made of ideas

# SCHOTT

## COLDVision Light Sources

### Generations of know-how in specialty illumination

SCHOTT is a multinational group present around the world. This allows our customers to talk with a knowledgeable professional, in the comfort of their own culture and language, at their local site.

For more than 40 years, SCHOTT has developed fiber optics for a diverse range of applications.

Furthermore, SCHOTT developed LED solutions for illumination components in order to continuously offer our customers the most up-to-date technologies. SCHOTT fiber optic and LED components reach markets such as automotive, aviation, lighting, medical, industrial and defense.

By mastering glass, fibers and processes for the production of fiber optic components and use of LED technology, we develop outstanding, market-oriented products. With our leading technology know-how and innovative ideas we ensure the success of our customers — around the world, around the clock.

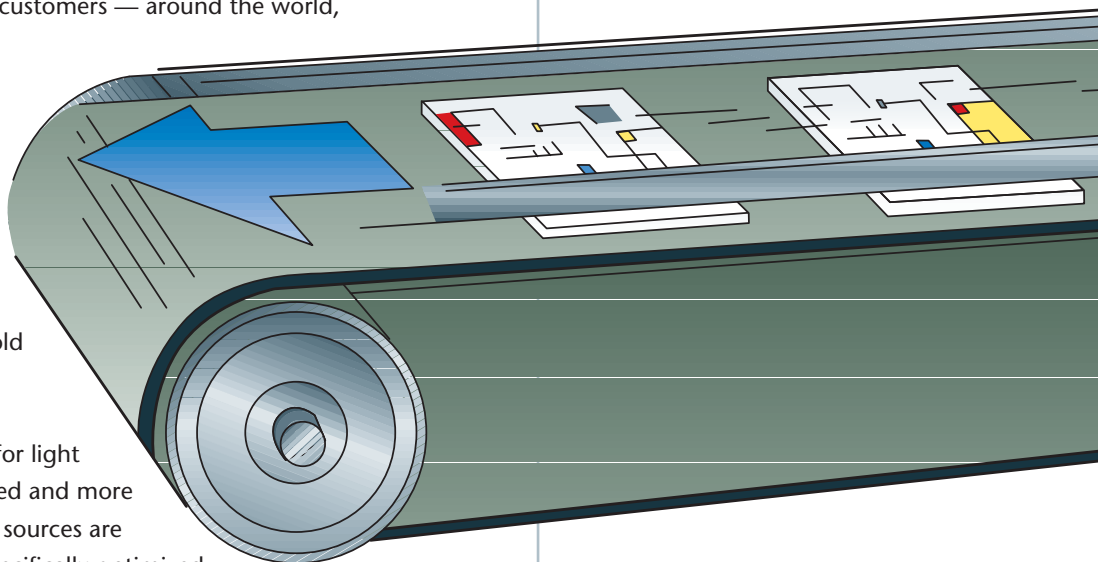
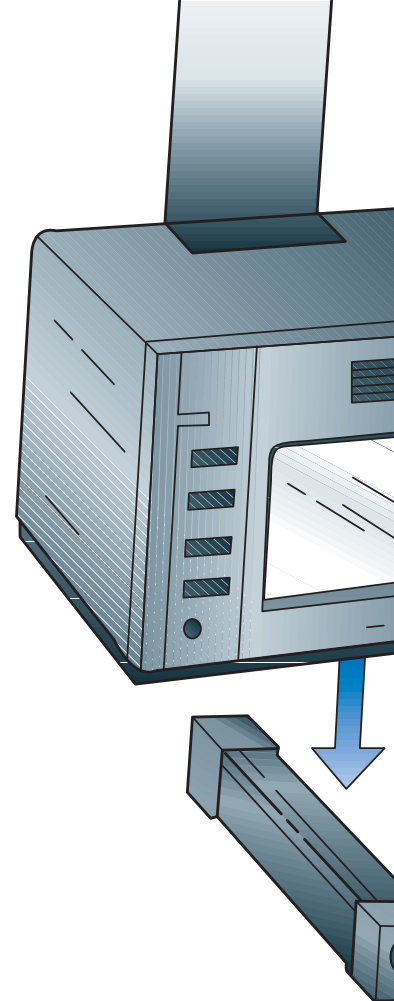
### In-depth expertise in machine vision illumination

SCHOTT, a leader in the manufacture of fiber optic and LED solutions for machine vision, presents an extensive offering of cold light sources and accessories.

