Specials & Customers Application

Control & Measurement

Electronic Ballasts

Integrated Solutions

UV Lamps & Sleeves

Accessories

ZED
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We are

⇨ an electronic company
⇨ technology driven
⇨ quality minded
⇨ customer focussed
⇨ fast and flexible
⇨ a high qualified team

Our Passion

best quality products

co-operative customer relations

realization of individual solutions

development and improvement of innovative technologies

The rainbow upon the ZED building stands for the wide range of our products.

About Us

ZED GmbH was founded in August 2001 using experience gathered since 1996.
As a result of increasing activities the once small firm has been expanded into a larger company. The first office building in Oehrenstock became to small and ZED moved to their new facility in Langewiesen in 2007.

ZED business activities include the development, production and sales of reliable and efficient electronic driver systems designed to meet the special requirements within the purification and disinfection industry. Standard accessories, classical and highly innovative solutions complement each other. A thorough understanding of the purification business requirements enables ZED to create the next generation accessories for UV systems, e.g. digital sensors, digital controlled electronic ballasts and several control units for sensors and ballasts.
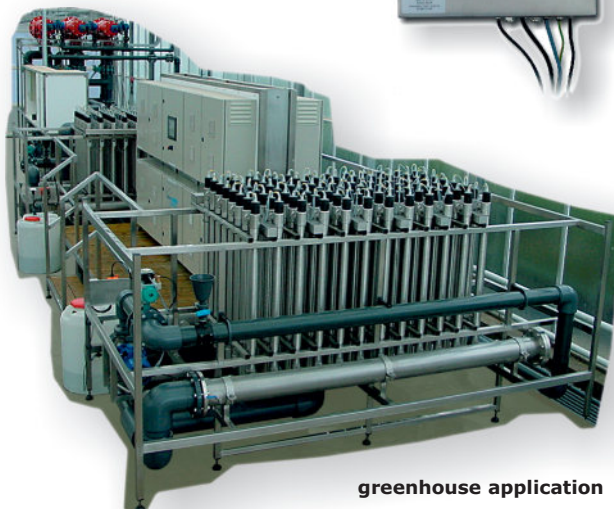
Domains

⇨ drinking water

⇨ waste water

⇨ process water

⇨ greenhouse water

⇨ fresh air

⇨ polluted air

⇨ surface disinfection

Focus

**Components
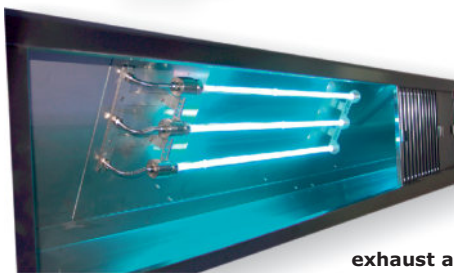for UV-C Systems**

**customer systems
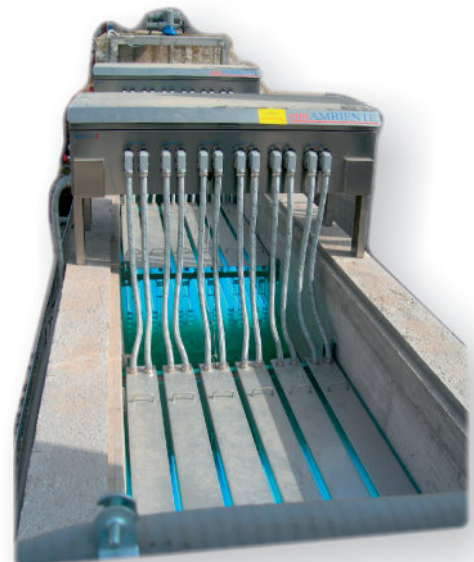which use ZED components**

**cabinet
with UV-C monitor**

water treatment

greenhouse application

**exhaust air
treatment**

**open channel
wastewater treatment**

About Us

ZED is a flexible company offering customized solutions for their customers.
In addition ZED develops dependable tailor-made control systems for a variety of water and air purification applications.

ZED UV system solutions have been proven to be highly reliable in purification applications world-wide.

ZED as partner of systems and device manufacturers is able to react quickly and flexibly with our passionate, highly qualified team.

Looking for a bespoke solution? Come to ZED!

⇨ customized ZED products

⇨ development of genuine ZED solutions
tailored to meet customers
requirements

- electronic ballasts
- sensors and monitors
- control units
- measurement devices
- integrated solutions

⇨ complete customer confidentiality

⇨ in-house production
and after sales service
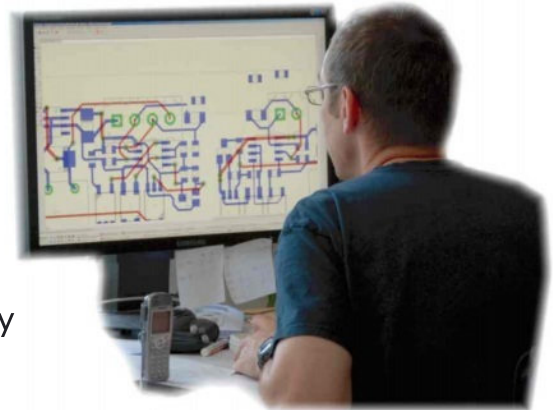
Control & Measurement

Electronic Ballasts

Integrated Solutions

UV Lamps & Sleeves

Accessories

Features

⇨ constant UV output for all environmental conditions
⇨ full power and dimmed operation
⇨ higher peak design power
⇨ fully integrated electronics
⇨ no power supply, no extra wires
⇨ broad range of compatible quartz sleeves
   (39 … 42 mm)
⇨ optimized with ZED ballasts
⇨ best energy efficiency = best cost efficiency

Abstract

stable UV-C performance
and efficiency increase
with maximum cost savings
- at max. lamp power and
dimmed
- water temperature
independend

**PPT-Set =
amalgam lamp
+ ZED ballast
+ quartz sleeve**

example:
lamp: **ZLA650W PPT**
ZED ballast: **EVG650W PPT/ EVG2x650W PPT**
suitable quartz sleeve: **inner diameter 39...42mm**

**stable and predictable UV ouput
in a wide range of ambient temperature
for all dimming levels**

Follow me

for further information see
www.z-e-d.com

Features

we offer as service

⇨ lamp performance tests
of your low pressure UV-C lamps
including measurement series for
- different water temperatures
- different lamp current values (e.g. dimming)
to determine optimal operation settings
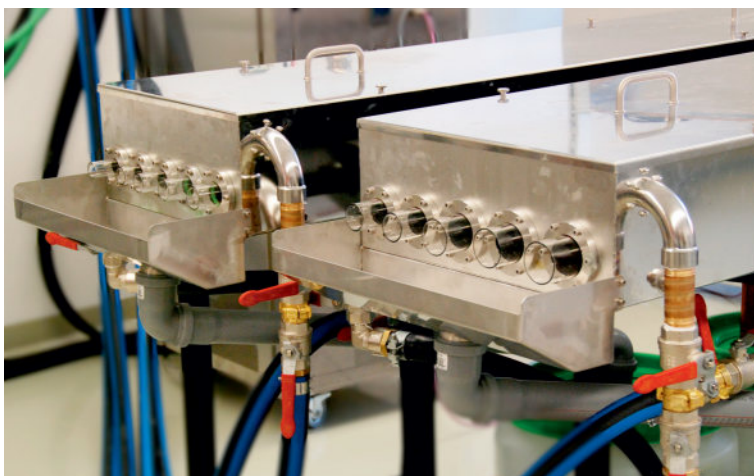and
to identify critical conditions

Abstract

lamp performance –

water temperature
vs. lamp characteristic

know your lamp performance
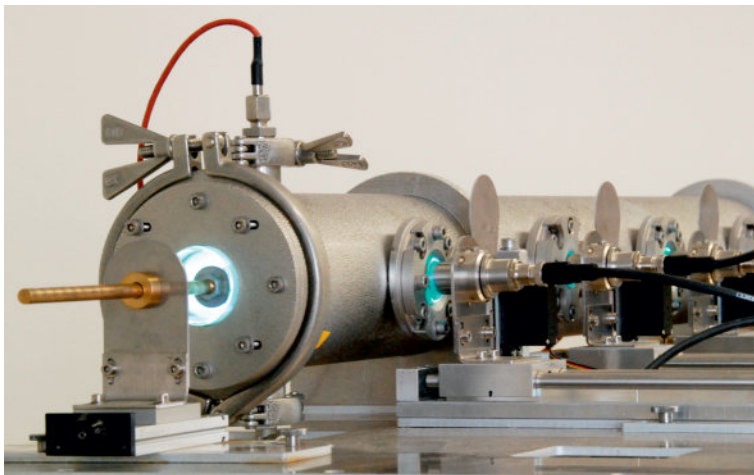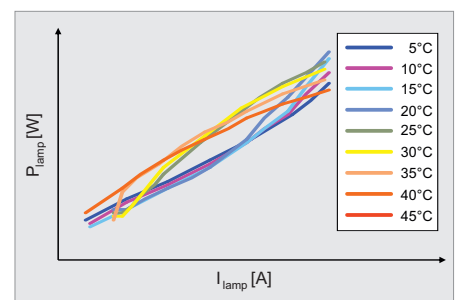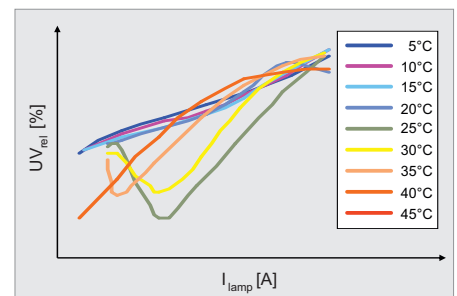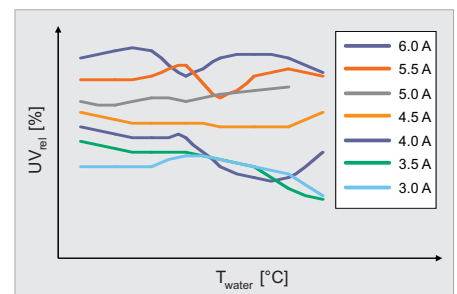

test equipment with UV-C measuring system

test equipment for different tube diameters

example:
lamp power at several water temperatures
as function of lamp current

example:
UV intensity at several water temperatures
as function of lamp current

example:
UV intensity at several lamp current values
as function of water temperature

Follow me

contact ZED GmbH for more information

Features

⇨ **we offer complete digital solutions:**
  components for UV systems
  for optimal integration
  into water- / air treatment systems:
  - digital lamp drivers
  - control units
  - digital UV/temperature sensors

⇨ **we supply customized solutions**
  for special customers requirements
  regarding
  - power
  - functionality
  - design
  - communication

Abstract

system solutions:
  development
  production
  customer service

system operation

digital bus

UV measurement

lamp control

error handling

temperature control

to superior control

mains
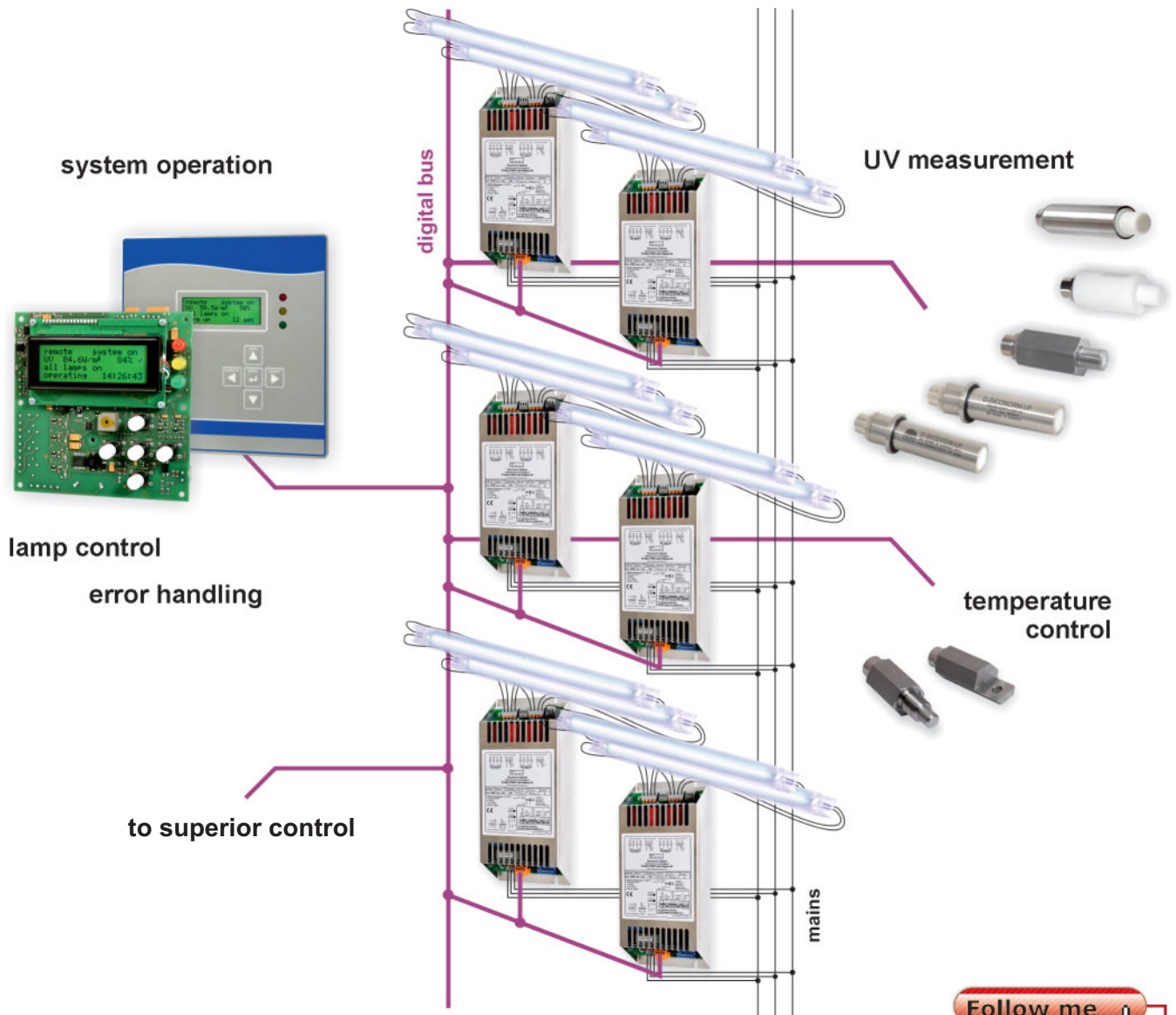
example:
digital UV-C system with intelligent ZED components

Follow me

for more information see:

www.z-e-d.com/systems

Specials & Customers Application

Control & Measurement

**Sensors, Monitors, Measurement Devices
and Control Units from:**

⇨ small to large installations

⇨ single lamp units to large-scale plants

⇨ classical analog to
    innovative digital systems

⇨ monitoring to measuring

⇨ LED to LCD

⇨ teflon to stainless steel

⇨ plain PCB to DIN-rail
    and housing solutions

Electronic Ballasts

Integrated Solutions

UV Lamps & Sleeves

Accessories

summaries

sensors

tools & measuring devices

monitors and converter

ZCON control units

How to check UV intensities?

devices
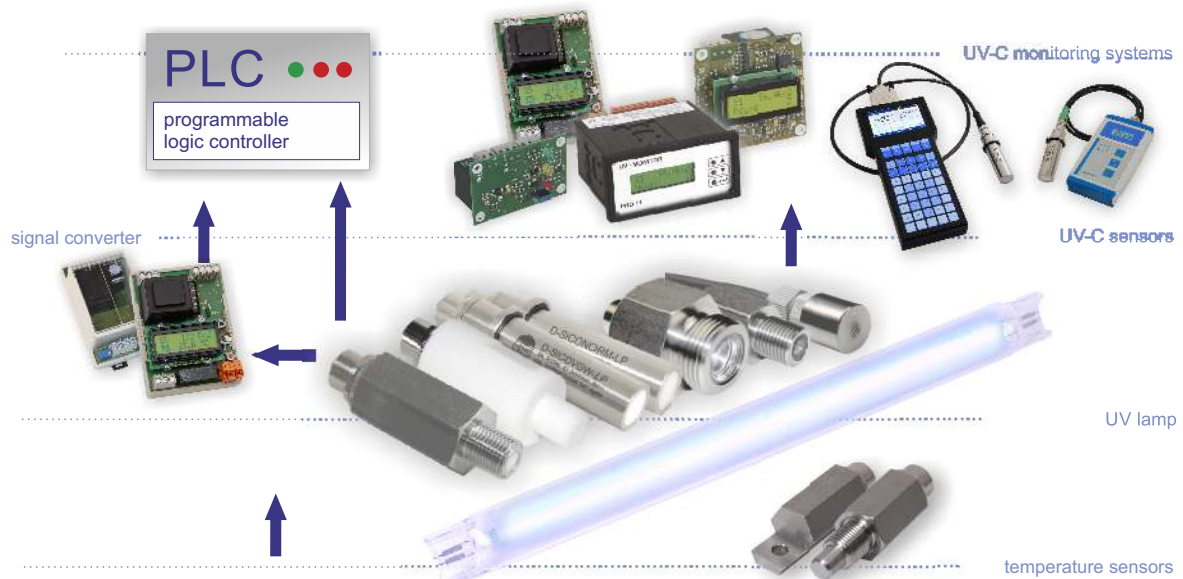
sensor & monitor specification

D-SiC
digital UV-C sensors

+ UV values in 'W/m²', 'mW/cm²' or '%'
  (D-SLS types: '%' only)
+ one sensor for all applications
  wide intensity range due to automated
  measuring range selection,
  internal digital signal processing
+ multi sensor operation
  by connecting sensors in parallel
+ fail safe signal transmission
  up to 30m cable length

D-SiC
→ page 'C&M 2'

**D-SiCDVGW
D-SiCONORM**
→ page 'C&M 2'

D-SLS
→ page 'C&M 5'

digital sensors → adjusted for the complete measurement range

D-SiC*-I/U
UV-C sensors with 4-20mA/0-10V

+ UV values in 'W/m²', 'mW/cm²' or '%'
+ one sensor for all applications
  wide intensity range due to
  internal digital signal processing
+ adjusted for the complete
  measurement range
+ reference value preset
  according to customers specification
+ reference value for analog output
  can be set by customer
  via ZED SmartMeter or PC software
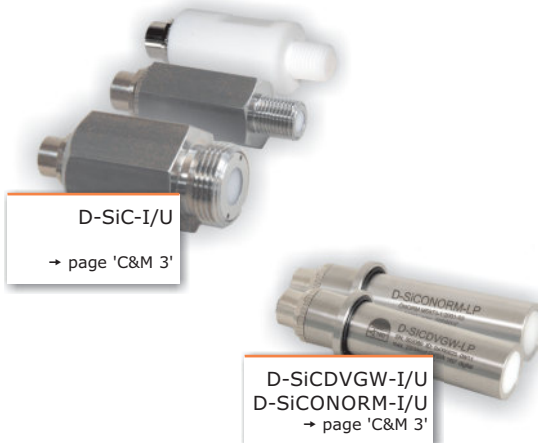
D-SiC-I/U
→ page 'C&M 3'

**D-SiCDVGW-I/U
D-SiCONORM-I/U**
→ page 'C&M 3'

analog sensors → reference value setting by customer

SiC
+ cost efficient UV-C sensors

+ UV values in '%'
+ daylight insensitive photodiodes
+ sensitivity adjustment
  with ZED UV monitors
+ max. cable length 3m

SiC
→ page 'C&M 1'

photodiode sensors → cost efficient UV monitoring

D-SiC | SiC-I | SiC
RS485 | analog out
UV ok / LCD
state

PRO11DPI-I
→ page 'C&M 13'

