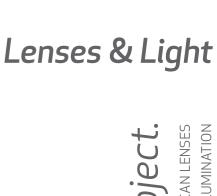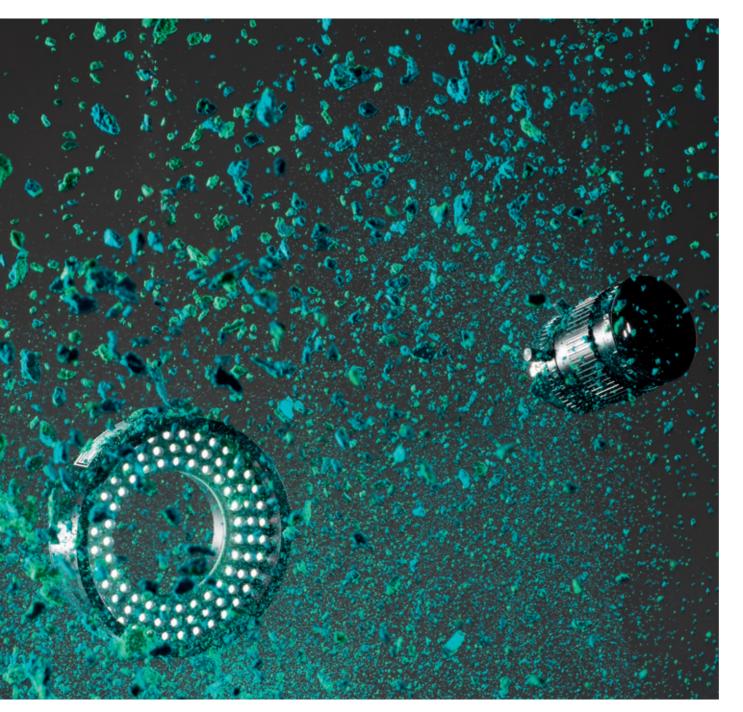# Lenses & Light

Optimizing your vision project.

TELECENTRIC - MACRO - CCTV - S-MOUNT - ZOOM - LINE SCAN LENSES
DIRECT - DIFFUSE - BACKLIGHT - DOME - COAXIAL ILLUMINATION

net
NEW ELECTRONIC TECHNOLOGY

NET – SHARPENING YOUR VIEW

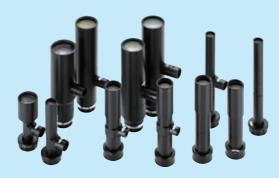NET & VST – a powerful partnership.

TELECENTRIC LENSES UP TO 2/3" SENSORS

· 125 different lenses available
· Working distance: 40/65/75/110/150-340 mm
· Optical magnification: 0.01x to 10.0x
  (other magnification on request)
· 3 different resolutions:
  TC-series: standard res., high depth of field (DOF)
  TCH-series: higher resolution, high DOF
  TCM-series: high resolution, low DOF
· With or without coaxial illumination,
  some models with adjustable iris
· Customized versions possible
  (glued version, different beam splitters)
· Main applications: precise measurement,
  inspection of plugs and connectors

TELECENTRIC LENSES FOR LARGE SENSORS

· 26 different lenses available
· Sensor size up to 15.2 x 15.2 mm
· Working distance: 19-130 mm
· Optical magnification: 0.3x to 7.0x
  (other magnifications on request)
· High resolution, high numerical aperture (NA)
· With or without coaxial illumination,
  some models with adjustable iris
· Customized versions possible
· Main applications: precise measurement,
  inspection of plugs and connectors,
  high resolution line scan applications

MACHINE VISION MACRO LENSES

· 39 different lenses available
· Working distance: 40 to 630 mm
  (focus on infinity not possible)
· Optical magnification: 0.008x to 2.0x
· 2 different series: LD-series,
  extremely low distortion, adjustable iris, fixing
  screws, up to 3 megapixel sensors
· MC-series: extremely low distortion, fixed iris,
  fixing ring – designed for extreme vibrations, up
  to 3 megapixel sensors
· Customized versions possible
· Main applications: measurement,
  inspection, use in rough industrial environment

A complete portfolio of almost 600 different lenses such as telecentric lenses, macro lenses, lenses especially designed for rough industrial environment, CCTV-lenses, line scan lenses, zoom lenses, with different mount types like C, CS, S, F, V, M72 and a wide range of accessories like optical filters, converter lenses, mirrors, prisms and much more enable us to offer in almost every case the best solution. NET also offers customized lenses or completely new designed lenses as customer needs.

PERFECT IMAGE FOR LESS MONEY

CCTV LENSES

· 39 lenses available
· 3 different series:
  - H1-Series: 5 megapixel resolution
    for 1.0" image sensors
  - H-Series: high resolution for 3 and
    5 megapixel sensors (2/3")
  - V-Series: standard resolution for up to
    1.3 megapixel sensors (2/3")
· Lenses with F=095
· All lenses with fixing screws, metal housing for
  industrial use
· Focal length from 1.28 to 100 mm
· UV & IR lenses

S-MOUNT LENSES

· Several 100 lenses in total
· Focal length from 1.25 to 50 mm
· Calculated for sensors from 1/4" to 2/3"
· With or without IR-cut filter included,
  some IR corrected
· General info: S-mount lenses increased their quality
  during the last years drastically. For this reason,
  S-mount lenses can be used in more and more
  image processing applications. Attractive prices,
  small sizes and a light weight are important
  features.