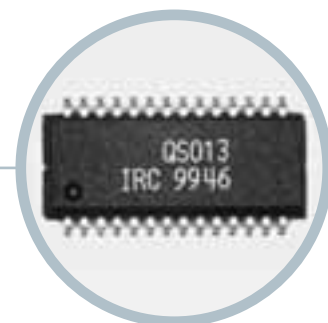
SCHOTT recognizes your demand for light that is more intense, more controlled and more creatively packaged. SCHOTT light sources are loaded with special features and specifically optimized to meet your individual requests.

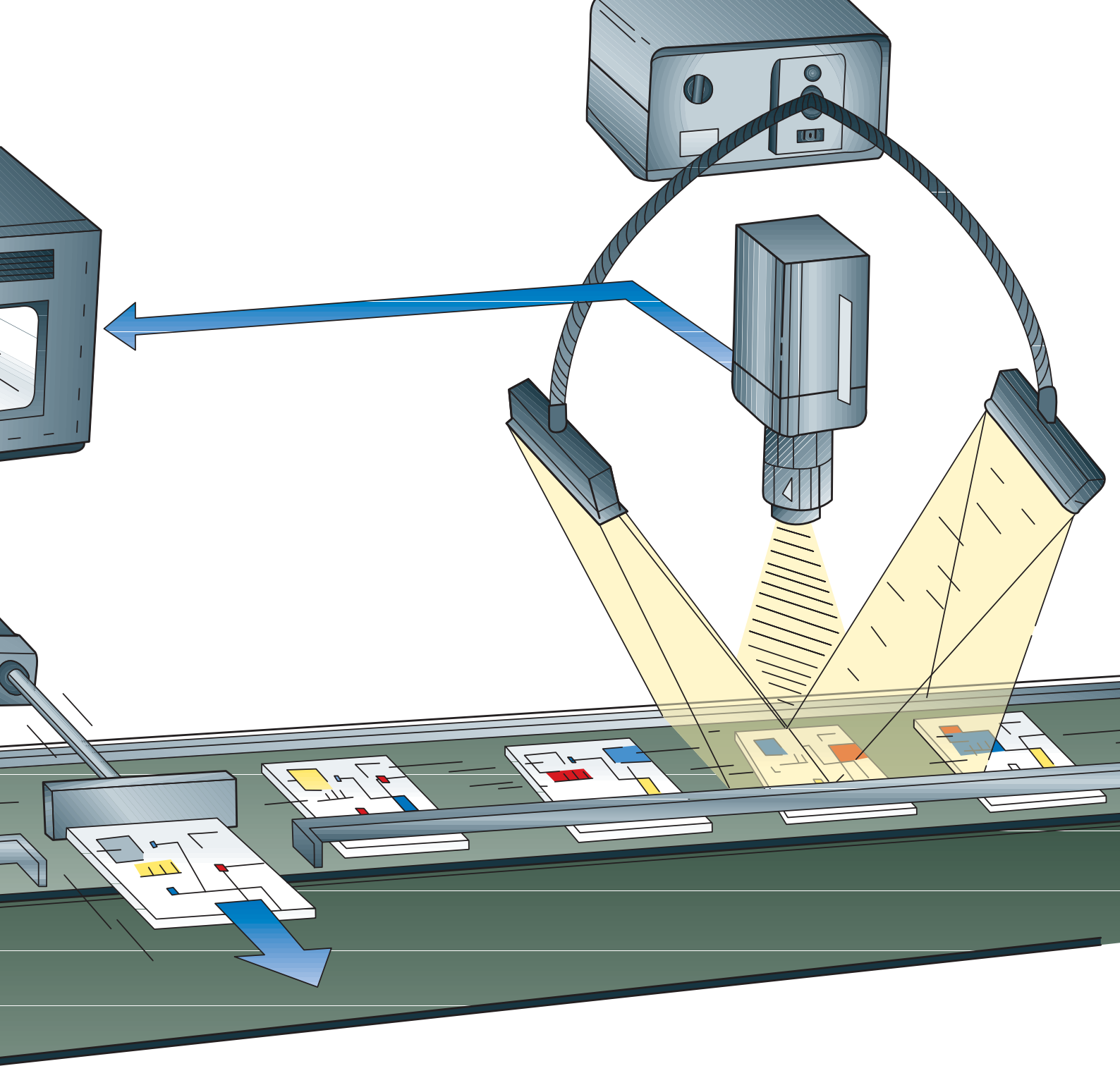
The COLDVision series has two new addition to its family, its **SCHOTT® LLS** — LED based lightsource and its **MaVi-S** - Machine Vision Strobe.