PRO16DPI-I
→ page 'C&M 12'
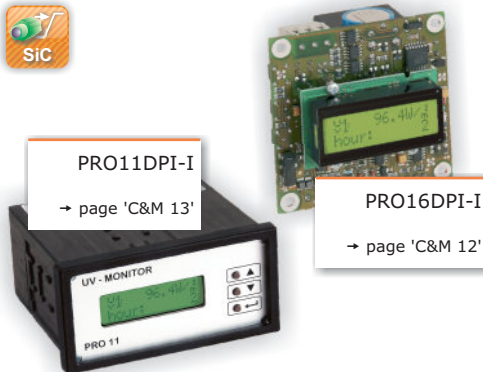
PRO11, PRO16
+ universally applicable UV-C monitors
+ UV values in 'W/m²', 'mW/cm²' or '%'
+ hour counter
+ for use with up to 2 digital UV sensors
   or 1 analog or photodiode UV sensor
+ status indication by LCD and relay
+ UV value forwarding via 4-20mA signal

UV monitors for all ZED UV sensors

D-SiC | D-ST
RS485 | analog out
UV ok / LCD
state

PRO30D-I,
PRO30D-U
→ page 'C&M 14'
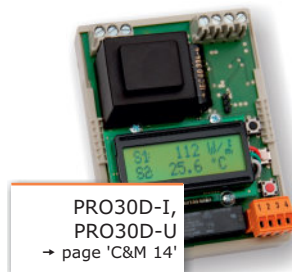
PRO30D-I, PRO30D-U
+ UV-C monitors for up to 2 digital
 UV or temperature sensors
+ UV values in 'W/m²', 'mW/cm²' or '%'
+ hour counter
+ status indication by LCD and relay
+ UV value forwarding
   via standard analog signals

UV monitors for digital UV sensors

SiC
LED
state
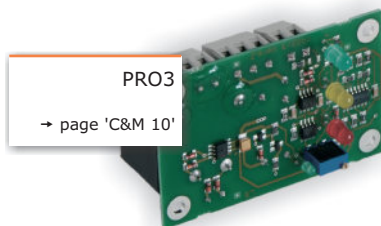
PRO3
→ page 'C&M 10'

PRO3
+ cost efficient UV-C monitor
+ UV values in '%' via "traffic light" system
+ sensitivity adjustment via potentiometer
+ for SiC photodiode sensors
+ status indication by LED and relay

cost efficient UV monitoring with photodiode sensors

D-SiC
SiC
D-ST

PRO30D-I,
PRO30D-U
→ page 'C&M 14'
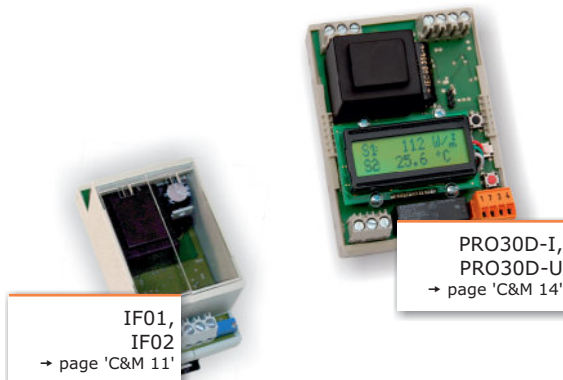
IF01,
IF02
→ page 'C&M 11'

IF01, IF02
+ converter for SiC
   convert photodiode sensor signals
   to standard to 4-20mA/0-10V

PRO30D-I, PRO30D-U
+ converter for D-SiC, D-ST
   convert digital sensor signals
   to standard to 4-20mA/0-10V

signal converter → convert sensor signals to 4-20mA/0-10V

How to control ZED PHplus ballasts?

PLC ● ● ●

programmable
logic controller

subcontrol

UV system

lamp operation control ☑
UV system control ☑
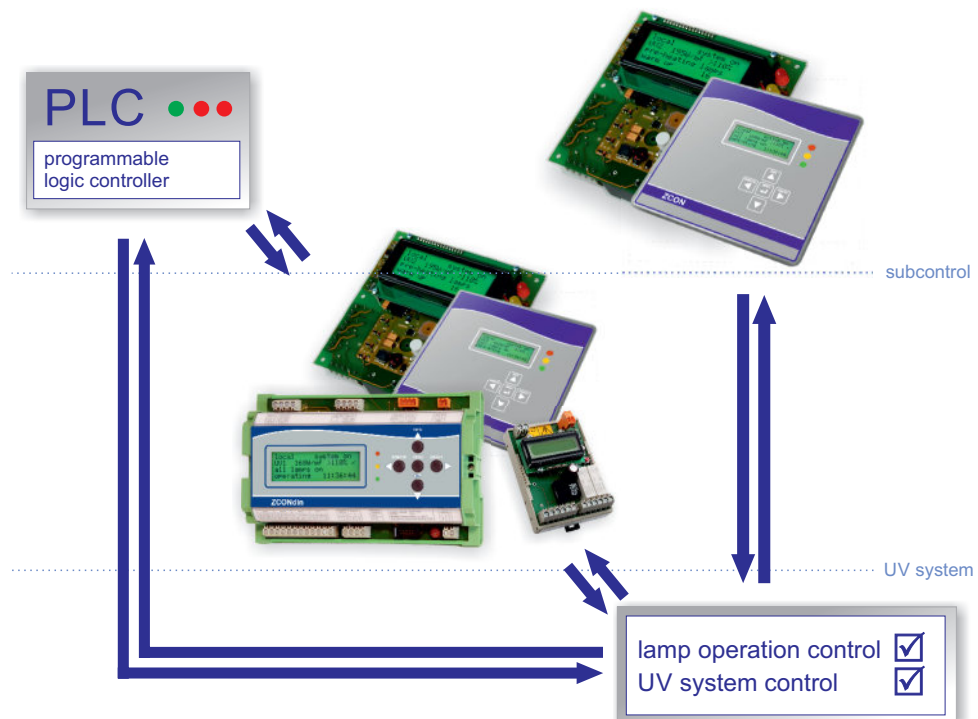
**PHplus ballast control by PLC
using ModBus RTU**

PLC ● ● ●

- PHplus ballast control
- lamp operation control
- UV system control
  and monitoring
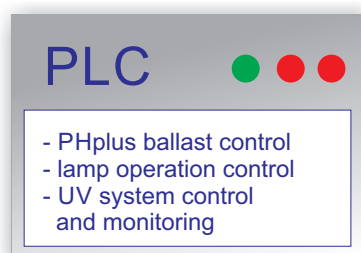
**PLC with RS485
 as master control unit**

+ PHplus ballast control
   using ModBus RTU

+ UV monitoring
   with ZED digital UV sensors
   using ModBus RTU

+ protocol implementation by customer

+ PHplus ballasts simulation devices
   available to support programming

ZCONmini II
 as master control unit
+ control of up to 32 PHplus ballasts
+ lamp operation control
+ operation hour counter
+ UV monitoring with up to
   4 ZED digital UV sensors
+ UV system state
   control and monitoring
+ status indication
   by LCD, LED and relays
+ status forwarding and
   detailed status information via ModBus
+ remote switching,
+ remote command execution via ModBus
+ ready to use
   and/or customized solutions

ZCONmini II

→ page 'C&M 15'

ballasts controlled by ZCON control units

PLC ● ● ●

4-20mA, switch i/o

ZCONnano
 as dimming interface
 for PLC with 4-20mA/0-10V
 and switching I/O
+ control of up to 12 PHplus ballasts
+ lamp operation control
+ status indication by LCD and relay
+ ready to use /
   selectable operation modes

ZCONnano

→ page 'C&M 17'

simple PHplus ballast control: analog PLC + dimming interface

PLC ● ● ●
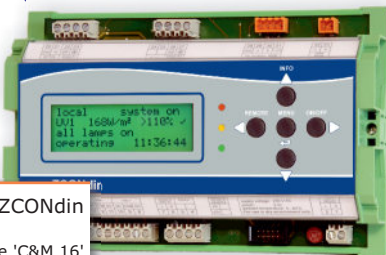
4-20mA, switch i/o

ZCONdin
 as subcontroller
 for PLC with 4-20mA/0-10V
 and switching I/O
+ control of up to 20 PHplus ballasts
+ lamp operation control
+ operation hour counter
+ UV monitoring with
   up to 4 digital ZED UV sensors
+ status indication by LCD, LED
   and relay
+ remote start input
+ ready to use
   and/or customized solutions

ZCONdin

→ page 'C&M 16'

enhanced PHplus ballast control: analog PLC + subcontroller

ZED UV Sensors
with photodiode signal output

Features

⇨ for use in UV-C monitoring systems
   (for UV values in "%")
⇨ cost efficient for low budget projects
⇨ insensitive to daylight
⇨ photodiode signal
   - external amplification required
⇨ max. cable length 3m

Abstract

photodiode signal

SiC-SV01-PG

SiCT001-PG

use with

ZED UV Monitors
PRO3
PRO11DPI-I
PRO16DPI-I

ZED UV Sensor Signal Converter
IF01
IF02

ZED UV Cabinets
UV-Compact D
on request

ZED Accessories

MF001-A
measurement window adapter

SiC003

SiC003-PG

(pictures similar)

SiC001

SiC001-PG

Installation data

sensitive element	SiC diode
spectral range	210 - 380nm (220 - 290nm with UVC filter on request)
operation temperature	0 - 40°C (32 - 104°F)
max. pressure	10bar at front (except SiC-SV01-PG)
body material	stainless steel, PTFE (depending on sensor type)
mounting	**x001:** pipe thread ISO228 G¼ (use MF001-A to adapt to G1) **x003:** pipe thread ISO228 G¾
wiring	ready-to-use ZED sensor cables available in several lengths

Follow me

for detailed technical specification
see datasheets at:
www.z-e-d.com/sic

ZED UV Sensors
with digital interface

D-SiC

Features

⇨ for use in UV-C monitoring systems
(for UV values in "W/m²", "mW/cm²" or "%")

⇨ variable signal amplification (AutoRange)

⇨ optimum signal resolution
over the entire measurement range
= one sensor for all applications:
- low pressure: 2...500W/m²
- medium pressure: 20...3000W/m² (6000W/m²)

⇨ fail safe signal transmission, max. cable length 30m

⇨ multi sensor operation by connecting
additional sensors in parallel

⇨ use with PC software and ZED SmartMeter:
- adjustment info, select protocol type,
set ModBus address, datalogger...
- optional: in-field recalibration

⇨ the facility-specific variety of analog UVC sensors
can be replaced by one digital ZED sensor
= just one sensor type required in stock

Abstract

digital interface
RS485 using
ModBus or ZCON protocol

use with

ZED UV Monitors
PRO11DPI-I, PRO16DPI-I,
PRO21D-I, PRO30D-I/U

Control Units
ZCON, PLC*
*via RS485/ModBus RTU

ZED UV Cabinets
UV-Compact D
ZCAB, Modula

ZED Accessories

MF001-A
measurement window adapter

MF001
measurement window

Reference Radiometer
ZED SmartMeter
handheld device

ZED Sensor Configurator
PC software

D-SiCT141

D-SiC133

D-SiC131
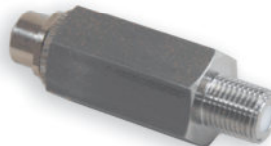
D-SiCDVGW
compliant to German standard
DVGW W294

(pictures similar)

D-SiCONORM
compliant to Austrian standards
ÖNORM M5873-1 and Vornorm ÖNORM M5873-2

Installation data

supply voltage	12...24V DC
sensitive element	SiC diode
spectral range	210 - 380nm (220 - 290nm on request)
	D-SiCDVGW/ONORM: 220 - 290nm
aperture angle	160°
operation temperature	0 - 40°C (32 - 104°F)
max. pressure	10bar at front (D-SiCDVGW/ONORM: MF001 required)
body material	stainless steel, PTFE (depending on type)
mounting	**D-SiCONORM/DVGW:** use with MF001
	D-SiC131/141: pipe thread ISO228 G¼ (use MF001-A to adapt to G1)
	D-SiC133: pipe thread ISO228 G¾
wiring	ready-to-use ZED sensor cables available in several lengths

Follow me

for detailed technical specification
see datasheets at:

www.z-e-d.com/d-sic

D-SiC   D-SiC-I   D-SiC-U

Features

⇨ digital UV sensor with analog interface
for replacing analog sensors
in existing UV-C monitoring systems

⇨ variable signal amplification (AutoRange)

⇨ optimum signal resolution
over the entire measurement range:
- low pressure: 2...500W/m²
- medium pressure: 20...3000W/m² (6000W/m²)

⇨ assignment of the facility-specific UV value
to the analog output value can be **set by customer**
using ZED Smartmeter or PC software
(e.g. set 123W/m² = 20mA)

⇨ the facility-specific variety of analog UVC sensors
can be replaced by one digital ZED sensor
with analog signal interface
= just one sensor type required in stock

Abstract

analog signal output

D-SiC*-I:	4-20mA
D-SiC*-U2:	0-2V
D-SiC*-U10:	0-10V

other values on request

use with

ZED UV Monitors
PRO11DPI-I, PRO16DPI-I,
(-I types only)

Control Units
PLC

ZED Accessories

MF001-A
measurement window adapter

MF001
measurement window

Reference Radiometer
ZED SmartMeter
handheld device

ZED Sensor Configurator
PC software

D-SiC133
(-I/-U2/-U10)

D-SiCT141
(-I/-U2/-U10)

D-SiC131
(-I/-U2/-U10)

D-SiCDVGW
(-I/-U2/-U10)
compliant to German standard
DVGW W294

(pictures similar)

D-SiCONORM
(-I/-U2/-U10)
compliant to Austrian standards
ÖNORM M5873-1 and Vornorm ÖNORM M5873-2

Installation data

supply voltage	12...24V DC (min. 15V DC for U10 types)
sensitive element	SiC diode
spectral range	210 - 380nm (220 - 290nm on request) **D-SiCDVGW/ONORM:** 220 - 290nm
aperture angle	160°
operation temperature	0 - 40°C (32 - 104°F)
max. pressure	10bar at front (D-SiCDVGW/ONORM: MF001 required)
body material	stainless steel, PTFE (depending on type)
mounting	**D-SiCONORM/DVGW:** use with MF001 **D-SiC131/141:** pipe thread ISO228 G¼ (use MF001-A to adapt to G1) **D-SiC133:** pipe thread ISO228 G¾
wiring	ready-to-use ZED sensor cables available in several lengths

Follow me

for detailed technical specification
see datasheets at:
www.z-e-d.com/d-sic-ui

ZED Digital UV-C Reference Sensor

for DVGW/ÖNORM calibration checks

D-SiC   D-SiC-I   D-SiC-U

Features

⇨ use for calibration checks
  of DVGW/ÖNORM conform facility sensors

⇨ use as measurement device

⇨ use as reference for in-field recalibration
  of digital ZED sensors

⇨ digital signal processing, signal conversion to
  absolute UVC intensity values in W/m²

⇨ measurement range: 0.01..250W/m²/0.1..500W/m²

⇨ larger dynamics, more precise signal resolution
  especially on lower intensities
  (compared to digital ZED facility sensors)

⇨ internal operation hour counter
  (e.g. for reference sensor recalibration reminder)

The digital ZED reference sensor itself is the complete reference device:

⇨ the reference sensor is not bound to a certain
  radiometer device

⇨ measurement values are shown via display-unit
  (= ZED SmartMeter or PC-software)

⇨ the periodic calibration/recalibration
  applies only to the reference sensor,

⇨ a recalibration of the displaying system
  is not necessary

Abstract

ÖNORM/DVGW compliant
UVC reference sensor,
precise measurement
especially on lower intensities

use with

ZED SmartMeter
  as Reference Radiometer

ZED Sensor Configurator
  with USB/RS485 adapter

PLC or PC
  via ModBus protocol

UV-C Reference Sensor
(example: D-SiCONORM-LP-REF)

(picture similar)

Installation data

supply voltage	12...24V DC
sensitive element	SiC diode
spectral range	220 - 290nm
aperture angle	160°
operation temperature	0 - 40°C (32 - 104°F)
max. pressure	10bar at front (MF001 required)
body material	stainless steel, PTFE (depending on type)
mounting	use with MF001

Follow me

for technical specification
refer to:

www.z-e-d.com

Features

⇨ for use in UV-C monitoring systems
(for UV values in "%")

⇨ indirect "side-looking" UV-C detection
- sensor is positioned alongside the lamps

⇨ for low pressure applications
- wide intensity range due to automated
measuring range selection

⇨ fail safe signal transmission,
max. cable length 30m

⇨ multi sensor operation by connecting
additional sensors in parallel to the RS485 bus

⇨ PC software and handheld device available
- display and log measurement values
- select protocol type (ModBus or ZCON)
- set ModBus address

D-SiC

RS485

Abstract

digital interface
RS485 using
ModBus or ZCON protocol

use with

ZED UV Monitors
PRO11DPI-I, PRO16DPI-I,
PRO21D-I,
PRO30D-I, PRO30D-U

Control Units
ZCON, PLC*
*via RS485/ModBus RTU

ZED UV Cabinets
UV-Compact D
ZCAB

ZED Accessories

ZED SmartMeter
handheld device

ZED Sensor Configurator
PC software

D-SLS-SiC006

(pictures similar)

**Side-looking:
lateral detection
of UV intensities**

Installation data

supply voltage	12...24V DC
sensitive element	SiC diode
spectral range	210 - 380nm
aperture angle	approx. 110° (laterally round)
operation temperature	0 - 40°C (32 - 104°F)
IP code	IP40
body material	stainless steel (sensor head: quartz)
mounting	to be mounted in a quartz tube
dimensions	sensor body: Ø20mm x 65mm
	sensor head: Ø14mm x 15mm
	length: 85mm
wiring	sensor cables available in several lengths

Follow me

for detailed technical specification
see datasheets at:
www.z-e-d.com/d-sls

ZED Sensor D-VUV 185nm
with digital interface

Features

⇨ for checking ozone producing
   low pressure mercury UV lamps

⇨ use of high sensitivity and high stability phototube
   - spectral response between 160 - 220nm
   - extremely low response at 254nm

⇨ easy measurement on air
   based on direct lamp contact

⇨ connect to ZED SmartMeter or Windows PC
   using ZED Sensor Configurator software
   to display and log measurement values

Abstract

digital interface
RS485

use with

ZED Accessories

ZED SmartMeter
handheld device

D-VUV 185nm

ZED Sensor Configurator
PC software

spectral sensitivity

sensor fastener F01

**D-VUV185
with sensor fastener F01**

(pictures similar)

Installation data

dimensions	Ø20mm x 96mm
max. pressure	IP00
body material	stainless steel
mounting	using sensor fastener F01

Follow me

for detailed technical specification
see datasheets at:
www.z-e-d.com/vuv

ZED Temperature Sensors
with analog and digital interface

Features

⇨ ST001/D-ST001:
   for temperature measurement in liquids or gases

⇨ D-ST002:
   for temperature measurement on surfaces

⇨ connect to PLC, ZED control units or ZED cabinets

⇨ digital temperature sensors D-ST:
   - fail safe signal transmission,
     max. cable length 30m
   - multi sensor operation by connecting
     additional sensors in parallel to the RS485 bus
   - can be combined with digital ZED UV sensors

Abstract

digital interface
RS485 using
ModBus or ZCON protocol

analog interface
resistance characteristic

use with

ZED UV Monitors
PRO30D-I
PRO30D-U

Control Units
ZCON
PLC
using appropriate signal
interfaces

ZED Cabinets
ZCAB
UV-Compact D

D-ST001

D-ST002

ST001

(pictures similar)

Installation data

supply voltage	D-ST001/D-ST002: 12...24V DC
sensitive element	KTY81/110, KTY82/110
measurement range	0...85°C
max. pressure	IP54
body material	stainless steel
mounting	(D)-ST001: pipe thread ISO228 G¼ D-ST002: mounting hole, diam.: 6mm
wiring	ready-to-use ZED sensor cables available in several lengths

Follow me

for detailed technical specification
see datasheets at:
www.z-e-d.com/temperature

ZED SmartMeter

Reference Radiometer | UV Meter | VUV-Meter

D-VUV   D-SiC   D-SiC-I   D-SiC-U

Features

⇨ universal handheld unit for use as

● **UV-C Reference Radiometer**
   - use with ZED Reference Sensors D-SiCONORM-LP-REF
      for checking DVGW and ÖNORM compliant plant sensors