· S-Mount lens series with special features available.
· Super megapixel lens series (5 megapixel resolution)
· Megapixel lens series (3-1 megapixel resolution)
· Megapixel fisheye lens series
  (focal length 1.25-2.3 mm;
  horizontal angle 195° - 175°)
· Low distortion lens series
· IR-corrected day–night lens series
· Light sensitive lens series (1:1.2 and 1:1.4)
· Vario focal board lens series
· Standard board lens series (best price series)

OPTICS FOR LABORATORY AND SCIENTIFIC USE

Standard & customized optic solutions.

MICROSCOPE/ZOOM LENSES

· 4 different microscope bodies with
  11 different objective lenses
· Microscope body with 1 or 2 camera
  adapters available
· Objective lenses from 5x to 100x magnification
  with standard WD or extra long WD
· 10 different zoom lenses
· Zoom factor 3x, 6x, 8x and 10 x
· Telecentric zoom 0.75x to 4.5x optical
  magnification
· Main application: scientific use, laboratories,
  universities

LINE SCAN LENSES

· 40 different lenses, 12 telecentric lenses
· Line sensor length up to 90 mm
· Mount: C-Mount, F-Mount, V-Mount, M72-Mount
· High resolution, high contrast, low distortion
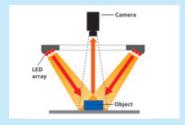· Both sides telecentric, reduced shading

ADDITIONAL OPTICS

· Front-, rear converter
· Increase optical magnification (0.3x to 5.0x)
· 90° prisms, 90° mirrors
· In case of limited space, several different items
· Offset prisms
· In case of limited space or images that are
  positioned near to each other
· Filters and adapters
· Wide range of optical filters to improve
  image quality at a given illumination situation
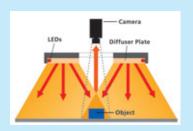
NET – UNDERSTANDING LIGHT

DIRECT ILLUMINATION

· Ring, bar, area, spot illumination
· More than 100 different items available
· 12/24 VDC; continuous or strobe use
· Colors: red, green, blue, white, UV, IR
· Powerful: working distance up to 300 mm
· Main applications: PCB, tissue, wood inspection, surface inspection, OCR, datamatrix reading, edge, crack, scratch detection, mostly on non shining surfaces
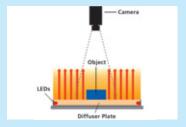

DIFFUSED ILLUMINATION

· Diffused flat ring illumination, ring, bar, area, spot illumination with diffuser
· More than 120 different items available
· 12/24 VDC; continuous or strobe use
· Colors: red, green, blue, white, IR
· Working distance up to 200 mm
· Main applications: PCB, tissue, wood inspection, surface inspection, OCR, datamatrix reading, edge, crack, scratch detection, for shiny surfaces

BACKLIGHT ILLUMINATION

· Edge light plate SMD chip light plate, LED backlight with diffuser, coaxial box-type illumination, telecentric coaxial illumination
· More than 60 different items available
· 12/24 VDC; continuous or strobe use
· Colors: red, green, blue, white, IR
· Close distances: working distance 10 up to 200 mm
· Main applications: size measurement, backlight inspection, edge inspection, profile measurement, transmitted light inspection
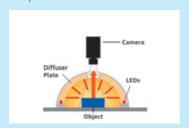

A total number of more than 400 LED-illumination covering all different lighting modes, sizes, colors, voltages as continuous illumination or strobe version is confusing for every person who does not work with light all day long. Even for experienced users illumination is always matter of testing to find the best solution. Use NET´s experience to find best choice illumination for your very special application!

OPTIMIZING YOUR VISION PROJECT

DOME/CLOUDY DAY ILLUMINATION

· Dome illumination, coaxial box-type illumination
· More than 30 different items available
· 12/24 VDC; continuous or strobe use
· Colors: red, green, blue, white, UV, IR
· Close distances: 10 mm up to 50 mm
· Main applications: inspection of glossy surface, printing on cans, inspection of glass, wafer inspection
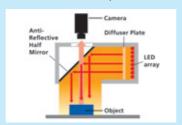

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COAXIAL ILLUMINATION

· Coaxial box-type illumination, telecentric coaxial illumination, spot for telecentric lenses
· More than 40 different items available
· 12/24 VDC, continuous or strobe use
· Colors: red, green, blue, white, IR
· Close distances: 10 mm up to 200 mm
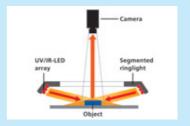· Main applications: inspection of highly reflective surfaces, wafer inspection

SPECIALS ILLUMINATION

· Collimated spot illumination, segmented ring lights, customized illumination
· 12/24 VDC, continuous or strobe use
· Computer controlled
· Colors: red, green, blue, white, UV, IR
· Customized working distance
· Main appl.: measuring machines, surface control for small particles, wafer and CCD sensor control

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