Customer satisfaction comes first at SCHOTT and all light sources come with a 2 year warranty (excludes lamp and socket where applicable). The DCR family, ACE and LLS are manufactured in the USA. The MaVi-S is manufactured in the EU. All are CSA certified to UL and RoHS compliant.



Electronic component  
(Ringlight brightfield)





Electronic component (Ringlight  
brightfield with polarized light)



The *future* of  
fiber optic and LED solutions  
starts with SCHOTT *today*.

# SCHOTT® LLS

## LED Lightsource

The SCHOTT LLS - LED based lightsource is a hybrid solution pairing LED technology with fiber optic light guides. It is the ultimate in light control, boasting a simplified user interface with versatile remote control abilities.

The SCHOTT LLS fits all SCHOTT COLDVision light guides, optimal performance is achieved when using the light source with larger bundle diameters, 9-14mm.

In addition, it offers several advantages over other types of fiber optic light sources used in machine vision applications.

The SCHOTT LLS has a long lifetime, rated to minimum of 30,000 hours. It features fast strobing capabilities — maximum 1 KHz pulse rate, maximum pulse width 1 msec, duty 1/10. It has remote control abilities using USB 2.0, RS-232 and analog 0-5V. The SCHOTT LLS comes in a variety of output wavelength bands to match specific application requirements. Available colors include: Red, Green, Blue, Amber, White, and UV.

The SCHOTT LLS is designed to suit a variety of environments. It has a small footprint, immunity to vibration and shock, instantaneous switching options and low power consumption.

The SCHOTT LLS is an intelligent light source that allows unparalleled flexibility. The SCHOTT LLS remembers its operating state when power is removed and restores the state when power is reapplied. This feature can be turned off through USB and RS-232 commands. It is also possible to restore the light source to a predetermined state when a control system dictates utilizing a single command.

*Light guide ferrule input*



*Potentiometer with indicator light*



*USB and RS232 inputs (on back of unit)*



# MaVi-S

## Machine Vision Strobe

The SCHOTT MaVi-S stroboscope is a high-intensity light source for industrial image processing. Used with SCHOTT fiber optics and a camera, this instrument emits brief, intense light pulses that result in bright, clear, high-contrast images.

The SCHOTT MaVi-S stroboscope is equipped with an extremely stable xenon flash lamp that is focused into the fiber optics using an ellipsoid reflector. The light emitted is therefore extremely intense. It is intended for use in industrial environments.