● **185nm measuring device**
   - use with ZED Sensors D-VUV 185nm
      for checking ozone producing low pressure UV lamps

● **UV-C meter**
   - use with ZED digital UV D-SiC sensors
      for low and medium pressure applications

● **Data logger**
   - data logging to SD-Card,
      duration and intervall adjustable

● **ZED Sensor Configuration Tool**
   - set/change ModBus address of D-SiC sensors
   - setting up analog output values of D-SiC-I/U sensors
   - optional: in-field recalibration of ZED D-SiC sensors

Abstract

Reference Radiometer
UV/VUV Meter
Sensor Configuration Tool
Data logger

use with

ZED UV Sensors
D-SiC types
D-SiC-I/U types

ZED 185nm Sensor
D-VUV 185nm

**ÖNORM/DVGW
compliant sensors/
reference sensors**

**ZED standard
digital sensors**

D-VUV 185nm sensor

**ZED SmartMeter
with Reference sensor**

**carrying case
with optional accessories**

(pictures similar)

co-financed by

ESF
EUROPA FÜR THÜRINGEN
EUROPÄISCHER SOZIALFONDS

EUROPÄISCHE UNION
Europäischer Sozialfonds

Installation data

supply voltage	internal rechargeable battery & 24V DC power supply/charger
operation temperature	0 - 40°C (32 - 104°F)
IP code	IP40
dimensions (LxWxD)	100 x 211 x 47 mm (3.94 x 8.31 x 1.85 inch)

Follow me

for detailed technical specification
see datasheets at:
www.z-e-d.com/smartmeter

D-SiC

Features

⇨ display unit
for ZED DVGW and ÖNORM reference sensors

- optimized for cost sensitive applications
- simplified usage, base functionality
- alphanumeric display
with dynamic resolution and backlight
- protected against dust and streams of water (IP 65)
- compact dimension (just 130x75x25mm)
- low power consumption / long operation time
with normal alkaline battery
- connects to all ZED digital UV sensors*
*(types with measurement in W/m², production date starting 2017)

Abstract

**cost efficient
Radiometer / UV Meter**

use with

ZED UV Sensors
D-SiC types

**ÖNORM/DVGW
compliant sensors/
reference sensors**

**ZED standard
digital sensors**

**ZED TinyMeter
with Reference sensor**

**carrying case
with optional accessories**

(pictures similar)

Installation data

supply voltage	internal 9V battery
operation temperature	0 - 40°C (32 - 104°F)
IP code	IP65
dimensions (LxWxD)	130 x 75 x 25 mm (5.12 x 2.95 x 0.98 inch)

Follow me

for detailed technical specification
see datasheets at:

www.z-e-d.com

D-VUV **D-SiC** **D-SiC-I** **D-SiC-U**

Features

Windows PC software for

⇨ operating digital ZED sensors via PC

⇨ displaying and logging measurement values

⇨ displaying sensor properties
  - sensor type, firmware type, calibration date

⇨ activating/deactivating ModBus protocol

⇨ setting ModBus address

⇨ adjusting analog sensor outputs (4...20mA, 0...10V)
  on ZED D-SiC analog sensors

⇨ ZED USB to RS485 serial adapter
  with appropriate sensor interface cable available

Abstract

UV monitoring
Sensor adjustment
ModBus setting
Data logging

use with

ZED UV Sensors
D-SiC types

ZED 185nm Sensor
D-VUV185

Sensor Configurator Software

USB to RS485 Adapter

(example pictures)

... individual adjustment of ZED D-SIC analog UV sensors

... individual setup of digital ZED sensors for ModBus operation

Follow me

for detailed technical specification
see datasheets at:
www.z-e-d.com/sensorconfigurator

Features

⇨ for use as UV-C monitoring system
(UV values via green, yellow and red "traffic light" system)

⇨ can be connected with
one SiC UV sensor with photodiode signal

⇨ manual sensor sensitivity adjustment
(using potentiometer and 110%-indication LED)

⇨ system status indication
- green, red and yellow LEDs

⇨ system status forwarding
- potential free relay contacts
(UV alarm)

SiC

LED

state

Abstract

photodiode input

use with

ZED UV Sensors

SiC-SV01-PG
SiC001
SiCT001-PG
SiC003

Control Units

PLC
via relay contacts
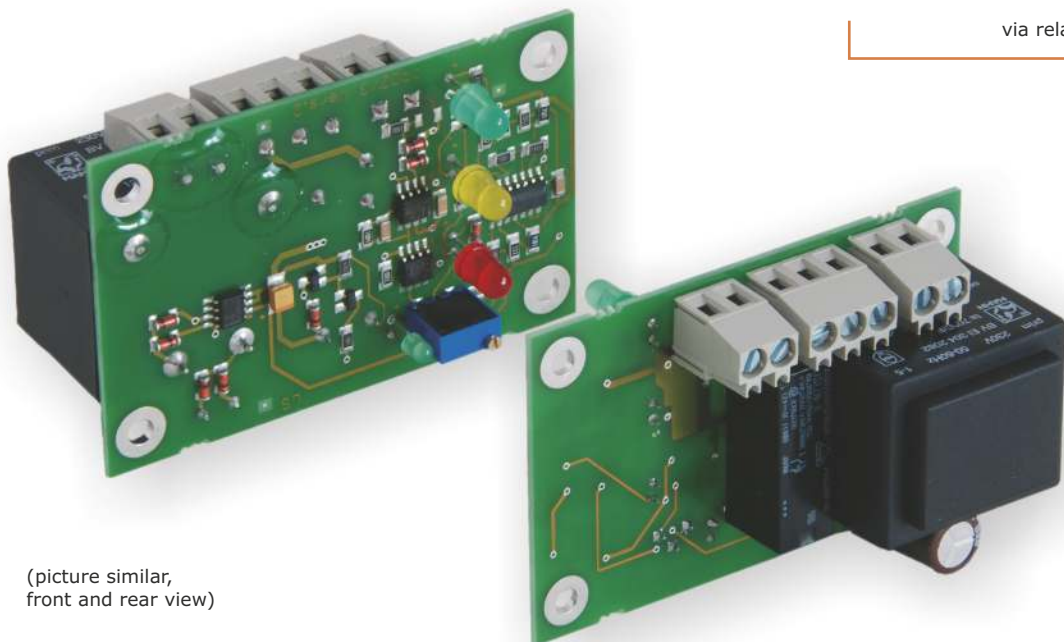
(picture similar,
front and rear view)

PRO3

Installation data

supply voltage	230V AC ± 10%
	(115V AC and 24V DC on request)
mains frequency	45 - 65Hz
operation temperature	max. 45°C (113°F)
ambient temperature	0 - 40°C (32 - 104°F)
IP code	IP00
mounting	to be installed in a closed cabinet
dimensions (LxWxD)	75 x 49 x 41 mm
	(2.94 x 1.92 x 1.61 inch)

230V

Follow me

for detailed technical specification
see datasheets at:

www.z-e-d.com/pro3

Features

⇨ amplifier / converter
for photodiode signals
- **IF01** converts to **0-5V**
- **IF02** converts to **4-20mA**

⇨ can be connected with
up to two SiC UV sensors with photodiode signal

⇨ manual amplification adjustment
(using potentiometer)

Abstract

photodiode input

use with

ZED UV Sensors
SiC-SV01-PG
SiC001
SiCT001-PG
SiC003

Control Units
PLC
via 4-20mA/0-5V output

IF01

(picture similar)

IF02

Installation data

supply voltage	230V AC ± 10% (115V AC and 24V DC on request)
mains frequency	45 - 65Hz
operation temperature	max. 45°C (113°F)
ambient temperature	0 - 40°C (32 - 104°F)
IP code	IP20
mounting	to be installed in a closed cabinet, DIN rail mounting
dimensions (LxWxD)	48 x 97 x 43 mm (1.89 x 3.81 x 1.69 inch)

Follow me

for detailed technical specification
see datasheets at:
www.z-e-d.com/if

SiC   D-SiC-I   D-SiC

Features

⇨ for use as UV-C monitoring system
  (for UV values in "W/m²", "mW/cm²" or "%")

⇨ can be connected with
  - up to 2 D-SiC/D-SLS-SiC UV sensors
    with digital interface
  - or 1 SiC-I UV sensor with 4-20mA signal output
  - or 1 SiC UV sensor with photodiode signal

⇨ system status indication
  - multicolor LCD
  - green, red and yellow LCD backlight

⇨ system status forwarding
  - potential free relay contacts
    (UV alarm)
  - 4-20mA potential free signal
    (UV value forwarding to PLC)

⇨ operation hour counter, switch cycle counter

⇨ ready for certification according to
  DVGW W294 and ÖNORM M5873

UV ok LCD

state   UV out

Abstract

**photodiode input
analog 4-20mA input
digital sensor interface**

use with

ZED UV Sensors

D-SiC131
D-SiC133
D-SiCT141
D-SiCDVGW
D-SiCONORM
D-SiC131-I
D-SiC133-I
D-SiCT141-I
D-SLS-SiC006
D-SiCDVGW-I
D-SiCONORM-I
SiC-SV01-PG
SiC001
SiCT001-PG
SiC003

Control Units

PLC
via relay contacts

rear view

(pictures similar)

front view   **PRO16DPI-I**

Installation data

supply voltage	230V AC ± 10% (115V AC and 24V DC on request)
mains frequency	45 - 65Hz
operation temperature	max. 45°C (113°F)
ambient temperature	0 - 40°C (32 - 104°F)
IP code	IP00
mounting	to be installed in a closed cabinet
dimensions (LxWxD)	72.5 x 72.5 x 53 mm (2.85 x 2.85 x 2.08 inch)

230V

Follow me

for detailed technical specification
see datasheets at:

www.z-e-d.com/pro16

Features

⇨ for use as UV-C monitoring system
(for UV values in "W/m²", "mW/cm²" or "%")

⇨ can be connected with
- up to two D-SiC UV sensors with digital interface
- or one SiC-I UV sensor with 4-20mA signal output
- or one SiC UV sensor with photodiode signal

⇨ system status indication
- multicolor LCD
- green, red and yellow LCD backlight

⇨ system status forwarding
- potential free relay contacts
  (UV warning and UV alarm)
- 4-20mA potential free signal
  (UV value forwarding to PLC)

⇨ remote input "UV-off" and "lamp fault"

⇨ operation hour counter, switch cycle counter

⇨ ready for certification according to
DVGW W294 and ÖNORM M5873

Abstract

**photodiode input
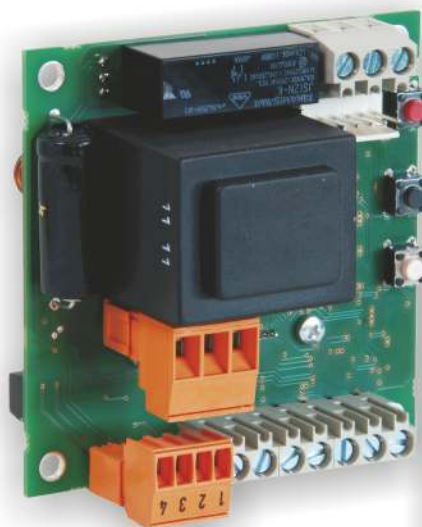analog 4-20mA input
digital sensor interface**

use with

ZED UV Sensors

D-SiC131
D-SiC133
D-SiCT141
D-SiCDVGW
D-SiCONORM
D-SiC131-I
D-SiC133-I
D-SiCT141-I
D-SLS-SiC006
D-SiCDVGW-I
D-SiCONORM-I
SiC-SV01-PG
SiC001
SiCT001-PG
SiC003

Control Units

PLC
via 4-20mA signal output
or relay contacts

(picture similar)

PRO11DPI-I

Installation data

supply voltage	230V AC ± 10% (115V AC and 24V DC on request)
mains frequency	45 - 65Hz
operation temperature	max. 45°C (113°F)
ambient temperature	0 - 40°C (32 - 104°F)
IP code	IP20 (IP65 at front on request)
mounting	to be installed in the front panel of a cabinet or console (DIN43700 cut-out)
dimensions (LxWxD)	96 x 48 x 114 mm (3.77 x 1.89 x 4.48 inch)

Follow me

for detailed technical specification
see datasheets at:

www.z-e-d.com/pro11

ZED UV Monitor & Converter
PRO30D-I, PRO30D-U

D-SiC **D-ST**

Features

⇨ for use as

- **UV-C/temperature monitoring system**
  combinations of up to two
  D-SiC sensors (for UV values in "W/m²", "mW/cm²" or "%")
  D-SLS sensors (for UV values in "%")
  D-ST sensors (for temperature values in "°C" or "°F")

- **converter for digital sensor signals**
  for converting measurement values
  of D-SiC, D-SLS or D-ST sensors
  to analog signals:
  - PRO30D-I converts to 4-20mA
  - PRO30D-U converts to 0-10V

- **operation hour counter/cycle counter**
  with lamp replacement indication,
  plain hour counter mode without sensors
  possible

⇨ system status indication
  - multicolor LCD
  - green, red and yellow LCD backlight

⇨ system status forwarding
  - potential free relay contacts (alarm state)

⇨ ready for certification according to
  DVGW W294 and ÖNORM M5873

analog out

UV ok **LCD**

state

Abstract

digital sensor interface

use with

ZED UV Sensors
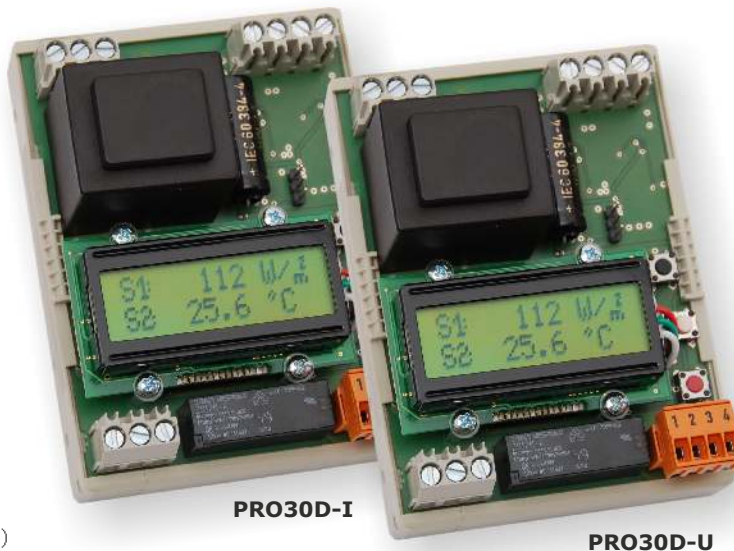D-SiC131
D-SiC133
D-SiCT141
D-SiCDVGW
D-SiCONORM
D-SLS

ZED Temperature Sensors
D-ST001
D-ST002

Control Units
PLC
via 4-20mA / 0-10V
signal output
or relay contacts)

PRO30D-I

PRO30D-U

(picture similar)

Installation data

supply voltage	230V AC ± 10% (115V AC and 24V DC on request)
mains frequency	45 - 65Hz
operation temperature	max. 45°C (113°F)
ambient temperature	0 - 40°C (32 - 104°F)
IP code	IP00
mounting	to be installed in a closed cabinet, DIN rail mounting
dimensions (LxWxD)	70 x 95 x 50 mm (2.75 x 3.73 x 1.96 inch)

230V

Follow me

for detailed technical specification
see datasheets at:

www.z-e-d.com/pro30

PHplus   D-SiC   D-ST   ST

Features

⇨ out-of-the-box control unit for use as **master control**
- for UV applications with
  up to 32 ZED PHplus ballasts (single to quad lamp types)
- support for the upcoming ZED ballasts
  for medium pressure lamps
- UV-C monitoring using up to 4 D-SiC sensors
- temperature monitoring using D-ST / ST sensors
- different add-ons available allowing flow monitoring,
  dynamic lamp dimming, reactor flushing...

⇨ status indication
- relay contacts, LEDs, multicolor LCD
- status forwarding via analog output
- detailed status forwarding via ModBus RTU

⇨ remote operation control via analog inputs

⇨ remote command execution via ModBus RTU

⇨ operation hour counter, switch cycle counter...

⇨ data logging and settings import/export via SD-Card

⇨ meets all requirements by DVGW W294/ ÖNORM M5873

LCD   LED   analog in   analog out

state   switch in   switch out

Abstract

master control unit
with ModBus support
for ZED digital
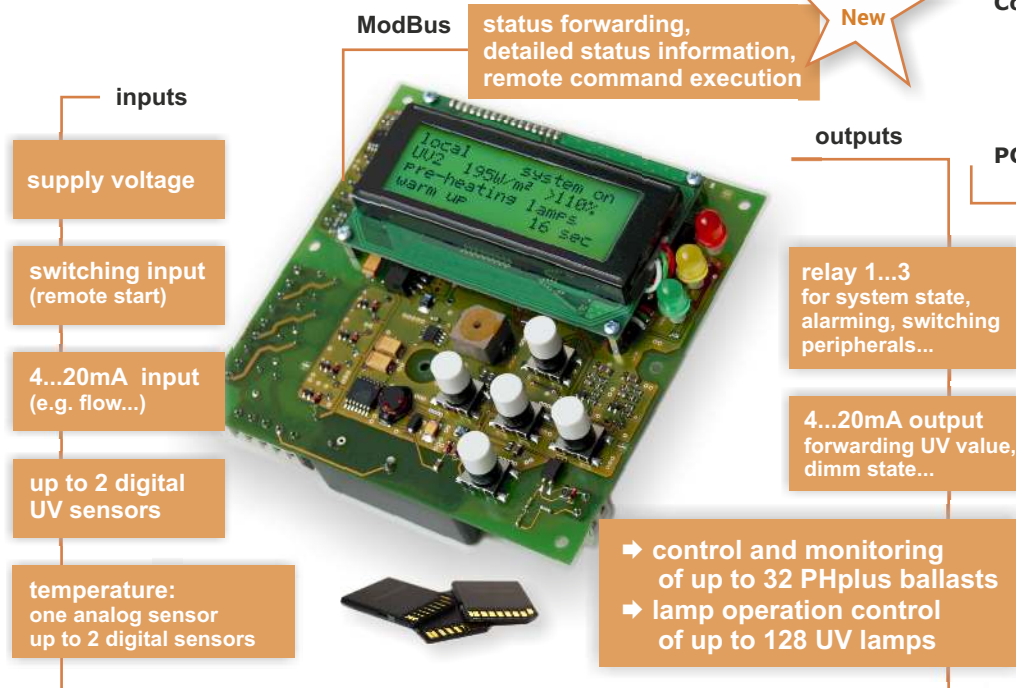ballasts and sensors

use with

ZED Ballasts
with digital interface

ZED UV Sensors
D-SiC types

ZED Temperature Sensors
D-ST / ST types

Control Units
PLC via ModBus RTU,
PLC via 4-20mA signals,
PLC via switching
inputs/outputs

PC Software
ZED LogDataViewer

ModBus   status forwarding,
detailed status information,
remote command execution   New

inputs

supply voltage

switching input
(remote start)

4...20mA input
(e.g. flow...)

**up to 2 digital
UV sensors**

temperature:
one analog sensor
up to 2 digital sensors

outputs

relay 1...3
for system state,
alarming, switching
peripherals...

4...20mA output
forwarding UV value,
dimm state...

➜ **control and monitoring
of up to 32 PHplus ballasts**
➜ **lamp operation control
of up to 128 UV lamps**

(pictures similar)

**ZCONmini
with optional front panel**

Installation data

supply voltage	100...240V AC (24V DC on request)
mains frequency	50 - 60Hz
operation temperature	max. 45°C (113°F)
ambient temperature	0 - 40°C (32 - 104°F)
IP code	IP00 (IP20 at front with optional front panel)
mounting	to be installed in a closed cabinet
dimensions (LxWxD)	130 x 130 x 50 mm (5.12 x 5.12 x 1.96 inch)
	with optional front panel: 200 x 200 x 50 mm (7.87 x 7.87 x 1.96 inch)

230V

Follow me

for detailed technical specification
see datasheets at:
www.z-e-d.com/zcon-mini

ZED Control Unit
ZCONdin

PHplus   D-SiC   D-ST   ST

Features

⇨ out-of-the-box control unit
for use as **subcontroller**
- connecting up to 20 ZED PHplus ballasts
(single, dual, triple and quad lamp types)
and up to 4 D-SiCplus UV sensors with a PLC

⇨ status indication
- multicolor LCD
- green, red and yellow LEDs
- relay contacts

state
LCD   LED

state

⇨ analog interfaces for
- status forwarding
- remote operation

switch in   switch out   analog in   analog out

⇨ operation hour counter, switch cycle counter...

⇨ ready for certification according to
DVGW W294 and ÖNORM M5873

Abstract

digital sensor interface

**digital PHplus
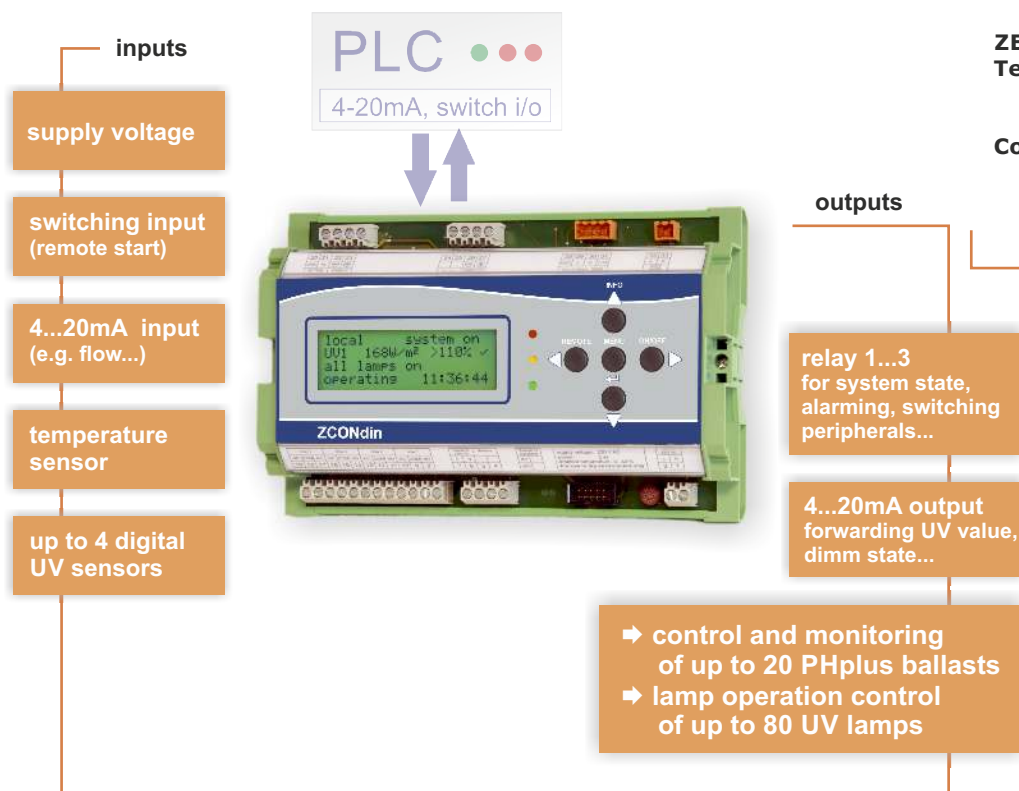ballast interface**

use with

ZED Ballasts
PHplus types

ZED UV Sensors
D-SiC types

**ZED
Temperature Sensors**
ST / D-ST types

Control Units
PLC
(via 4-20mA signals,
or switching inputs/outputs)

inputs

PLC ●●●
4-20mA, switch i/o

supply voltage

**switching input
(remote start)**

**4...20mA input
(e.g. flow...)**

**temperature
sensor**

**up to 4 digital
UV sensors**

ZCONdin

outputs

relay 1...3
for system state,
alarming, switching
peripherals...

4...20mA output
forwarding UV value,
dimm state...

➡ **control and monitoring
of up to 20 PHplus ballasts**
➡ **lamp operation control
of up to 80 UV lamps**

(picture similar)

Installation data

supply voltage	100...240V AC
	(24V DC on request)
mains frequency	50 - 60Hz
operation temperature	max. 45°C (113°F)
ambient temperature	0 - 40°C (32 - 104°F)
IP code	IP20
mounting	DIN rail mounting
dimensions (LxWxD)	195 x 128 x 51 mm
	(7.66 x 5.03 x 2.00 inch)

230V

Follow me

for detailed technical specification
see datasheets at:
www.z-e-d.com/zcon-din

PHplus

Features

⇨ out-of-the-box control unit
for use as **dimming interface**
● connecting up to 12 ZED PHplus ballasts
(single, dual, triple and quad lamp types)
with a PLC for operation control/dimming

⇨ status indication
- multicolor LCD
- relay contacts

⇨ 4-20mA or 0-10V
dimming signal input

state   state LCD

analog in   switch in

Abstract

**digital PHplus
ballast interface**

use with

ZED Ballasts
PHplus types

Control Units
PLC
(via 4-20mA or 0-10V signals,
or switching inputs/outputs)

inputs

PLC ● ● ●
4-20mA, switch i/o

supply voltage

switching input
(remote start)

4...20mA input

outputs

relay 1...2
for system state,
alarming

➡ **control and monitoring
of up to 12 PHplus ballasts**
➡ **lamp operation control
of up to 48 UV lamps**
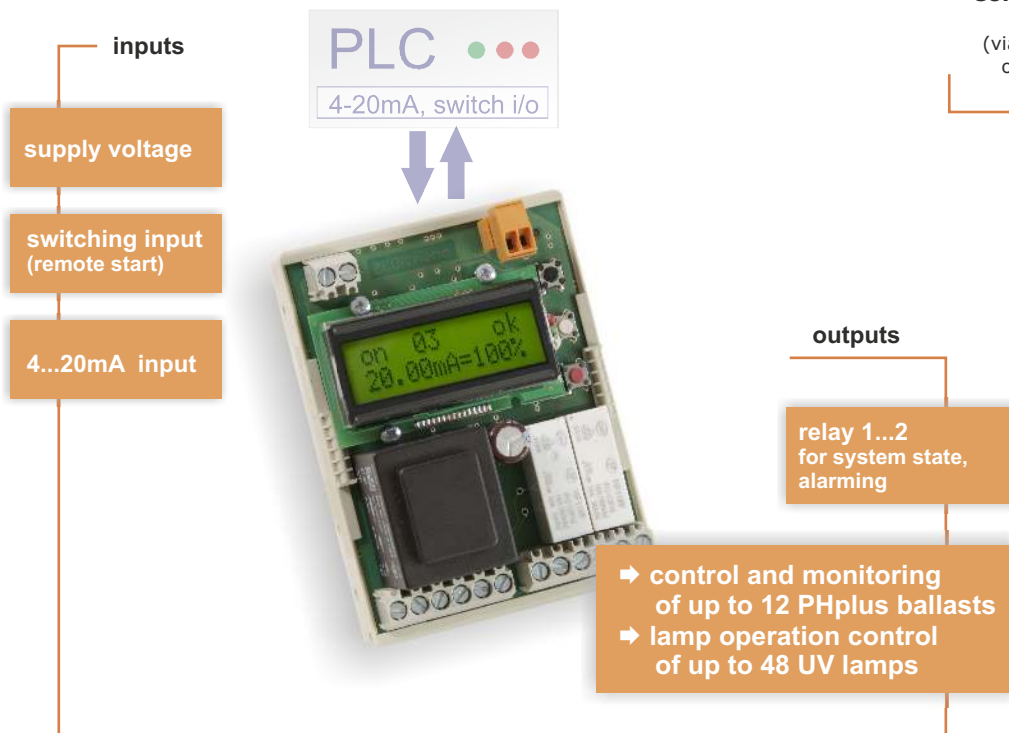
(pictures similar)

Installation data

supply voltage	230V AC
	(on request: 12V DC, 24V DC)
mains frequency	50 - 60Hz
operation temperature	max. 45°C (113°F)
ambient temperature	0 - 40°C (32 - 104°F)
IP code	IP00
mounting	to be installed in a closed cabinet, DIN rail mounting
dimensions (LxWxD)	70 x 95 x 55 mm (2.75 x 3.73 x 2.16 inch)

230V

Follow me

for detailed technical specification
see datasheets at:
www.z-e-d.com/zcon-nano

Features

Windows PC software for
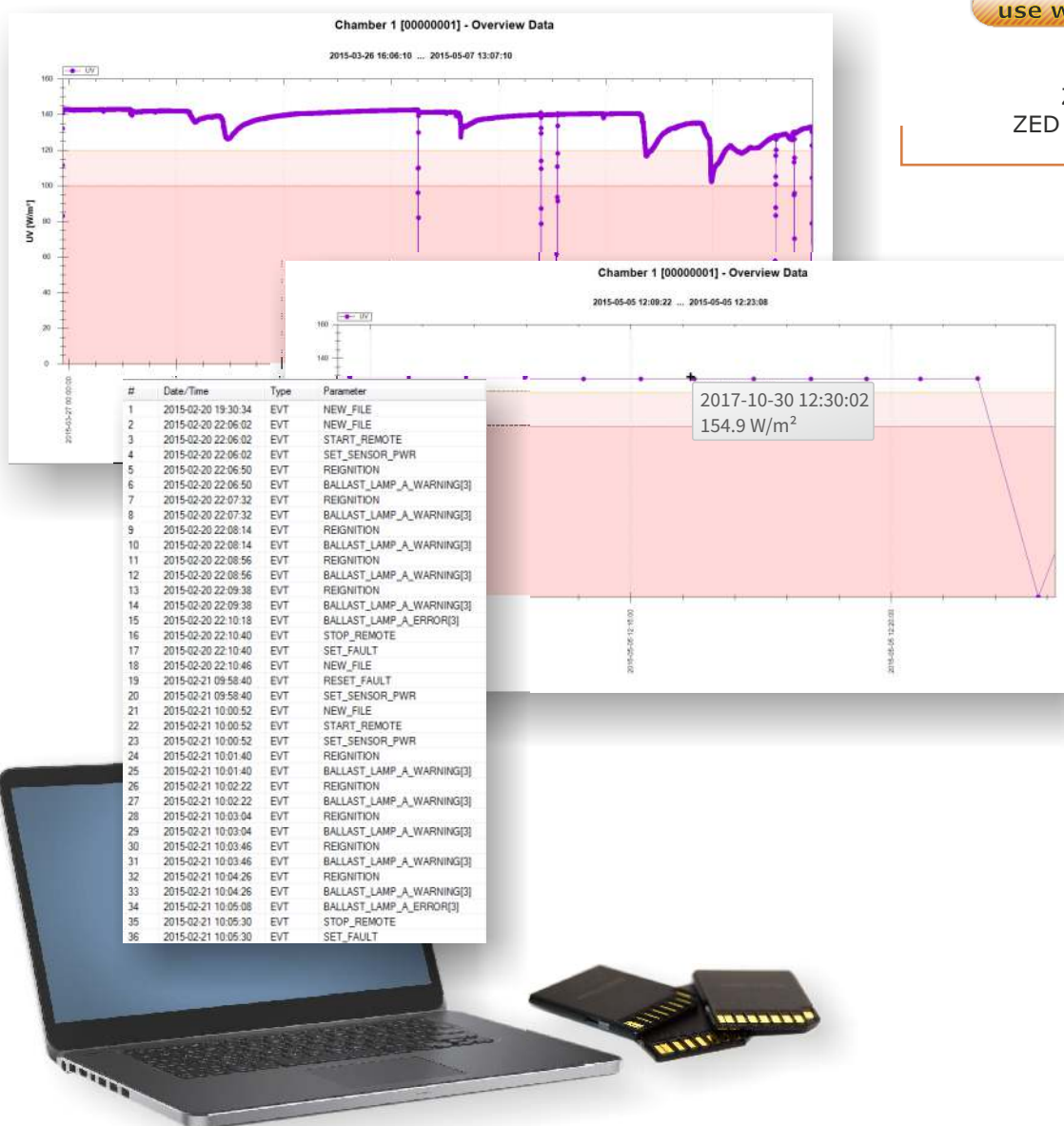
⇨ import, visualization and evaluation of log data
from ZCONmini II and ZED SmartMeter

⇨ integrated data base
for multiple reading points

⇨ flexible configurable display options

⇨ data export into CSV file

Abstract

**ZCONmini II /
ZED SmartMeter
log data visualization
and evaluation**

use with

ZCONmini II
ZED SmartMeter

(example pictures)

Follow me

for detailed technical specification
see datasheets at:

www.z-e-d.com

Electronic Ballasts

Genuine ZED-EVG

⇨ ballasts / lamp drivers
designed, manufactured
and individually inspected
by ZED

⇨ optimized
for industrial UV-C applications

⇨ highest technical reliability

⇨ high efficiency

⇨ high power at a good price

⇨ excellent support

⇨ made in Germany

How to find the right ZED ballast?

either:

select the power of your lamp and see all suitable ZED ballast types at a glance:

available ZED ballast types - overview

for germicidal lamps and amalgam lamps, power range **up to 200W**...............................ballast overview 1&2

for amalgam lamps, power range **200W - 400W**...ballast overview 3

for amalgam lamps, power range **400W - 1200W**..ballast overview 4

for medium pressure lamps, power range **up to 650W / 2500W**....................................EVG 15
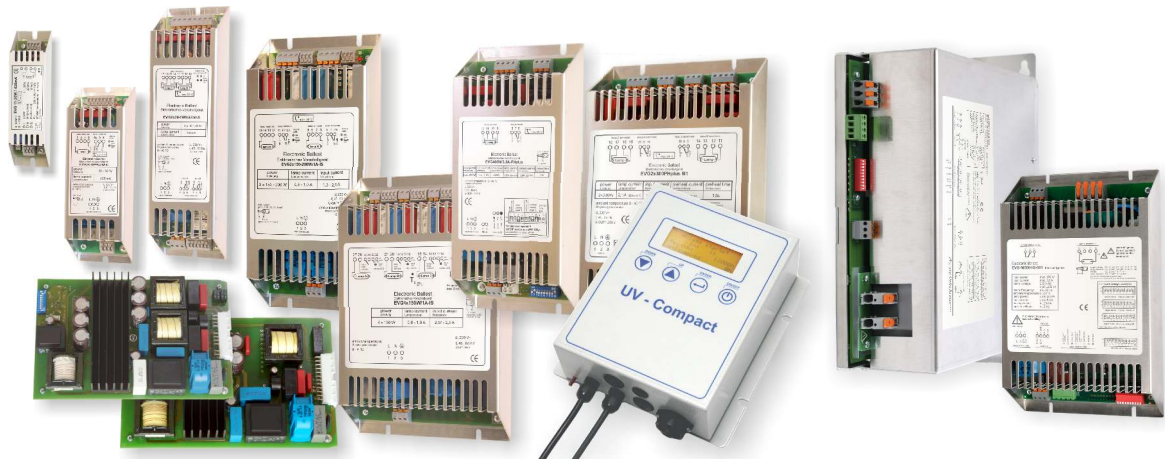
or:

combine the lamp power with your technical demands and see ZED ballast details:

24V DC standard single lamp ballasts for 2-pin/4-pin lamps **up to 60W**..........................EVG 1

standard single, dual, triple & quad lamp ballasts for 2-pin lamps **up to 80W**.............EVG 2

standard single, dual & quad lamp ballasts for 2-pin lamps **up to 200W**......................EVG 3

standard single & dual lamp ballasts for 4-pin lamps **up to 80W**.............................EVG 4

standard single & dual lamp ballasts for 4-pin lamps **up to 200W**...........................EVG 5

enhanced/controllable dual lamp ballasts for 4-pin lamps **up to 200W**......................EVG 6

single lamp cabinet for 2-pin/4-pin lamps **30...200W**.......................................EVG 7

standard single lamp ballasts for 2-pin/4-pin lamps **up to 400W**............................EVG 8

enhanced/controllable single lamp ballasts for 4-pin lamps **up to 400W**....................EVG 9

enhanced/controllable dual lamp ballasts for 4-pin lamps **up to 350W**......................EVG 10

enhanced/controllable triple & quad lamp ballasts for 4-pin lamps **up to 325W**.............EVG 11

enhanced/controllable single lamp ballasts for 4-pin lamps **up to 600W**....................EVG 12

enhanced/controllable dual lamp ballasts for 4-pin lamps **up to 600W**......................EVG 13

enhanced/controllable single lamp ballasts for 4-pin lamps **up to 1200W**...................EVG 14

controllable electronic ballasts for **medium pressure lamps up to 650W** ....EVG 15

controllable electronic ballasts for **medium pressure lamps up to 2500W**...................EVG 16

ZED BallastMonitor software for Ballast control..EVG 17

PHplus
+ controllable and adjustable
+ preheat
+ operation parameter adjustable
+ allows lamp dimming
+ controllable via PLC, computer
  or ZED control units
+ rack types available on request
+ cable length up to 30m
+ overtemperature protection
+ optimized to the specified lamp
+ status indication by LED and relay
+ CE approval
+ UV cabinets
  Modula and ZCAB available
  for up to 3x200W/4x150W
  lamp power
 (see chapter "integrated solutions")

E400PHplus-B
40...200W
→ page 'EVG 9'

E2x200PHplus-B
40...200W
→ page 'EVG 6'
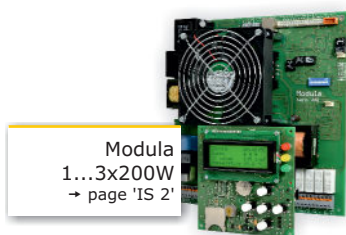
Modula
1...3x200W
→ page 'IS 2'

ZCAB
1...4x150W
1...3x200W
→ page 'IS 3'

enhanced / controllable types

PH-S
+ enhanced operation features
+ preheat
+ cable length up to 30m
+ overtemperature protection
+ optimized to the specified lamp
+ status indication by LED and relay
+ CE approval
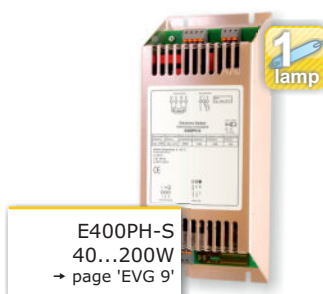
E400PH-S
40...200W
→ page 'EVG 9'

E2x200PH-S
40...200W
→ page 'EVG 6'

enhanced types

PH
+ preheat start for 4-pin lamps
  for safe ignition and long life time
+ optimized to the specified lamp
+ status indication by LED and relay
+ CE approval
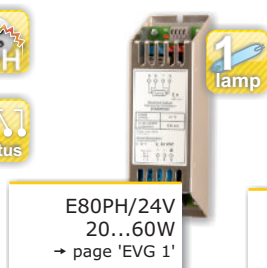
E80PH/24V
20...60W
→ page 'EVG 1'
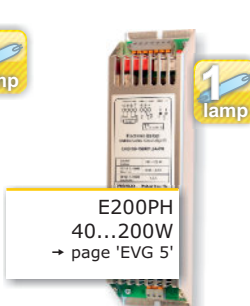
E200PH
40...200W
→ page 'EVG 5'
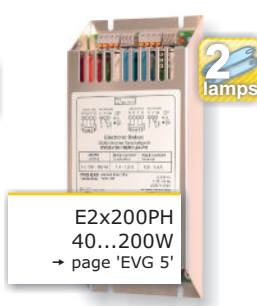
E2x200PH
40...200W
→ page 'EVG 5'
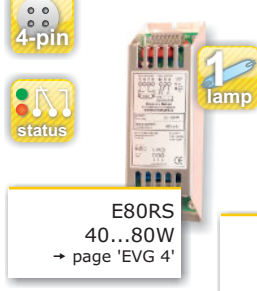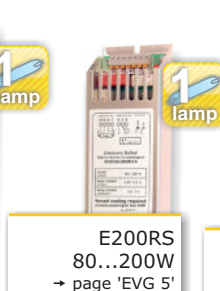
standard types