The main voltage input of the SCHOTT MaVi-S stroboscope is setup as a wide range input connection, which can be connected to all main voltages with nominal values in the range of 100V to 260V. It features a frequency range from 1 Hz to 200 Hz and covers a spectral range from 300 nm to 1,000 nm with a pulse to pulse stability of 2.5 % and no loss of flashes. In addition it has an RS-232 output used to network several instruments for communicating with a personal computer or networking several instruments.

There are four different ways to trigger the MaVi-S xenon flash lamp: external pulse, external video, external slave, or internal trigger. Every trigger impulse results in a flash. If the MaVi-S stroboscope is operating in burst mode then every trigger impulse will set off a burst of flashes.

*Touch pad with easy to use controls*

*Ferrule input socket with lockdown*



# DCR<sup>®</sup> III

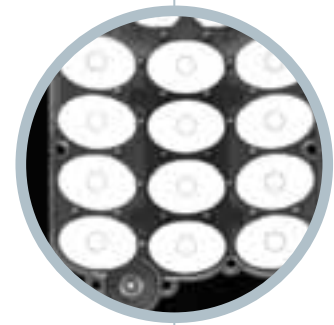
## Maximum DC Performance

The DCR is a DC-regulated 150 watt-halogen light source, which provides intense, cold illumination for Machine Vision applications. Powered by an internal switching power supply with universal input voltage, the light output does not flicker with the 50 Hz AC-frequency. This makes the DCR III the light source of choice for various machine vision applications.

Equipped with similar, established features of the ACE Light Source, the DCR III consists of rugged and stackable housing, Modulamp assembly with the choice of three lamp types, 9-pin analog connector as well as an optional Iris-diaphragm, Shutter and RS-232 connection.

In addition to maximum performance features, electronic current limiting protects the unit from overheating due to defective and aging lamps. The DCR III includes a lamp change indicator at the front panel of the unit. This particular feature alerts the user of impending lamp failure due to an open or partly shorted filament. The user can also retrieve this information via the analog 9-PIN connector.

Transient protection allows for remote location of the lamp, which enables the use of the DCR III Remote Light Source Kit. The electronically stabilized internal switching power supply accepts universal input voltage from 90-265 VAC. Thus, the light output does not change when the input voltage fluctuates.



The DCR III Light Source will fully illuminate active bundle diameters up to 16 mm (.63"). A broad range of fiber optic light guides and accessories are offered. Please refer to the system diagram on pages 10-11 and to the SCHOTT Standard Product Catalog for details.

The Modulamp assembly of the DCR III is used with this kit to allow the light head to operate in potentially harmful environments while the power supply remains at a safe distance. The Kit includes a 10' (3m) shielded extension cord for use in dynamic applications where a fiber bundle may fail in time. The lightweight design is perfect for robotic arm applications.

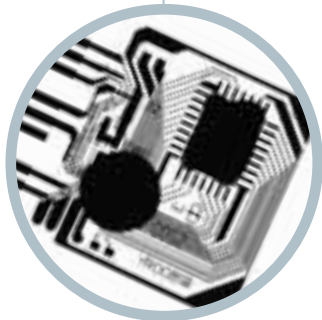
The DCR III Remote Light Source Kit allows remote operation of the lamp head for energy chain and robot applications, utilizing all of the DC-regulated performance of the DCR III in a remote package.

# DCR<sup>®</sup> III Plus

## Simple and Programmable

The DCR III Plus is a DC-regulated 150 watt-halogen light source which provides intense, cool illumination remotely controlled from a built-in RS-232 interface.

The DCR III Plus is remote controllable using the integrated RS-232 interface. The product is designed to control up to three additional DCR III units via a built-in 15-pin connector. Expansion cables and DCR III light sources are sold separately.



*Lamp change indicator shows when halogen bulb needs replacement*



In addition to the more advanced features of the DCR III, the product automatically restores user settings on power up. The enhanced communications are available by embedding error checking code in command strings. The ease that comes with the DCR III Plus originates from the product's simplified command structure.