RS
+ rapid start for 4-pin lamps
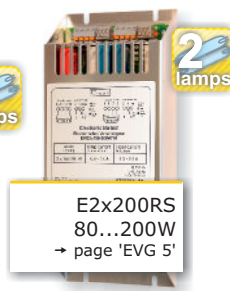+ optimized to the specified lamp
+ status indication by LED and relay
+ CE approval

E80RS
40...80W
→ page 'EVG 4'

E200RS
80...200W
→ page 'EVG 5'

E2x80RS
40...80W
→ page 'EVG 4'

E2x200RS
80...200W
→ page 'EVG 5'

standard types

2-pin

status

E80IS
40...80W
→ page 'EVG 2'

E200IS
80...200W
→ page 'EVG 3'

E2x80IS
40...80W
→ page 'EVG 2'

E2x200IS
80...200W
→ page 'EVG 3'

E3x80IS
40...80W
→ page 'EVG 2'

E4x80IS
40...80W
→ page 'EVG 2'

E4x150IS
40...160W
→ page 'EVG 3'

IS
+ instant start for 2-pin lamps
+ less wiring - only 2 wires per lamp
+ optimized to the specified lamp
+ status indication by LED and relay
+ CE approval

standard types

PH **4-pin** **2-pin**

LCD **SiC** **D-SiC**

status

1234 counter

UV-Compact D
30...200W
→ page 'EVG 7'

UV-Compact D
available as
  - preheat start - PH
  - rapid start - RS
  - instant start - IS
+ optimized to the specified lamp
+ hour counter
+ UV monitor
+ status indication by colored LCD and relay
+ CE approval

compact standard types

power range lower than 24W

status

E20RS
5...24W
→ page 'EVG 4'

230V **4-pin**

E20RS/24V
5...16W
→ page 'EVG 1'

24V **4-pin**

E20IS
5...24W
→ page 'EVG 2'

230V **2-pin**

E20IS/24V
5...16W
→ page 'EVG 1'

24V **2-pin**
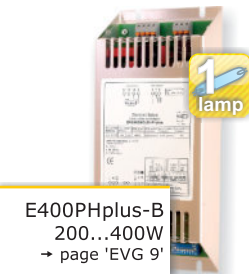
small size types
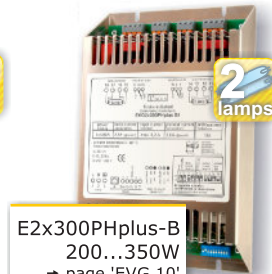available as
  - rapid start - RS
  - instant start - IS
+ 230V AC and 24V DC types available
+ optimized to the specified lamp
+ status indication by LED
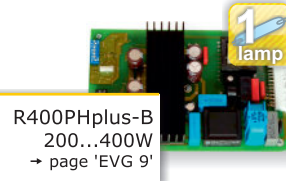   and photocoupler
+ CE approval

standard types

PHplus

adjust

RS485

status

rack mount

1 lamp
E400PHplus-B
200...400W
→ page 'EVG 9'

2 lamps
E2x300PHplus-B
200...350W
→ page 'EVG 10'

3 lamps
E3x300PHplus-R
200...325W
→ page 'EVG 11'

4 lamps
E4x300PHplus-R
200...325W
→ page 'EVG 11'

1 lamp
R400PHplus-B
200...400W
→ page 'EVG 9'

3 lamps
R3x300PHplus-R
200...325W
→ page 'EVG 11'

2 lamps
R2x300PHplus-B
200...350W
→ page 'EVG 10'
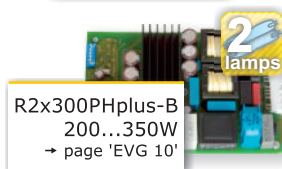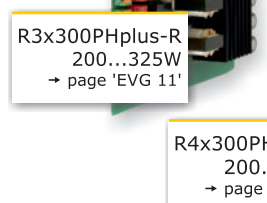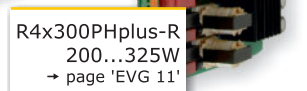
4 lamps
R4x300PHplus-R
200...325W
→ page 'EVG 11'

ZCAB
1...2x300W
1x400W
→ page 'IS 3'

Modula
1...2x300W
1x400W
→ page 'IS 2'

PHplus
+ controllable and adjustable
+ preheat
+ operation parameter adjustable
+ allows lamp dimming
  (PHplus-R types with analog
  dimming interface 4...20mA/0..10V)
+ controllable via PLC, computer
  or ZED control units
+ rack types available
+ cable length up to 30m
+ overtemperature protection
+ optimized to the specified lamp
+ status indication by LED and relay
+ CE approval
+ UV cabinets
  Modula and ZCAB available
  for up to 600W total lamp power
  (see chapter "integrated solutions")

enhanced / controllable types

PH
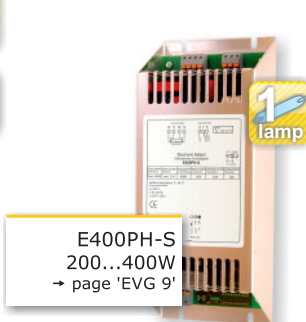
status
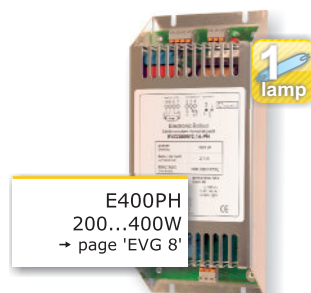
1 lamp
E400PH-S
200...400W
→ page 'EVG 9'
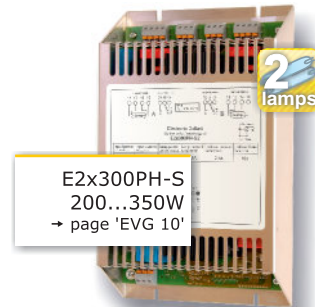
2 lamps
E2x300PH-S
200...350W
→ page 'EVG 10'

PH-S
+ enhanced operation features
+ preheat
+ cable length up to 30m
+ overtemperature protection
+ optimized to the specified lamp
+ status indication by LED and relay
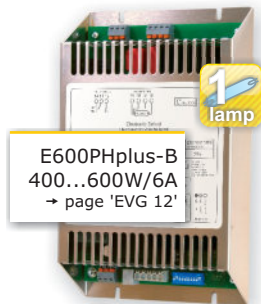+ CE approval

enhanced types

PH

status

1 lamp
E400PH
200...400W
→ page 'EVG 8'

PH
+ preheat start for 4-pin lamps
  for safe ignition and long life time
+ optimized to the specified lamp
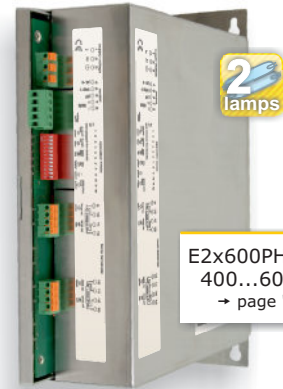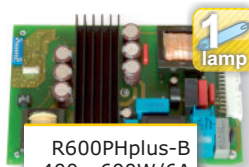+ status indication by LED and relay
+ CE approval

standard types

PHplus

adjust

RS485

status

rack mount

E600PHplus-B
400...600W/6A
➜ page 'EVG 12'

1 lamp

R2x600PHplus-R
400...600W/6A
➜ page 'EVG 13'

2 lamps

E2x600PHplus-R
400...600W/6A
➜ page 'EVG 13'

2 lamps

R600PHplus-B
400...600W/6A
➜ page 'EVG 12'

1 lamp
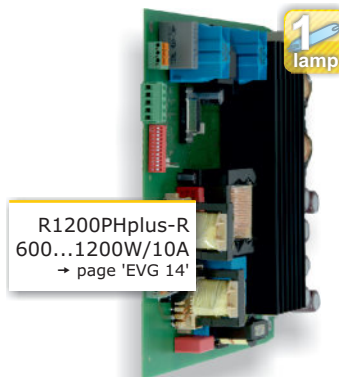
R1200PHplus-R
600...1200W/10A
➜ page 'EVG 14'

1 lamp
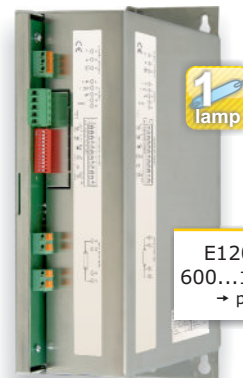
E1200PHplus-R
600...1200W/10A
➜ page 'EVG 14 '

1 lamp
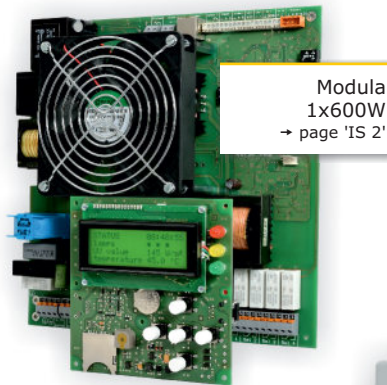
Modula
1x600W
➜ page 'IS 2'

ZCAB
1x600W
➜ page 'IS 3'

PHplus
+ controllable and adjustable
+ preheat
+ operation parameter adjustable
+ allows lamp dimming
  (PHplus-R types with analog
  dimming interface 4...20mA/0..10V)
+ controllable via PLC, computer
  or ZED control units
+ rack types available
+ cable length up to 30m
+ overtemperature protection
+ optimized to the specified lamp
+ status indication by LED and relay
+ CE approval
+ UV cabinets
  Modula and ZCAB available
  for up to 600W total lamp power
  (see chapter "integrated solutions")

enhanced / controllable types

Ballast Specification

single lamp ZED Ballasts - 24V DC types
for Low Pressure Lamps up to 60W

2-pin **4-pin** **PH** **1 lamp** **= 24V**

Features

⇨ small & space saving

⇨ metal housing, designed for optimal thermal flow

⇨ push-in contacts for quick installation

⇨ easy system start-up: plug and play

⇨ rapid start types for 4-pin lamps

⇨ instant start types for 2-pin lamps
(for applications with less than 1 switching cycles per day)

⇨ preheat start types for 4-pin lamps
(for applications with more than 3 switching cycles per day)

⇨ lamp status indication (lamp on/lamp fault)
- green and red LEDs
- photocoupler

2-pin **4-pin** **PH** **status**

Abstract

lamp power   5...60W
lamp current up to 600mA

values depending on ballast type,
see appropriate ballast datasheet
for detailed technical specification

use with

Lamp types

E20IS/24V:

G10T5

E20RS/24V, E80PH/24V:

GPH287T5L,
GPH303T5L,
GPH436T5L,
TUV 11W (T5),
TUV 16W (T5),

E80PH/24V:

G36T5,
GPH436T5HO(600mA),
TUV 36T5 HE,
TUV PL-L 36W/4P,
TUV PL-L 60W/4P HO

ballasts for other lamp types
available on request

1 lamp **PH**

E80PH/24V

1 lamp **4-pin**

E20RS/24V

1 lamp **2-pin**
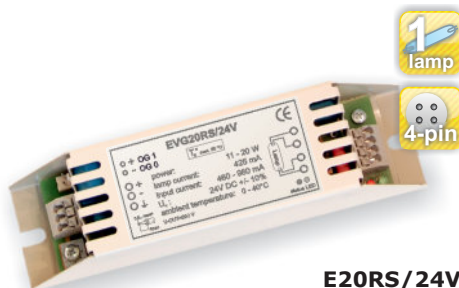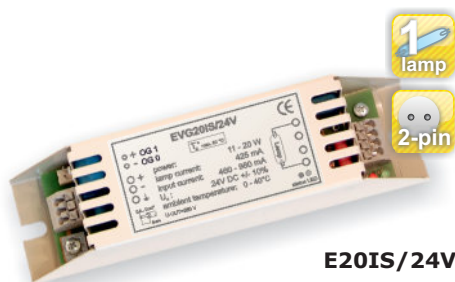
E20IS/24V

(pictures similar)

Installation data

(subject to change)

supply voltage	24V DC ± 10% (other values on request)
efficiency	~75%
operation temperature	max. 50°C (122°F) at T_c-point
ambient temperature	0 - 40°C (32 - 104°F)
IP code	IP20
dimensions (LxWxD)	E20: 150x40x36 mm (5.90x1.57x1.42 inch)
	E80: 170x56x49 mm (6.69x2.20x1.92 inch)

Follow me

for detailed technical specification
see ballast datasheets at:
www.z-e-d.com/e20rs-24V
www.z-e-d.com/e20is-24V
www.z-e-d.com/e80ph-24V

Features

⇨ instant start ballasts for 2-pin lamps

⇨ economic wiring

⇨ small & powerful

⇨ high efficiency

⇨ active power factor correction (PFC)*
  (low THD according to EN 61000)

⇨ metal housing, designed for optimal thermal flow

⇨ easy system start-up: plug and play

⇨ push-in contacts for quick installation

⇨ lamp status indication (lamp on/lamp fault)
  - by green and red LEDs
  - by potential free relay contacts

*not on E20IS

Abstract

| lamp power | 5...80W |
| lamp current | up to 1.2A |

values depending on ballast type,
see appropriate ballast datasheet
for detailed technical specification

E80IS

E2x80IS

E20IS

E3x80IS

E4x80IS

(pictures similar)

use with

Lamp types

E*80IS:

G36T5
G64T5
GHO36T5
GPH436T5HO(600mA)
GPH436T5HO(800mA)
GPH793T5
GPH846T5
GPH846T5HO(600mA)
GPH846T5HO(800mA)
GPH893T5HO(600mA)
GPH893T5HO(800mA)
GPHA357T5L
GPHA357T6L
LTC40T5
LTC64T5
LTC75T8
LTC80T5
TUV 36T5 HE
TUV 36T5 HO
TUV 64T5 HE

E20IS:

G10T5

ballasts for other lamp types
available on request

Installation data

(subject to change)

supply voltage	230V AC ± 10%, 45 - 65Hz
	(115V AC types on request)
efficiency	>90% (E20IS: ~80%)
ambient temperature	0 - 40°C (32 - 104°F)
operation temperature	max. 50°C (122°F) at T_c-point
IP code	IP20
dimensions (LxWxD)	

E20IS:	150x40x36 mm (5.90x1.57x1.42 inch)
E80IS:	170x56x49 mm (6.69x2.20x1.92 inch)
E2x80IS:	248x66x53 mm (9.76x2.60x2.09 inch)
E3x/4x80IS:	248x105x59 mm (9.76x4.13x2.32 inch)

Follow me

for detailed technical specification
see ballast datasheets at:

www.z-e-d.com/e20is
www.z-e-d.com/e80is
www.z-e-d.com/e2x80is
www.z-e-d.com/e3x80is
www.z-e-d.com/e4x80is

2-pin **1 lamp** **2 lamps** **4 lamps**

Features

⇨ instant start ballasts for 2-pin lamps

⇨ economic wiring

⇨ high efficiency

⇨ active power factor correction (PFC)
(low THD according to EN 61000)

⇨ independent lamp operation
even if single lamps are defective or disconnected

⇨ metal housing, designed for optimal thermal flow

⇨ push-in contacts for quick installation

⇨ easy system start-up: plug and play

⇨ lamp status indication (lamp on/lamp fault)
- red LED and connector for green LED
- potential free relay contacts

status

Abstract

lamp power   up to 200W*
lamp current   up to 2.0A*

*up to 160W/1.0A for quad lamp types
values depending on ballast type,
see appropriate ballast datasheet
for detailed technical specification

use with

Lamp types

GHO64T5

TUV 64T5 HO

ballasts for other lamp types
available on request

E200IS
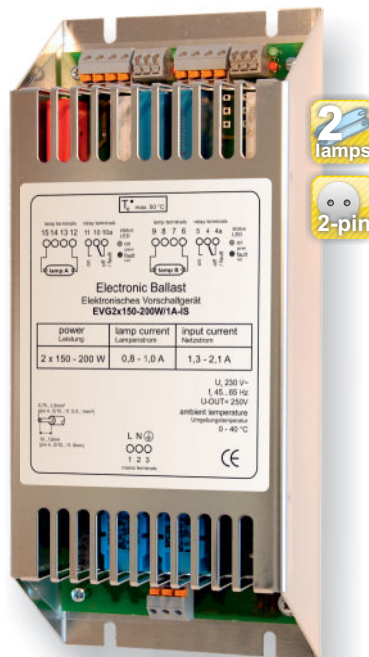
E2x200IS
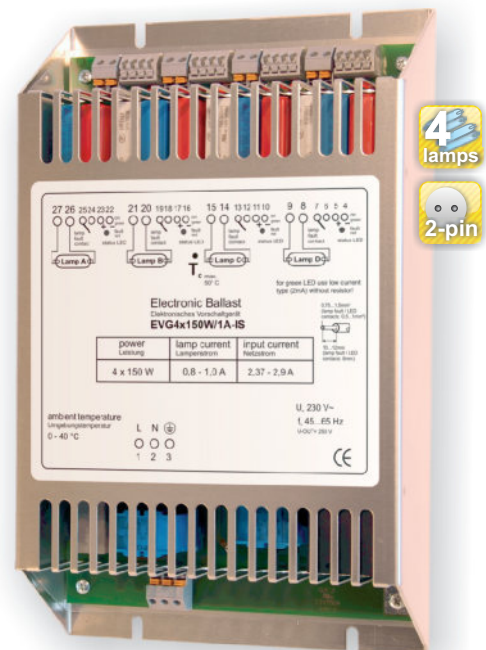
(pictures similar)

E4x150IS

Installation data

(subject to change)

supply voltage	230V AC ± 10%, 45 - 65Hz (115V AC types on request)
efficiency	>90%
ambient temperature	0 - 40°C (32 - 104°F)
operation temperature	max. 50°C (122°F) at T_c-point
IP code	IP20
dimensions (LxWxD)	E200IS: 248x66x53 mm (9.76x2.60x2.09 inch)
	E2x200IS: 248x105x59 mm (9.76x4.13x2.32 inch)
	E4x150IS: 248x150x59 mm (9.76x 5.89x2.32 inch)

Follow me

for detailed technical specification
see ballast datasheets at:
www.z-e-d.com/e200is
www.z-e-d.com/e2x200is
www.z-e-d.com/e4x150is

4-pin | **1 lamp** | **2 lamps**

Features

⇨ rapid start ballasts for 4-pin lamps

⇨ small & powerful

⇨ high efficiency

⇨ active power factor correction (PFC)*
  (low THD according to EN 61000)

⇨ metal housing, designed for optimal thermal flow

⇨ push-in contacts for quick installation

⇨ easy system start-up: plug and play

⇨ lamp status indication (lamp on/lamp fault)
  - by green and red LEDs
  - by potential free relay contacts

*not on E20RS

status

Abstract

lamp power   5...80W
lamp current   up to 1.2A

values depending on ballast type,
see appropriate ballast datasheet
for detailed technical specification

1 lamp
4-pin

E20RS

1 lamp
4-pin

E80RS

2 lamps
4-pin

E2x80RS

(pictures similar)

use with

Lamp types

E20RS:

GPH287T5L, GPH303T5L,
GPH436T5L, LTC18W/2G11,
TUV 11W (T5), TUV 16W (T5),
TUV PL-L 18W/4P

E80RS/E2x80RS:

G36T5, G64T5, GHO36T5,
GPH436T5HO(600mA),
GPH436T5HO(800mA),
GPH793T5, GPH846T5,
GPH846T5HO(600mA),
GPH846T5HO(800mA),
GPH893T5HO(600mA),
GPH893T5HO(800mA),
GPHA357T5L, GPHA357T6L,
LTC40T5, LTC64T5,
LTC75T8, LTC80T5,
TUV 36T5 HE, TUV 36T5 HO,
TUV 64T5 HE,
TUV 36W (T8),
TUV 55W HO (T8)
TUV 75W HO (T8)
TUV PL-L 36W/4P
TUV PL-L 60W/4P HO
TUV PL-L 95W/4P HO

ballasts for other lamp types
available on request

Installation data

(subject to change)

supply voltage	230V AC ± 10%, 45 - 65Hz (115V AC types on request)
efficiency	>90% (E20RS: ~80%)
ambient temperature	0 - 40°C (32 - 104°F)
operation temperature	max. 50°C (122°F) at T_c-point
IP code	IP20
dimensions (LxWxD)	E20RS: 150x40x36 mm (5.90x1.57x1.42 inch) E80RS: 170x56x49 mm (6.69x2.20x1.92 inch) E2x80RS: 248x66x53 mm (9.76x2.60x2.09 inch)

Follow me

for detailed technical specification
see ballast datasheets at:
www.z-e-d.com/e20rs
www.z-e-d.com/e80rs
www.z-e-d.com/e2x80rs

4-pin | **PH** | **1 lamp** | **2 lamps**

Features

⇨ established & proven

⇨ high efficiency

⇨ active power factor correction (PFC)
(low THD according to EN 61000)

⇨ metal housing, designed for optimal thermal flow

⇨ push-in contacts for quick installation

⇨ easy system start-up: plug and play

⇨ **PH** - preheat start types for frequent switching

⇨ **RS** - rapid start types for quick lamp start

⇨ lamp status indication (lamp on/lamp fault)
- green and red LEDs
- potential free relay contacts

status

Abstract

lamp power   up to 200W
lamp current   up to 2.1A

values depending on ballast type,
see appropriate ballast datasheet
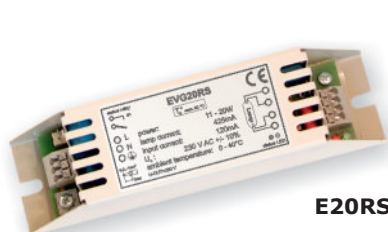for detailed technical specification

use with

Lamp types

GHO64T5
GIA120
GIA200
GIA843T5LCA
GIA1554T5LCA
GIA843T6LCA
GPHA357T5L
GPHA357T6L
GPHA843T5L
GPHA843T6L
GPHA1000T5L
GPHA1000T6L
GPHHA357T6L
GPHHA843T6L
GPHHA1000T6L*
LTC115T12
NNI 60/35 XL
NNI 80/36 U
NNI 120/84
NNI 125/84 XL
NIQ 120/84
NIQ 125/84 XL
NNI 200/107
NNI 201/107 XL
NIQ 200/107
NIQ 201/107 XL
TUV 115W (R) VHO (T12)
TUV 64T5 HO
TUV 130W XPT
TUV 180W XPT
UNI120
UNI200

ballasts for other lamp types
available on request

*forced ballast cooling
required

1 lamp
4-pin

E200RS

2 lamps
4-pin

E2x200RS

1 lamp
PH

E200PH

2 lamps
PH

E2x200PH

(pictures similar)

Installation data

(subject to change)

supply voltage	230V AC ± 10%, 45 - 65Hz
	(115V AC types on request)
efficiency	>90%
ambient temperature	0 - 40°C (32 - 104°F)
operation temperature	max. 50°C (122°F) at T_c-point
IP code	IP20
dimensions (LxWxD)	E200(PH): 248x66x53 mm (9.76x2.60x2.09 inch)
	E2x200(PH): 248x105x59 mm (9.76x4.13x2.32 inch)

Follow me

for detailed technical specification
see ballast datasheets at:
www.z-e-d.com/e200rs
www.z-e-d.com/e2x200rs
www.z-e-d.com/e200ph
www.z-e-d.com/e2x200ph

Features

⇨ preheat start ballasts for optimal lamp operation

⇨ power two lamps, independent lamp operation even if one lamp is defective or disconnected

⇨ long lamp-ballast distances possible
  - cable length max. 30m

⇨ enhanced protection:
  - power range control
  - undervoltage protection
  - overtemperature protection

⇨ high efficiency, active power factor correction (PFC) (low THD according to EN 61000)

⇨ lamp and ballast status indication
  - green, red and yellow LEDs
  - potential free relay contacts

PH-S types

⇨ easy system start-up "plug and play"

⇨ no DIPswitch / no RS485

PHplus-B types

⇨ providing both local operation and digital remote control

⇨ adjustable operation parameters

⇨ lamp operation control and status indication via RS485 using ModBus or ZCON protocol

Abstract

lamp power	**40...200W**
lamp current	**up to 2.1A**

values depending on ballast type, see appropriate ballast datasheet for detailed technical specification
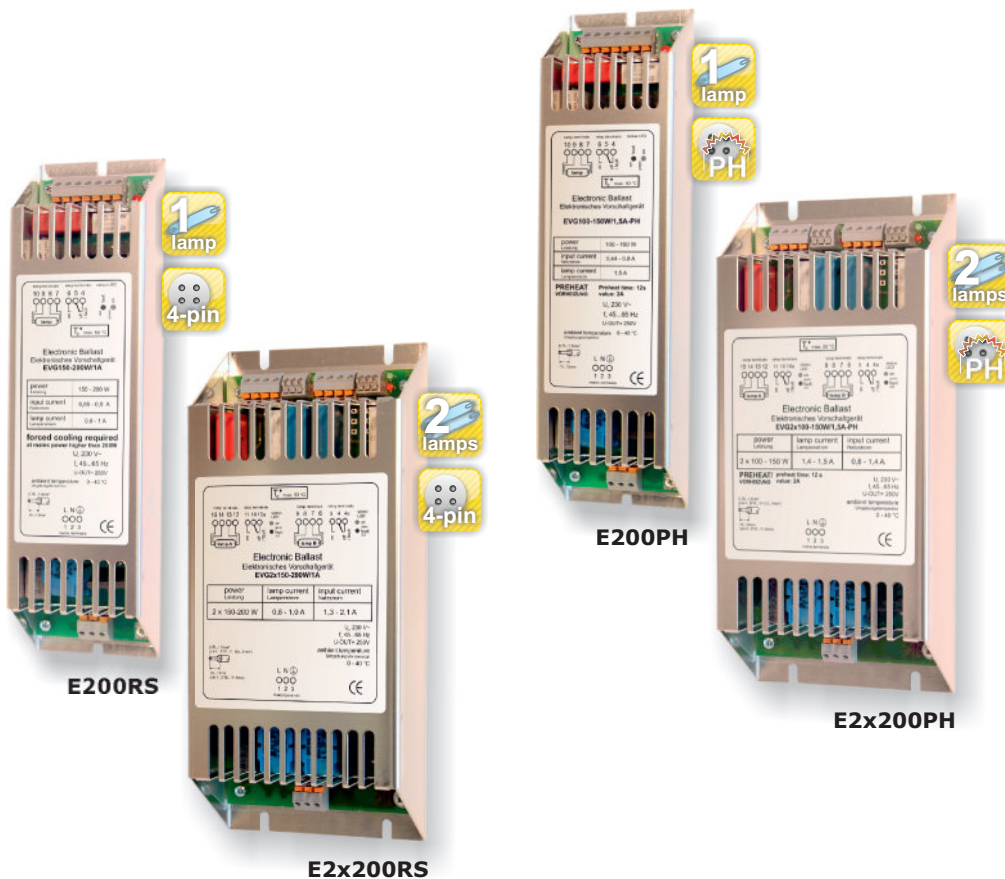
use with

Lamp types

GIA120, GIA200, GIA843T5LCA, GIA1554T5LCA, GIA843T6LCA, GPHA357T5L, GPHA357T6L, GPHA843T5L, GPHA843T6L, GPHA1000T5L, GPHA1000T6L, GPHHA357T6L, GPHHA843T6L, GPHHA1000T6L*, LTC115T12, NNI 60/35 XL, NNI 80/36 U, NNI 120/84, NNI 125/84 XL, NIQ 120/84, NIQ 125/84 XL, NNI 200/107, NNI 201/107 XL, NIQ 200/107, NIQ 201/107 XL, TUV 115W (R) VHO (T12), TUV 130W XPT, TUV 180W XPT, TUV 200W XPT, UNI120, UNI200

ballasts for other lamp types available on request

*forced ballast cooling required

PHplus types only:

PLC

via ModBus RTU

ZED control units

ZCONmini, ZCONdin, ZCONnano

PC software

ZED BallastMonitor

E2x200PH-S

(pictures similar)

E2x200PHplus-B

rack types available on request

Follow me

for detailed technical specification see ballast datasheets at:
www.z-e-d.com/e2x200ph-S
www.z-e-d.com/e2x200phplus-B

Installation data

(subject to change)

supply voltage	230V AC ± 10%, 45 - 65Hz (115V AC types on request)
efficiency	>90%
ambient temperature	0 - 40°C (32 - 104°F)
operation temperature	max. 50°C (122°F) at T_c-point (ballasts are overtemperature protected)
IP code	IP20
dimensions (LxWxD)	248x105x59 mm (9.76x4.13x2.32 inch)

Features

⇨ all-in-one solution containing
- electronic ballast
- hour counter
- control functions
- optional: UV-C monitoring and additional features

⇨ IP 54 housing

⇨ pre wired - ready to start

⇨ high efficiency

⇨ active power factor correction (PFC)
(low THD according to EN 61000)

⇨ **RS** - rapid start type for 4-pin lamps
(PH - preheat start types for 4-pin lamps and IS - instant start types for 2-pin lamps on request)

⇨ system status indication (alarm, warning)
- multicolor LCD
- potential free relay contacts

4-pin

1 lamp

1234 counter

SiC   **D-SiC**

2-pin   **PH**

status   **UV ok LCD**

Abstract

lamp power	**30...200W**
lamp current	**up to 2.1A**

values depending on ballast type, see appropriate ballast datasheet for detailed technical specification

1 lamp

UV - Compact

(picture similar)

UV-Compact D

use with

Lamp types

G36T5, G64T5, GHO36T5, GHO64T5, GIA120, GIA843T5LCA, GPH436T5HO(600mA), GPH436T5HO(800mA), GPH793T5, GPH846T5, GPH846T5HO(600mA), GPH846T5HO(800mA), GPH893T5HO(600mA), GPH893T5HO(800mA), GPHA357T5L, GPHA357T6L, GPHA843T5L, GPHA843T6L, GPHA1000T5L, GPHA1000T6L, GPHHA357T6L, GPHHA843T6L, GPHHA1000T6L, LTC40T5, LTC64T5, LTC75T8, LTC80T5, LTC115T12, NNI 60/35 XL, NNI 80/36 U, NNI 120/84, NIQ 120/84, NNI 125/84 XL, NIQ 125/84 XL, NNI 200/107, NIQ 200/107, NNI 201/107 XL, NIQ 201/107 XL, TUV 115W (R) VHO (T12), TUV 36T5 HE, TUV 36T5 HO, TUV 36W (T8), TUV 55W HO (T8), TUV 64T5 HE, TUV 64T5 HO, TUV 75W HO (T8), TUV 130W XPT, TUV PL-L 36W/4P, TUV PL-L 60W/4P HO, TUV PL-L 95W/4P HO, UNI120

ballasts for other lamp types available on request

Installation data

(subject to change)

supply voltage	230V AC ± 10%, 45 - 65Hz
efficiency	>90%
operation temperature	internal temperature monitor, overheating protection
ambient temperature	0 - 40°C (32 - 104°F)
IP code	IP54 (if used with appropriate connectors)
dimensions (LxWxD)	204x190x72 mm (8.01x7.48x2.83 inch)

Follow me

for detailed technical specification see datasheets at:
www.z-e-d.com/uv-compact

4-pin **PH** **1 lamp**

Features

⇨ preheat start ballasts for optimal lamp operation

⇨ established & proven

⇨ high efficiency

⇨ active power factor correction (PFC)
  (low THD according to EN 61000)

⇨ metal housing, designed for optimal thermal flow

⇨ push-in contacts for quick installation

⇨ easy system start-up: plug and play

⇨ instant start types for 2-pin lamps on request

2-pin

⇨ lamp status indication (lamp on/lamp fault)
  - green and red LEDs
  - potential free relay contacts

status

Abstract

lamp power up to 400W
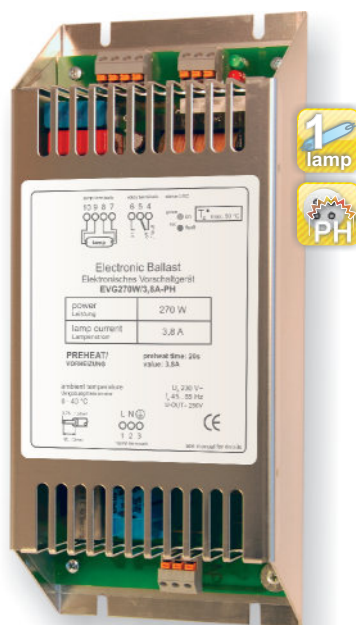**lamp current up to 4.8A**

values depending on ballast type,
see appropriate ballast datasheet
for detailed technical specification

use with

Lamp types

GIA1554T5LCA
GIA1554T6LCA
GIA1554T6LCA/320
GPHA1554T5L
GPHA1554T6L
GPHHA1554T6L
NIQ 290/155 XL
NIQ 300/147 XL
NNI 300/147 XL
NNI 400/147 XL
TUV 200W XPT
TUV 260W XPT
TUV 325W XPT
TUV 330W XPT
UNI260

ballasts for other lamp types
available on request

1 lamp **PH**

E400PH

(pictures similar)

Installation data

(subject to change)

supply voltage	230V AC ± 10%, 45 - 65Hz
	(115V AC types on request)
efficiency	>90%
ambient temperature	0 - 40°C (32 - 104°F)
operation temperature	max. 50°C (122°F) at T_c-point
IP code	IP20
dimensions (LxWxD)	248x105x59 mm (9.76x4.13x2.32 inch)

Follow me

for detailed technical specification
see ballast datasheets at:
www.z-e-d.com/e400ph

4-pin **PH** **1 lamp**

Features

⇨ preheat start ballasts for optimal lamp operation

⇨ long lamp-ballast distances possible
- cable length max. 30m

⇨ enhanced protection:
- power range control
- undervoltage protection
- overtemperature protection

⇨ high efficiency, active power factor correction (PFC)
(low THD according to EN 61000)

⇨ lamp and ballast status indication
- green, red and yellow LEDs
- potential free relay contacts

status

PH-S types

⇨ easy system start-up "plug and play"

⇨ no DIPswitch / no RS485

PHplus-B types

= **PH** + **adjust** + **RS485**

⇨ providing both
local operation and digital remote control

⇨ adjustable operation parameters

⇨ lamp operation control and status indication
via RS485 using ModBus or ZCON protocol

Abstract

lamp power   up to 400W
lamp current   up to 4.8A

values depending on ballast type,
see appropriate ballast datasheet
for detailed technical specification

use with

Lamp types

GIA1554T5LCA, GIA1554T6LCA,
GIA1554T6LCA/320,
GPHA843T5L, GPHA843T6L,
GPHA1000T5L, GPHA1000T6L,
GPHA1554T5L, GPHA1554T6L,
GPHHA843T6L, GPHHA1000T6L,
GPHHA1554T6L,
NNI 120/84 XL, NNI 200/107,
NNI 201/107 XL, NNI 300/147 XL,
NNI 400/147 XL,
NIQ 200/107, NIQ 201/107 XL,
NIQ 290/155 XL, NIQ 300/147 XL,
TUV 200W XPT, TUV 260W XPT,
TUV 325W XPT, TUV 330W XPT

ballasts for other lamp types available
on request

PHplus types only:
PLC

via ModBus RTU

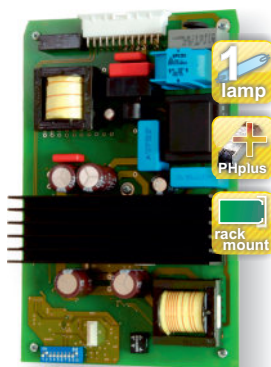**ZED control units**

ZCONmini, ZCONdin,
ZCONnano

PC software

ZED BallastMonitor

E400PH-S

1 lamp **PH**

E400PHplus-B

1 lamp **PHplus**

R400PHplus-B

1 lamp **PHplus** **rack mount**

(pictures similar)

Installation data

(subject to change)

supply voltage	230V AC ± 10%, 45 - 65Hz (115V AC on request)
efficiency	>90%
ambient temperature	0 - 40°C (32 - 104°F)
operation temperature	housing: max. 50°C (122°F) at T_c-point
	rack: forced cooling required max. 80°C (176°F) at heat sink
IP code	housing: IP20 rack: IP00
dimensions (LxWxD)	housing: 248x105x59 mm (9.76x4.13x2.32 inch)
	rack: 220x143.5x60 mm (8.66x5.65x2.36 inch)

Follow me

for detailed technical specification
see ballast datasheets at:
www.z-e-d.com/e400ph-S
www.z-e-d.com/e400phplus-B
www.z-e-d.com/r400phplus-B

Features

4-pin **PH** **2 lamps**

⇨ preheat start ballasts for optimal lamp operation

⇨ power two lamps, independent lamp operation
  even if one lamp is defective or disconnected

⇨ long lamp-ballast distances possible
  - cable length max. 30m

⇨ enhanced protection:
  - power range control
  - undervoltage protection
  - overtemperature protection

⇨ high efficiency, active power factor correction (PFC)
  (low THD according to EN 61000)

⇨ lamp and ballast status indication
  - green, red and yellow LEDs
  - potential free relay contacts

status

PH-S types

⇨ easy system start-up "plug and play"

⇨ no DIPswitch / no RS485

PHplus-B types

= **PH** + **adjust** + **RS485**

⇨ providing both
  local operation and digital remote control

⇨ adjustable operation parameters

⇨ lamp operation control and status indication
  via RS485 using ModBus or ZCON protocol

Abstract

lamp power   up to 350W
lamp current   up to 3A

values depending on ballast type,
see appropriate ballast datasheet
for detailed technical specification

use with

Lamp types

GIA1554T5LCA,
GIA1554T6LCA,
GIA1554T6LCA/320,
GPHA1554T5L,
GPHA1554T6L,
GPHHA1554T6L,
GPHHA1000T6L,
NNI 300/147 XL,
NIQ 290/155 XL,
NIQ 300/147 XL,
TUV 325W XPT

ballasts for other lamp types
available on request

PHplus types only:
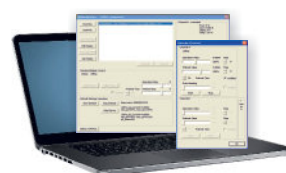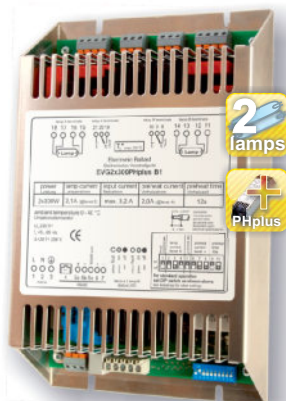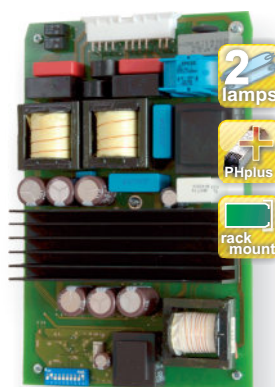**PLC**
via ModBus RTU

ZED control units
ZCONmini, ZCONdin,
ZCONnano

PC software

ZED BallastMonitor

E2x300PH-S

E2x300PHplus-B

R2x300PHplus-B

(pictures similar)

Installation data

(subject to change)

supply voltage	230V AC ± 10%, 45 - 65Hz
	(115V AC on request, max. 2x200W)
efficiency	>90%
ambient temperature	0 - 40°C (32 - 104°F)
operation temperature	housing: max. 50°C (122°F) at T_C-point
	rack: forced cooling required
	max. 80°C (176°F) at heat sink
IP code	housing: IP20 rack: IP00
dimensions (LxWxD)	housing: 248x150x59 mm (9.76x5.89x2.32 inch)
	rack: 220x143.5x60 mm (8.66x5.65x2.36 inch)

Follow me

for detailed technical specification
see ballast datasheets at:
www.z-e-d.com/e2x300ph-S
www.z-e-d.com/e2x300phplus-B
www.z-e-d.com/r2x300phplus-B