Equipped with all of the features of the DCR III, the DCR III Plus is a DC-regulated light source that limits light fluctuation due to line voltage variation within + 0.5%. The product boasts current limiting circuitry protecting the light source from over heating due to defective and aging bulbs. The lamp indicator light (LED) located on the front panel, changes color from green to red when the lamp requires replacement.

Solid state intensity control allows the DCR III Plus to adjust light output from 0 to 100%. Interchangeable Modulamp units offer 2 lamp positions to maximize individual lamp efficiencies. The light source is manufactured with soft start 'lamp saver' circuitry and an IR interference filter for cool illumination.

The product has a universal input voltage and accepts 90 to 265 VAC, 50/60 Hz. DCR III Plus is stackable, with retractable handle and detachable cord.



# DCR<sup>®</sup> IV

## High Performance with Flexibility

The DCR IV includes all the standard features of the DCR III Plus Light Source, plus an Integrated Equalizer. The light feedback to the Integrated Equalizer provides stabilized light output for the most demanding machine vision inspection applications.

The benefits of the DCR IV provide maximum power and exceptional performance. A stable lamp output over the life of the lamp and minimized lamp to lamp variation enables user of the DCR IV to be confident with stable lighting. The product is remote controllable using integrated RS-232 interface, as well as the featured Integrated Equalizer.

The flexibility of the DCR IV allows for two configurations. The first is used with a reference Modulamp unit and off-the-shelf fiberoptics. This configuration maintains DDL lamp output within + 2% over the life of the lamp and + 8% lamp to lamp. For even finer control, use the DCR IV with fiber optic products that have an integrated reference bundle.

Versatility is key with the DCR IV Light Source. The product includes all of the features of the DCR III Plus Light Source with control of up to three additional DCR III light sources via an expansion cable. The lamp is stabilized with indication

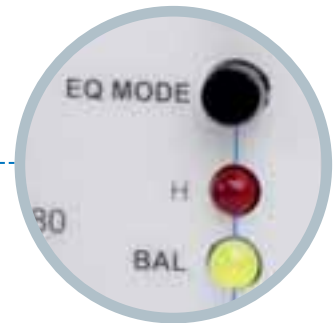
from the LED's located on the front panel. The front panel is also easy to use for calibration and intensity controls.

The light source of choice for many, the product has a universal input voltage and accepts 90 to 265 VAC, 50/60 Hz. Easy to operate, the DCR IV is stackable, with retractable handle and detachable cord.

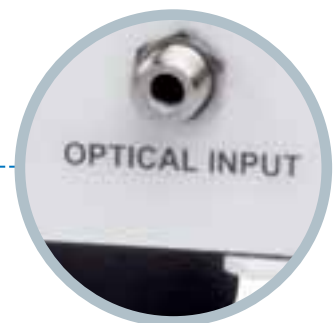
Lamp Status change indicator bulb



Built-in Equalizer



Optical Input



## Rugged and Reliable

The ACE® is a cost effective and reliable 150 watt halogen light source which provides premium quality, intense light for Stereo Microscopy, Macroscopy and Machine Vision applications. The rugged and compact design in a stackable metal frame enables operation in harsher industrial environments as well as laboratory use.

The modular concept of the Modulamp® assembly allows flexible adaptation depending on the users requirements. The basic version is equipped with an electronic (solid state) dimmer for continuous setting of light intensity and optimized lamp life. The Modulamp® assembly offers the choice of three halogen lamp types (EKE, EJA and DDL) with different focus diameters, intensities, color temperatures and lifetimes.

The ACE® Remote Light Source has all of the features of the premium quality ACE® Light Source with the added convenience of a remote control. The positive locking, quick-disconnect, shielded cable connects to a control that provides variable light intensity and on/off features.

Optional on all ACE® versions, the Modulamp® assembly is available with an infinite setting, 13-blade iris diaphragm to control the intensity while keeping the color temperature constant. In addition, the light sources can be upgraded with an optional shutter unit.