4-pin **PH** **3 lamps** **4 lamps**

Features

⇨ preheat start ballasts for optimal lamp operation

⇨ power three / four lamps, independent lamp operation
   even if lamps are defective or disconnected

⇨ long lamp-ballast distances possible
   - cable length max. 30m

⇨ enhanced protection:
   - power range control
   - undervoltage protection
   - overtemperature protection

⇨ high efficiency, active power factor correction (PFC)
   (low THD according to EN 61000)

⇨ lamp and ballast status indication
   - green, red and yellow LEDs
   - optional: potential free relay contacts

status

PHplus **PHplus-R types** = **adjust** + **RS485** + **analog In**

⇨ providing both
   local operation and digital remote control

⇨ adjustable operation parameters

⇨ lamp operation control and status indication
   via RS485 using ModBus or ZCON protocol

⇨ optional:
   dimming using analog 4...20mA/0...10V interface

Abstract

lamp power   up to 325W
lamp current   up to 2.2A

values depending on ballast type,
see appropriate ballast datasheet
for detailed technical specification

use with

Lamp types

GIA1554T5LCA,
GIA1554T6LCA,
GIA1554T6LCA/320,
GPHA1554T5L,
GPHA1554T6L,
GPHHA1554T6L,
GPHHA1000T6L,
NNI 300/147 XL,
NIQ 290/155 XL,
NIQ 300/147 XL,
TUV 325W XPT

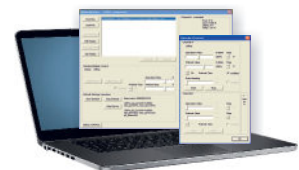ballasts for other lamp types
available on request

PHplus types only:
PLC
                via ModBus RTU
ZED control units
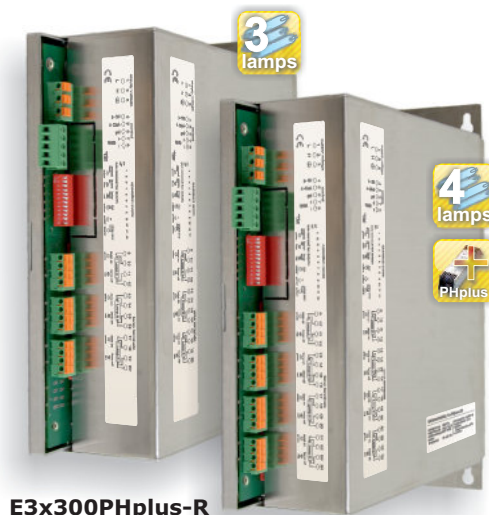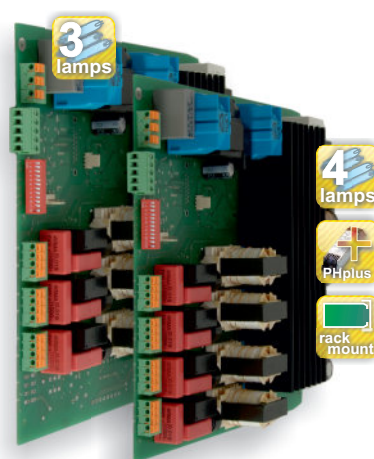   ZCONmini, ZCONdin,
    ZCONnano

PC software

ZED BallastMonitor

3 lamps

4 lamps

PHplus

3 lamps

4 lamps

PHplus

rack mount

E3x300PHplus-R

E4x300PHplus-R

R4x300PHplus-R

R3x300PHplus-R

(pictures similar)

Installation data

(subject to change)

supply voltage	230V AC ± 10%, 45 - 65Hz
	(115V AC on request)
efficiency	>90%
ambient temperature	0 - 40°C (32 - 104°F)
operation temperature	housing: max. 50°C (122°F) at T_c-point
	rack: forced cooling required
	max. 80°C (176°F) at heat sink
IP code	housing: IP20 rack: IP00
dimensions (LxWxD)	housing: 269x317x83mm (10.57x12.46x3.27 inch)
	rack: 269x250x70mm (10.57x9.82x2.75 inch)

Follow me

for detailed technical specification
see ballast datasheets at:
   www.z-e-d.com/e3x300phplus-R
   www.z-e-d.com/e4x300phplus-R
   www.z-e-d.com/r3x300phplus-R
   www.z-e-d.com/r4x300phplus-R

Ballast Specification

for Amalgam Lamps up to 600W

4-pin · **PH** · **1 lamp**

Features

⇨ preheat start ballasts for optimal lamp operation

⇨ long lamp-ballast distances possible
- cable length max. 30m
- constant lamp and preheat current irrespective of the cable length

⇨ enhanced protection:
- power range control
- undervoltage protection
- overtemperature protection

⇨ high efficiency, active power factor correction (PFC) (low THD according to EN 61000)

⇨ lamp and ballast status indication
- green, red and yellow LEDs
- potential free relay contacts

state

PHplus

PHplus-B types = **PH** + **adjust** + **RS485**

⇨ providing both local operation and digital remote control

⇨ adjustable operation parameters

⇨ lamp operation control and status indication via RS485 using ModBus or ZCON protocol

Abstract

lamp power   up to 600W
lamp current   up to 6A

values depending on ballast type, see appropriate ballast datasheet for detailed technical specification

use with

Lamp types

GPHHA1554T10L

NNI 400/147 XL

NNI 600/147 XL*

* special application

ballasts for other lamp types available on request

PHplus types only:

PLC

via ModBus RTU

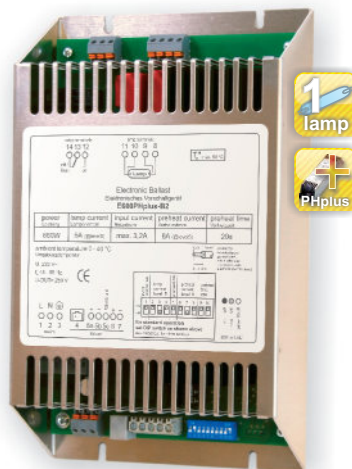**ZED control units**

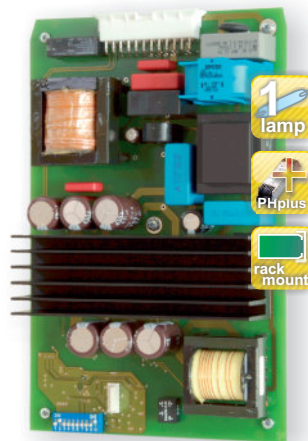ZCONmini, ZCONdin, ZCONnano

PC software

ZED BallastMonitor

1 lamp · **PHplus**

E600PHplus-B

1 lamp · **PHplus** · **rack mount**

R600PHplus-B

(pictures similar)

Installation data

(subject to change)

supply voltage	230V AC ± 10%, 45 - 65Hz
efficiency	>90%
ambient temperature	0 - 40°C (32 - 104°F)
operation temperature	housing: max. 50°C (122°F) at T_c-point
	rack: forced cooling required max. 80°C (176°F) at heat sink
IP code	housing: IP20 rack: IP00
dimensions (LxWxD)	housing: 248x150x59 mm (9.76x5.89x2.32 inch)
	rack: 220x143.5x60 mm (8.66x5.65x2.36 inch)

Follow me

for detailed technical specification see ballast datasheets at:
www.z-e-d.com/e600phplus-B
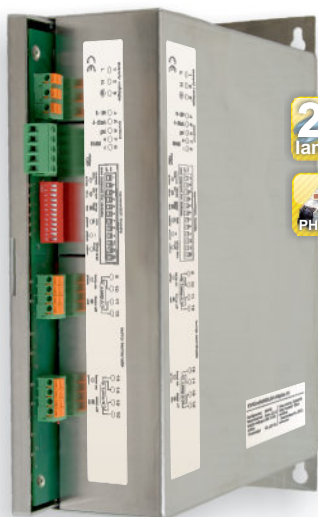www.z-e-d.com/r600phplus-B

4-pin | **PH** | **2 lamps**

Features

⇨ preheat start ballasts for optimal lamp operation

⇨ power two lamps, independent lamp operation
  even if one lamps is defective or disconnected

⇨ long lamp-ballast distances possible
  - cable length max. 30m

⇨ enhanced protection:
  - power range control
  - undervoltage protection
  - overtemperature protection

⇨ high efficiency, active power factor correction (PFC)
  (low THD according to EN 61000)

⇨ lamp and ballast status indication
  - green, red and yellow LEDs
  - optional: potential free relay contacts

status

PHplus
PHplus-R types   = **adjust** + **RS485** + **analog in**

⇨ providing both
  local operation and digital remote control

⇨ adjustable operation parameters

⇨ lamp operation control and status indication
  via RS485 using ModBus or ZCON protocol

⇨ optional:
  dimming using analog 4...20mA/0...10V interface

Abstract

lamp power   up to 600W
lamp current   up to 6A

values depending on ballast type,
see appropriate ballast datasheet
for detailed technical specification

for use in
ballast water
treatment systems

use with

Lamp types

GPHHA1554T10L
NNI 400/147 XL
NNI 600/147 XL*

* special application

ballasts for other lamp types
available on request

PHplus types only:

PLC

via ModBus RTU

ZED control units

ZCONmini, ZCONdin,
ZCONnano

PC software

ZED BallastMonitor

2 lamps
PHplus

E2x600PHplus-R

2 lamps
PHplus
rack mount

R2x600PHplus-R

(pictures similar)
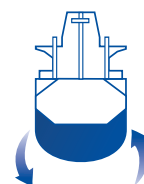
Installation data

(subject to change)

supply voltage	230V AC ± 10%, 45 - 65Hz (115V AC on request)
efficiency	>90%
ambient temperature	0 - 40°C (32 - 104°F)
operation temperature	housing: max. 50°C (122°F) at T_c-point rack: forced cooling required max. 80°C (176°F) at heat sink
IP code	housing: IP20 rack: IP00
dimensions (LxWxD)	housing: 269x317x83mm (10.57x12.46x3.27 inch) rack: 269x250x70mm (10.57x9.82x2.75 inch)

Follow me

for detailed technical specification
see ballast datasheets at:
www.z-e-d.com/e2x600phplus-R
www.z-e-d.com/r2x600phplus-R

4-pin · **PH** · **1 lamp**

Features

⇨ preheat start ballasts for optimal lamp operation

⇨ long lamp-ballast distances possible
  - cable length max. 30m

⇨ enhanced protection:
  - power range control
  - undervoltage protection
  - overtemperature protection

⇨ high efficiency, active power factor correction (PFC)
  (low THD according to EN 61000)

⇨ lamp and ballast status indication
  - green, red and yellow LEDs
  - optional: potential free relay contacts

status

PHplus

PHplus-R types   = **adjust** + **RS485** + **analog in**

⇨ providing both
  local operation and digital remote control

⇨ adjustable operation parameters

⇨ lamp operation control and status indication
  via RS485 using ModBus or ZCON protocol

⇨ optional:
  dimming using analog 4...20mA/0...10V interface

Abstract

lamp power   up to 1200W
lamp current   up to 10A

values depending on ballast type,
see appropriate ballast datasheet
for detailed technical specification

use with

Lamp types

GPHHVA2000T10L

NNI 600/147 XL

NNI 800/147 XL

NNI 1000/180 XL

TUV 800W XPT

and further upcoming high
power low pressure
amalgam lamps

ballasts for other lamp types
available on request

PHplus types only:

PLC

via ModBus RTU

ZED control units
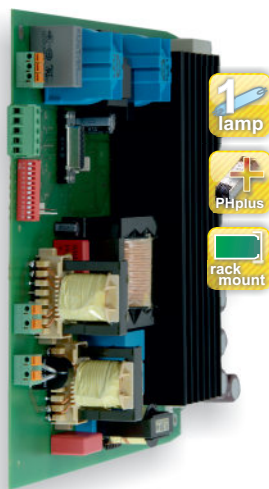
ZCONmini, ZCONdin,
ZCONnano

PC software

ZED BallastMonitor

1 lamp · **PHplus**

1 lamp · **PHplus** · **rack mount**

E1200PHplus-R   **R1200PHplus-R**

(pictures similar)

Installation data

(subject to change)

supply voltage	230V AC ± 10%, 45 - 65Hz (115V AC on request)
efficiency	>90%
ambient temperature	0 - 40°C (32 - 104°F)
operation temperature	housing: max. 50°C (122°F) at T_c-point
	rack: forced cooling required max. 80°C (176°F) at heat sink
IP code	housing: IP20 rack: IP00
dimensions (LxWxD)	housing: 269x317x83mm (10.57x12.46x3.27 inch)
	rack: 269x250x70mm (10.57x9.82x2.75 inch)

Follow me

for detailed technical specification
see ballast datasheets at:
www.z-e-d.com/e1200phplus-R
www.z-e-d.com/r1200phplus-R

RS485 · **adjust** · **1 lamp**

Features

⇨ electronic ballast for medium pressure lamps, power range up to 650W

⇨ options:
EVG-M650-IG - compact design with internal ignitor
EVG-M650 - extended cable length with external ignitor IGZ6

⇨ lamp operation parameter sets can be **set and modified by customer** using PC software ZED BallastMonitor

⇨ lamp operation control via Rs485 using ModBus or ZCON protocol, stand-alone operation possible

⇨ dimming by digital or analog control interface

⇨ lamp and ballast status indication
- via RS485 using ModBus or ZCON protocol, LEDs and potential free relay contacts

⇨ enhanced protection:
- power control, undervoltage protection, overtemperature protection, ground fault protection

⇨ high efficiency, active power factor correction (PFC) (low THD according to EN 61000)

⇨ active fan for optimal thermal management

analog in

status

Abstract

lamp power   up to 650W
lamp current   up to 5.5A
max. lamp voltage   300V

use with
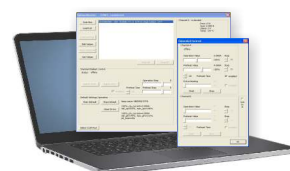
lamp types
medium pressure lamps up to 650W

PLC
via ModBus RTU
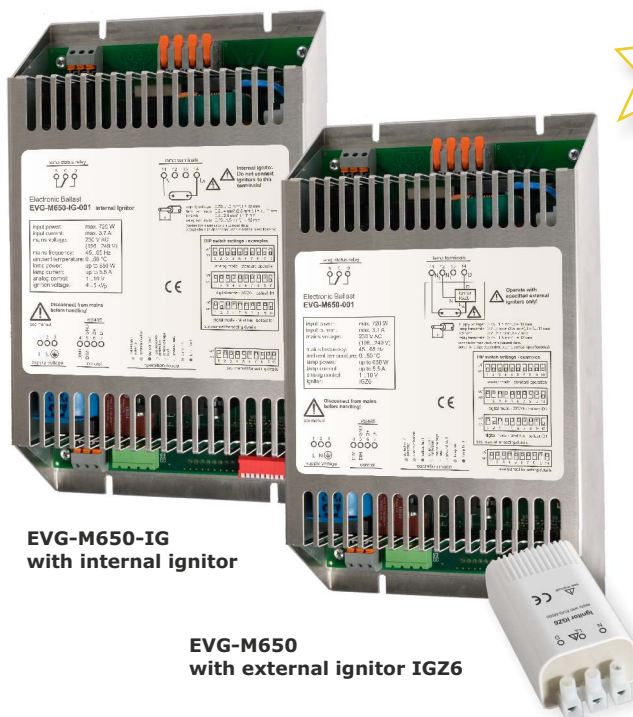
ZED control units

ZCONmini II

PC software

ZED BallastMonitor

Ignition cable

IG-M

New

EVG-M650-IG
with internal ignitor

EVG-M650
with external ignitor IGZ6

(picture similar)

Installation data

supply voltage	230V AC (196...249V), 45 - 65Hz
efficiency	>90%
IP code	IP20
dimensions (LxWxD)	268x167x60mm (10.55x6.57x2.36inch)

Follow me

for more information see:
www.z-e-d.com

Ballast Specification

single lamp ZED ballasts

for Medium Pressure Lamps up to 2500W

RS485 | adjust | 1 lamp

Features

⇨ electronic ballast for medium pressure lamps, power range up to 2500W

⇨ options:
EVG-M2500-IG - compact design with internal ignitor
EVG-M2500 - extended cable length with external ignitor IGZ12

⇨ lamp operation parameter sets can be **set and modified by customer** using PC software ZED BallastMonitor

⇨ lamp operation control via Rs485 using ModBus or ZCON protocol, stand-alone operation possible

⇨ dimming by digital or analog control interface

⇨ lamp and ballast status indication
  - via RS485 using ModBus or ZCON protocol, LEDs and potential free relay contacts

⇨ enhanced protection:
  - power control, undervoltage protection, overtemperature protection, ground fault protection

⇨ high efficiency, active power factor correction (PFC) (low THD according to EN 61000)

⇨ active fan for optimal thermal management

analog in

status

Abstract

lamp power up to 2500W
lamp current up to 12A
max. lamp voltage 300V

use with

lamp types
medium pressure lamps up to 2500W

PLC
via ModBus RTU

ZED control units
ZCONmini II

PC software

ZED BallastMonitor

Ignition cable

IG-M

New

**EVG-M2500-IG
with internal ignitor**

**EVG-M2500
with external ignitor IGZ12**

(pictures similar)

Installation data

(subject to change)

supply voltage	230V AC (196...249V), 45 - 65Hz
efficiency	>90%
IP code	IP20
dimensions (LxWxD)	279x317x81mm (10.98x12.48x3.19inch)

Follow me

for more information see:
www.z-e-d.com

PHplus | **1** lamp | **2** lamps | **3** lamps | **4** lamps

Features

Windows PC software for

⇨ operation control of ZED ballasts
  with digital interface via PC

⇨ displaying and logging operation values:
    -output power and current, lamp voltage*,
     ballast temperature

⇨ displaying ballast settings*
    - ballast type, corresponding lamp type,
     operation current, preheat settings,
     operation interval

⇨ lamp parameter sets adjustable,
  new parameter sets can be added**

⇨ ZED USB to RS485 serial adapter
  with appropriate sensor interface cable available

* depending on ballast type
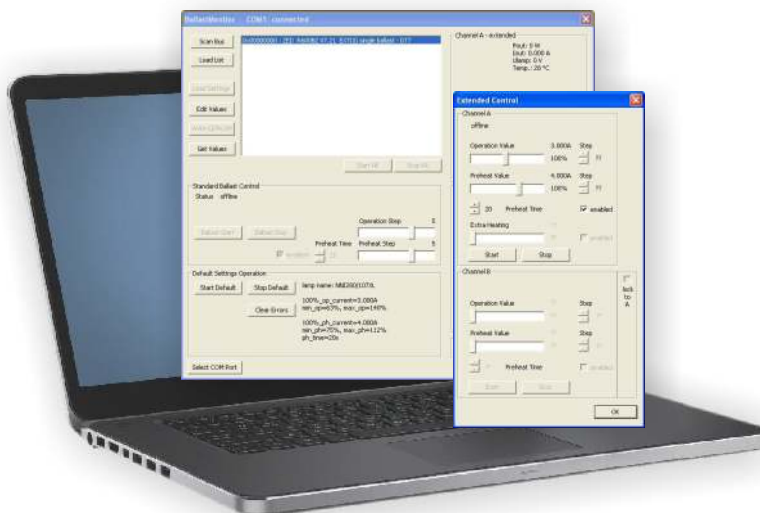** on request; ballasts with customer specific access key required

Abstract

**Ballast Monitoring,
Control and Adjustment**
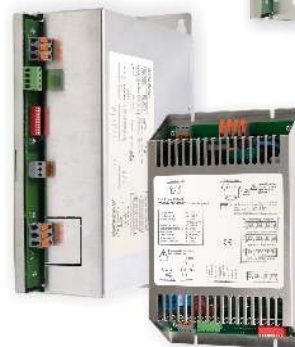**Data logging**

use with

ZED ballasts
with digital interface
for low pressure lamps,
amalgam lamps,
medium pressure lamps

ZED BallastMonitor Software

USB to RS485 Adapter

Follow me

for details see datasheets at:
www.z-e-d.com/ballastmonitor

Specials & Customers Application

Control & Measurement

Electronic Ballasts

Integrated Solutions

**UV Cabinets
fitted with genuine ZED Components**

⇨ delivered ready to use

⇨ optimized by ZED experts
for industrial UV-C applications

⇨ can be utilized
with a wide range of
low pressure UV-C lamp types

⇨ customer specific
adjustments and options

UV Lamps & Sleeves

Accessories

Features

⇨ **out-of-the-box UV cabinet**
containing
- **electronic ballast**
  for one low pressure lamp
- **hour counter**
  for operation hours, lamp hours
  replacement indication...
- **control functions**
  - status indication
    - multicolor LCD
    - potential free relay contacts

⇨ optional:
- **UV-C monitoring**
  - with up to two D-SiCplus sensors
    (SiC photodiode sensor types on request)
- **additional features**
  - warning/alarming, UV value forwarding,
    switching peripherals, interval
    timer, external temperature
    monitoring...
     by using
      - additional signal in-/outputs
      - additional relays

Abstract

**lamp power 30...200W
digital sensor interface**

use with

ZED UV Sensors
D-SiC131
D-SiC133
D-SiCT141
D-SiCDVGW
D-SiCONORM
SiC-SV01-PG*
SiC001*
SiCT001-PG*
SiC003*
*on request

**ZED
Temperature Sensors**
ST001

UV Lamp types
see UV-Compact D
in chapter
"Electronic Ballasts"

Control Units
PLC
(via relay contacts and
optional add-ons)

(picture similar)

UV-Compact D

Installation data

supply voltage	230V AC ± 10%
mains frequency	45 - 65Hz
efficiency	>90%
operation temperature	internal temperature monitor, overheating protection
ambient temperature	0 - 40°C (32 - 104°F)
IP code	IP54 (if used with appropriate connectors)
dimensions (LxWxD)	204 x 190 x 72 mm (8.01 x 7.48 x 2.83 inch)

Follow me

for detailed technical specification
see datasheets at:
www.z-e-d.com/uv-compact-cab

Features

⇨ plug & play units for operating UVC lamps

Modula 1x600W,
Modula 2x300W,
Modula 3x200W

ballast(s) combined with
control- and monitoring features
plus various interfaces

⇨ available as Modula LCD and Modula TFT
- lamp/ballast operation control
  - lamp operation parameter adjustable
  - lamp dimming
  - inrush current limitation
  - lamp cable length up to 30m
- UV-C and temperature monitoring
  - digital UV / temperature sensors
  - UV photodiode sensor
  - KTY temperature sensor
- remote status monitoring
  via RS485/ModBus RTU
- remote switch, interlock, mains switch
- 4 relay contacts
- 4-20mA signal input/output

PHplus

SiC   D-SiC

ST   D-ST

switch in   switch out

analog in   analog out

Abstract

lamp power 100...600W

modular unit
with various interfaces

use with

one lamp
lamp power:
100W...600W

1 lamp

two lamps
lamp power:
2x 100W...300W

2 lamps

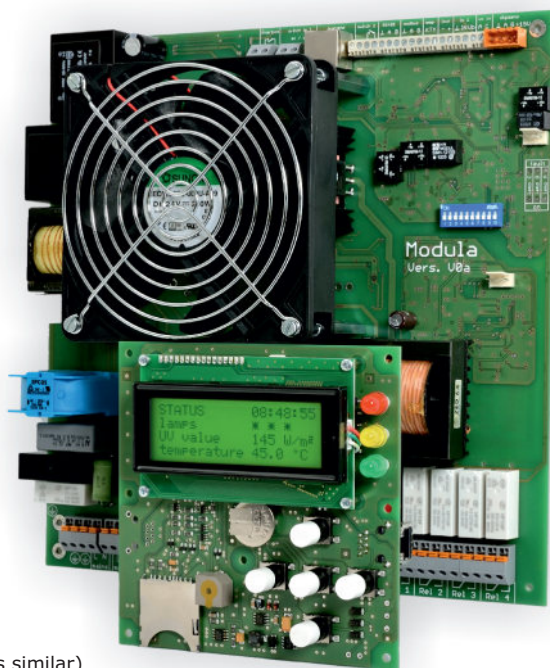**three lamps**
lamp power:
3x 100W...200W

3 lamps

ZED UV Sensors
- with digital interface
- with photodiode signal

ZED Temperature Sensors
- with digital interface
- analog KTY types

alternative front end
as Modula TFT

designed for
IP65 cabinets
no air inlets/outlets
necessary

(pictures similar)

Modula LCD

Installation data

supply voltage	230V AC ± 10%
mains frequency	45 - 65Hz
efficiency	>90%
operation temperature	internal temperature monitor, overheating protection
ambient temperature	0 - 40°C (32 - 104°F)
IP code	IP00 (to be installed in a closed cabinet)
dimensions	300 x 250 x 84 mm
(base unit with mounting frame)	(11.81 x 9.84 x 3.31 inch)

230V

Follow me

for detailed technical specification
see datasheets at:

www.z-e-d.com/modula

Features

⇨ **out-of-the-box UV cabinet**, containing:

● **electronic ballasts PHplus**
- adjustable operation parameter
- dimmable
- lamp cable length up to 30m
- constant lamp and preheat current even with long cables
- high efficiency
- enhanced protection

● **control unit**
- ballast operation control and monitoring
- lamp dimming
- UV sensor interface using up to 4 digital ZED UV sensors
- temperature sensor interface
- internal temperature monitoring, controlled fan for ballast cooling
- remote start input
- 4-20mA signal input (e.g. for dimming depending on flow)
- multicolor LCD and LED
- hour counter
- 4-20mA signal output (for UV value forwarding to PLC)
- 3 switching outputs

PHplus

D-SiC

temp

UV ok — LCD   **1234 — counter**

LED   **state**

Abstract

**lamp power 100...600W
digital sensor interface**

use with

one lamp
lamp power:
100W...600W
1 lamp

two lamps
lamp power:
2x 100W...300W
2 lamps

three lamps
lamp power:
3x 100W...200W
3 lamps

four lamps
lamp power:
4x 100W...150W
4 lamps

ZED UV Sensors
D-SiC131
D-SiC133
D-SiCT141
D-SiCDVGW
D-SiCONORM
D-SLS-SiC005
D-SLS-SiC006
D-SiC

ZED Temperature Sensors
ST001
D-ST001
D-ST002
ST

D-ST

(picture similar)

ZCAB

Installation data

supply voltage	230V AC ± 10%
mains frequency	45 - 65Hz
efficiency	>90%
operation temperature	internal temperature monitor, overheating protection
ambient temperature	0 - 40°C (32 - 104°F)
IP code	IP54
dimensions (LxWxD)	400 x 300 x 155 mm (15.72 x 11.79 x 6.09 inch)

230V

Follow me

for detailed technical specification see datasheets at:

www.z-e-d.com/zcab

Specials & Customers Application

Control & Measurement

Electronic Ballasts

Integrated Solutions

UV Lamps & Sleeves

**UV-C lamps
for disinfection & oxidation**

⇨ produced by world leading
lamp manufacturers

⇨ low pressure lamps
with a power range of 5 to 1000 Watts

⇨ maximization of UV output
in small spaces

⇨ produced using only top quality
quartz glass

⇨ quartz sleeves to protect the UV-C lamps

Accessories

Features

⇨ for use in water disinfection, air treatment and special applications

⇨ lamps produced by leading lamp manufacturers

⇨ three basic lamp types
- standard low pressure lamps
- high output low pressure lamps
- amalgam lamps

⇨ three basic quartz types
- ozone free
- ozone generating
- special ozone producing

⇨ several forms - linear and "U" shape

⇨ various lamp base and pin configurations

Abstract

power range 5...1000W

use with

ZED Ballasts

E20, E20/24V,
E80, E80IS, E2x80, E2x80IS,
E4x150IS, E200, E2x200,
E400, E400PHplus,
E2x300PH, E2x300PHplus,
E3x300PHplus, E4x300PHplus,
R2x300PH, R2x300PHplus,
R3x300PHplus, R4x300PHplus,
E600PHplus, E2x600PHplus,
R600PHplus, R2x600PHplus,
E1200PHplus, R1200PHplus

ZED Cabinets

UV-Compact D
ZCAB

ZED Accessories

lamp sockets

Quartz Sleeves

(examples)

Follow me

for detailed technical specification
see datasheets at:

www.z-e-d.com/uv-lamps

Features

⇨ use with UV lamps
   in water disinfection, air treatment
   and special applications
⇨ high quality standard quartz
   and high transmission special quartz types
⇨ closed end and open end versions
⇨ several dimensions available
   (diameter, lenght, wall thickness)

Abstract

**additional
sleeves and tubes
for UV Lamps**

use with

UV Lamps
standard low pressure
UV-C lamps
high output low pressure
UV-C lamps
amalgam lamps
medium pressure lamps
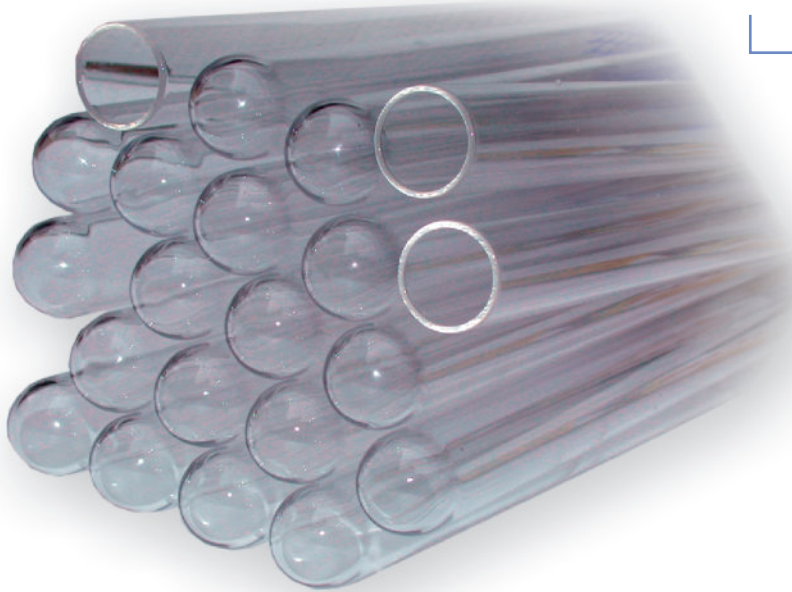
(picture similar)

Installation data

diameter	15 - 65mm
wall thickness	1 - 3mm
length	up to 2200mm

Follow me

for detailed technical specification
see datasheets at:
www.z-e-d.com/sleeves

Specials & Customers Application

Control & Measurement

Electronic Ballasts

Integrated Solutions

UV Lamps & Sleeves

Accessories

**Accessories and aids
for installation and commissioning
to complement the ZED product range**

⇨ programming support devices
for PHplus ballast control

⇨ mounting frames
for rack ballasts

⇨ contacts, plugs and tools
for rack ballasts wiring

⇨ sockets, plugs and tools
for UV lamps wiring

Features

⇨ for **operation simulation of UV systems**
   without ballasts or lamps installed

⇨ **programming support tool**
   for integrating ZED PHplus ballasts
   in PLC controlled UV applications

⇨ simulation of
   - single/ dual lamp ZED PHplus ballasts
   - lamp and ballast operation
   - lamp and ballast faults
   - RS485 communication
   simulate larger systems by using
   multiple ZED Ballast Simulators

⇨ status indication
   - green, red and yellow LEDs
     for ballast state
   - red and blue LEDs for lamp state

Abstract

**PHplus ballast simulation
for programming support**

use with

Control Units

ZCON
PLC*
PC*
*via RS485/ModBus RTU
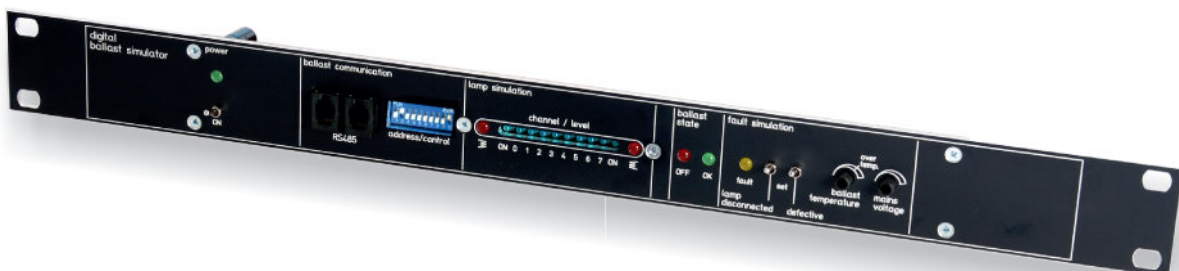
SIMPHplus

SIM2xPHplus

(pictures similar)

Installation data

supply voltage	12 - 24V DC ± 10%
operation temperature	max. 45°C (113°F)
ambient temperature	0 - 40°C (32 - 104°F)
IP code	IP20
dimensions (LxWxD)	483 x 45 x 35 mm
	(19.00 x 1.77 x 1.38 inch)

Follow me

for detailed technical specification
see datasheets at:
www.z-e-d.com/simulate

rack mount | **1 lamp** | **2 lamps** | **3 lamps** | **4 lamps**

Features

⇨ R600-Racks for PHplus-B ballasts:
   - 4-slot for up to 4 single or dual lamp ballasts
   - 6-slot for up to 6 single or dual lamp ballasts
   - push-in card system using MOLEX JUNIOR FIT
     connectors (plugs and contacts on request)

⇨ R1000-Rack system for PHplus-R ballasts:
   - for up to 8 single, dual, triple or quad lamp ballasts
   - front wiring directly on the ballasts
   - scalable size according to individual demands

⇨ open frame design for easy mounting and cooling
   - prepared for direct fan mounting (fans on request)

⇨ allow space saving ballast mounting

⇨ quick and easy ballast installation

Abstract

**Rack Mount Frames
for ZED R-EVG**

use with

ZED Ballasts

R600 Racks:
   R2x300PHplus-B
   R400PHplus-B
   R600PHplus-B

R1000 Rack system:
   R3x300PHplus-R
   R4x300PHplus-R
   R2x600PHplus-R
   R1200PHplus-R

R600   **6-slot**

R1000
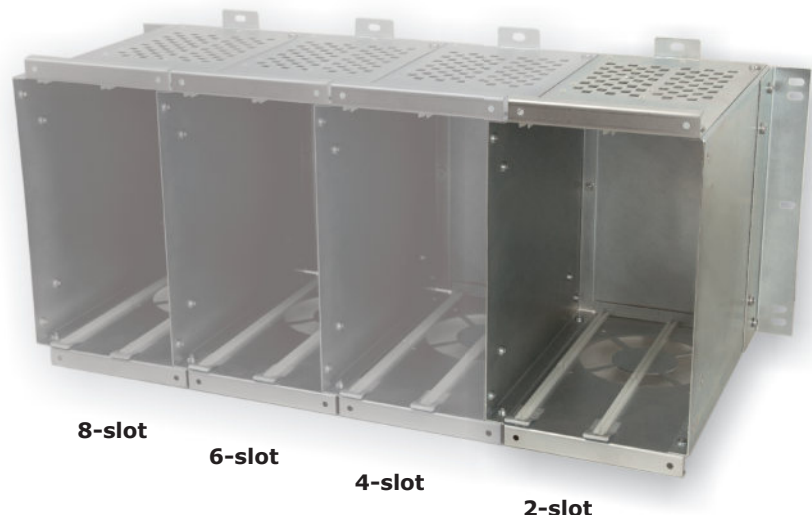
8-slot

6-slot

4-slot

2-slot

(picture similar)

Installation data

IP code	IP00 (to be mounted in a closed cabinet)
mounting notes	air ventilation has to be ensured, thermal flow must not be broken
dimensions (LxWxD)	R600: 407 * 236 x 267 mm (16.02 x 9.29 x 10.53 inch)
	R1000: 230/380/530/680 x 230 x 274 mm (9.04/14.93/20.82/26.72 x 9.04 x 10.77 inch)

Follow me

for detailed technical specification
see datasheets at:

www.z-e-d.com/rack

Features

⇨ use for ZED rack ballast wiring
   (MOLEX JUNIOR FIT system)

⇨ matching plugs for mounting in ZED racks

⇨ snap-in plugs for non-rack installations

⇨ crimp contacts

⇨ crimping tool

⇨ extraction tool for rework

rack
mount

Abstract

**tools and connectors
for ZED R-EVG**

Crimp Contacts C-MK

use with

ZED Ballasts

R2x300PHplus

R400PHplus

R600PHplus

ZED Accessories

ZED Rack R600

**molex plug MK-S
for free mounting solutions**
(snap-in connector for non-rack installations)

**molex plug MK-R
for ZED rack mounting**
(snap-in connector for rack installations)

Crimp Tool MK

Extraction Tool MK

Follow me

for detailed technical specification
see datasheets at:
www.z-e-d.com/rack-contacts

(pictures similar)

Features

⇨ tools and connectors for UV lamp wiring

⇨ matching sockets for 2-pin and 4-pin
   low pressure lamps and amalgam lamps

⇨ crimp contacts

⇨ crimp and insertion tool

⇨ extraction tool for rework

Abstract

max. voltage	**600V**
max. current	**1...6A**

values depend on type
see datasheet for specification

use with

UV Lamps

standard low pressure
UV-C lamps

high output low pressure
UV-C lamp

amalgam lamps

Crimp Contacts C-KF
for ceramic sockets

F4P
plastic socket
for 4-pin lamps

KF2P
ceramic socket
for 2-pin G5 lamps

KF2P MDK
ceramic socket
for 2-pin G13 lamps

KF4P
ceramic socket
for 4-pin lamps
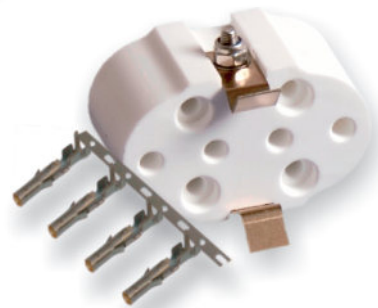
KF2G11
ceramic socket
for 4-pin 2G11 lamps

Crimp Tool KF

Extraction Tool KF

Insertion Tool KF

(pictures similar)

Follow me

for detailed technical specification
see datasheets at:

www.z-e-d.com/sockets

Features

⇨ for mounting of DVGW/ÖNORM compliant facility sensors in certified UV systems

According to DVGW/ÖNORM the sensor calibration must be checked regularly to ensure accuracy. For that means the facility sensor must be mounted capable of being easily replaced by a reference sensor.

Abstract

DVGW/ÖNORM sensor Mounting Adapter G1"

use with

ZED UV Sensors
D-SiCDVGW
D-SiCONORM
D-SiCDVGW-I/U
D-SiCONORM-I/U

Measurement Window MF001

MF001 - sensor mounting

(pictures similar)

Installation data

max. pressure	MF001: 10bar at quartz window
body material	stainless steel
mounting	pipe thread ISO228 G1

Follow me

for detailed technical specification see datasheets at:
www.z-e-d.com/MF001

Features

⇨ for mounting UV-Sensors with G1/4" threads in reactorwalls with G1" threads

Reactors used for certified UV systems according to DVGW/ÖNORM are prepared for mounting the G1" measurement window MF001. Using the measurement window adapter MF001-A these reactors can be used on units where no compliance is demanded with less expensive G1/4" UV sensors.

Abstract

**Sensor Mounting Adapter
G1/4" to G1"**

use with

ZED Sensors

UV sensors
D-SiC131
D-SiCT141
digital UV sensors with
current/voltage output signal
D-SiC131-I/U
D-SiCT141-I/U
UV sensors with
photodiode signal
SiC001
SiC001-PG
SiCT001-PG

digital temperature sensors
D-ST001
analog temperature sensors
ST001

Measurement Window Adapter MF001-A

(pictures similar)

MF001-A - sensor mounting

Installation data

| body material | stainless steel |
| mounting | outer pipe thread ISO228 G1, inner pipe thread ISO228 G1/4 |

Follow me

for detailed technical specification see datasheets at:
www.z-e-d.com/MF001-A