The ACE® Light Source will fully illuminate active bundle diameters up to 16 mm (.63"). A broad range of fiber optic light guides and accessories are offered as well. Please refer to the system diagram on page 18/19 and the SCHOTT Standard Product Catalog for details.

The ACE® Light Source is offered in both 115- and 230-volt versions with a detachable IEC cord.

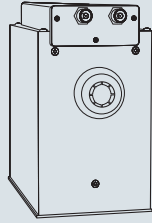
*Optional iris-diaphragm for stepless, 0-100% intensity control*



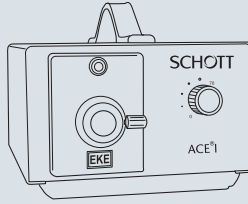
# System Diagram COLDVision



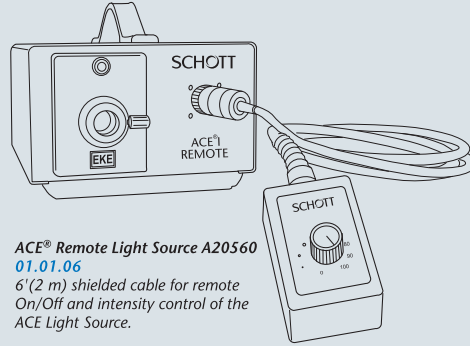
**SCHOTT® LLS – LED Light Source A20950**  
01.20.01  
Hybrid solution pairs LEDs with Fiber Optics. Fits all SCHOTT COLDVision light guides.



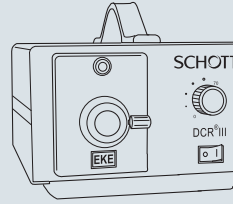
**MaVi-S Light Source A20960**  
01.22.01  
High powered strobe perfect for Industrial Image Processing.



**ACE® Light Source A20500**  
01.01.01  
Cost effective light source with maximum lamp life. Excellent for standard microscopy.



**ACE® Remote Light Source A20560**  
01.01.06  
6' (2 m) shielded cable for remote On/Off and intensity control of the ACE Light Source.



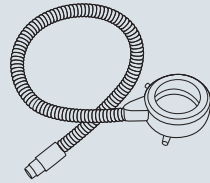
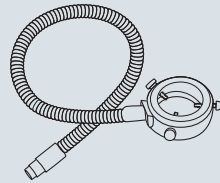
**DCR® III Light Source A20800**  
01.10.01  
DC regulated, full featured light source for intense, cool illumination. Excellent for all microscopy & machine vision applications.

**Universal Ringlights**  
Midi and Mini Ringlights  
Ringlights – 60 mm  
Ringlights – 58 mm  
Large Ringlights  
Darkfield Ringlights  
4 Pt. Darkfield Illuminator

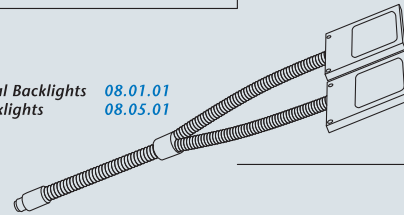
04.01.01  
04.02.01  
04.03.01  
04.04.01  
04.05.01  
04.10.01  
04.15.01



**Ringlight Adapters** 04.20.01  
**Ringlight Polarizers and Analyzers** 04.20.02  
**Ringlight Reflector Rings** 04.20.03

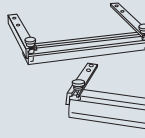


**Single and Dual Backlights** 08.01.01  
**PANELite® Backlights** 08.05.01

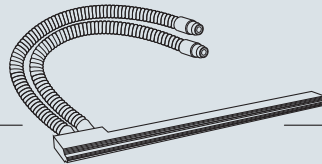
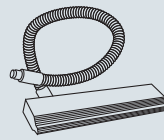
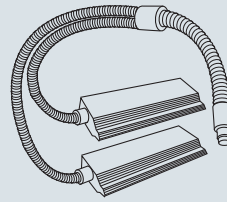


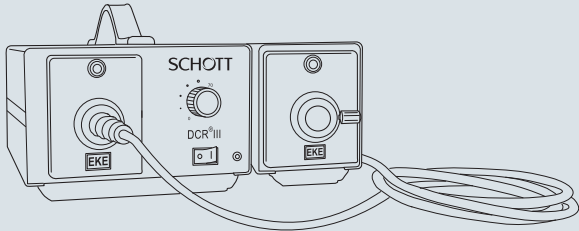
**1", 2", 3" Lightlines**  
Lightlines  
Spatially Randomized Lightlines  
45° Lightline

07.01.01  
07.02.01  
07.03.01  
07.04.01

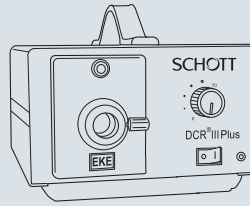


**Lightline Lenses** 07.20.01  
**Lightline Linear Polarizer Kits** 07.20.02

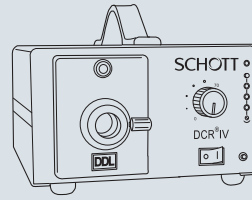




**DCR® III Remote Light Source Kit A20850** 02.07.01  
Allows remote operation of DCR® III lamp head for energy chain and robot arm applications in machine vision



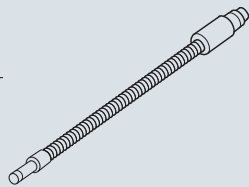
**DCR® III Plus Light Source A20870** 01.11.01  
Includes all the standard features of the DCR® III in addition to a built-in RS232 interface providing intense, cool illumination via remote control.



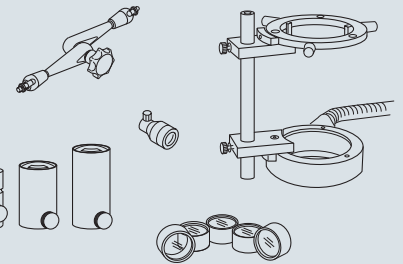
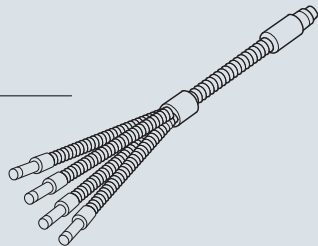
**DCR® IV Light Source A20890** 01.12.01  
DC regulated light source with integrated Equalizer™ light feedback to provide stabilized light output for the most demanding machine vision inspection applications.



**Universal Light Source A20855** 02.07.01  
Cost effective solution for applications where DC power is already available in Machine Vision.

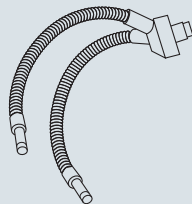


**Single Bundles** 05.01.01  
**Dual and Quad Bundles** 05.02.01  
**Randomized and Calibrated Bundles** 05.05.01

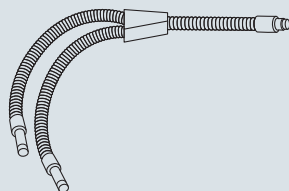


**Single and Dual Goosenecks** 06.01.01  
**Combination Goosenecks/Bundles** 05.05.01

**Filters, Diffusers, Spot Lenses** 15.01.01  
**Bundle Extenders** 15.05.01



**Support Apparatus** 16.01.01  
**Ringlight Support Apparatus** 16.01.01  
**Gooseneck/Bundle Support App.** 16.03.01  
**Lightlines Support App.** 16.04.01



For further details check the [referenced datasheets](#) on SCHOTT's Standard Product Catalog CD-ROM or on SCHOTT's website under [www.schott.com/fiberoptics](http://www.schott.com/fiberoptics)