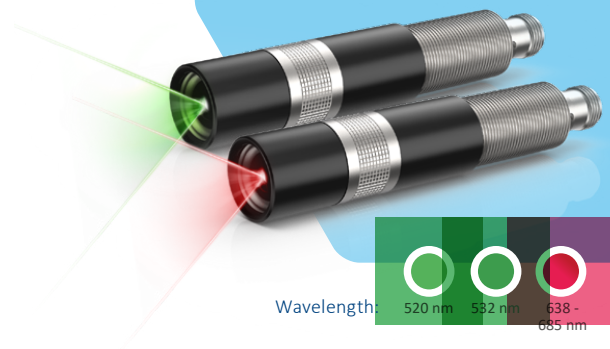


# Product Family ZM18

## The perfect allrounder

The products of the ZM18 series set the standard for modern laser modules for industrial use. You can select the right laser for your positioning application from more than 1,000 different variants.

The compact, sensor-like design enables easy integration into existing machines or systems. Easy-to-operate focussing optics complete the product. It's the perfect allrounder!



Easy Installation



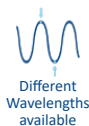
Output Power up to 120 mW



Shock Resistant



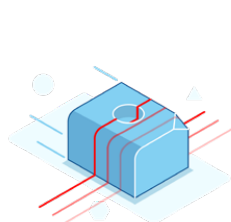
IP 67



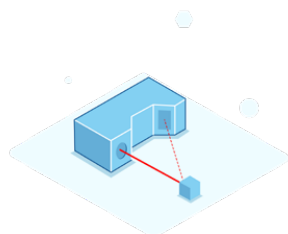
Different Wavelengths available

## Highlights

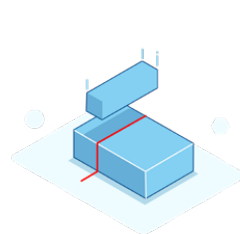
- Manual or fixed focus
- TTL modulation up to 500 kHz
- Analog intensity control
- Optical output power up to 120 mW
- Wavelengths from 520 - 685 nm
- Industrial standard
- IP67



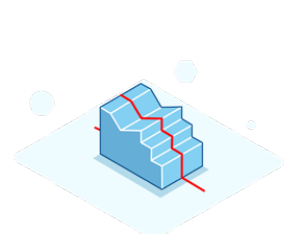
Machine Vision



Triangulation Sensors



High-Precision Positioning Tasks



3D-Measurement

### Order Code

| Z??          | M18                            | ?           | ?           | ?          | ?     |
|--------------|--------------------------------|-------------|-------------|------------|-------|
| Output power | Product family<br>Size of head | Electronics | F-focusable | Wavelength | Optic |

## System specifications

|                           |                  |                                       |      |         |
|---------------------------|------------------|---------------------------------------|------|---------|
| Wavelength                | nm               | 520                                   | 532  | 635-685 |
| Wavelength tolerance      | nm (typical)     | -5<br>+10                             | ± 1  | ±10     |
| Wavelength drift          | nm / K (typical) | 0,06                                  | 0,06 | 0,25    |
| Output power              | mW               | ≤40                                   | ≤40  | ≤120    |
| Electronic versions       |                  | B3                                    | B    | B, S3   |
| Pointing Stability        | μrad / °C        | <15                                   |      |         |
| Long-term power stability | (24h)            | ±3 % over operating temperature range |      |         |

## Electrical specifications

|                      |                |                                                                                                                           |            |            |
|----------------------|----------------|---------------------------------------------------------------------------------------------------------------------------|------------|------------|
| Operating voltage    |                | 5 - 30 VDC                                                                                                                | 5 - 30 VDC | 5 - 30 VDC |
| Operating current    | (max. at 25°C) | <300 mA                                                                                                                   | <300 mA    | <400 mA    |
| Protection           |                | Over temperature protection and LED pre-failure indicator, reverse polarity and transient protection (ESD, burst & surge) |            |            |
| Electrical isolation |                | Potential-free housing                                                                                                    |            |            |
| Connection           |                | 4-pin M12 plug                                                                                                            |            |            |
| Power consumption    |                | <2,7 W                                                                                                                    | <2,7 W     | <2 W       |

## Optical specifications

|                                  |                    |                                                                                                                                                                           |
|----------------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Fan angles <sup>(1)</sup>        | Degrees            | 10°, 20°, 30°, 45°, 60°, 75°, 90° (homogeneous lines)<br>5°, 10°, 15°, 20°, 30°, 90° (Gaussian line profile)<br>20°, 30°, 110° (raster lens for homogeneous line profile) |
| Line straightness <sup>(2)</sup> | % (of line length) | <0,05 %                                                                                                                                                                   |
| Line uniformity <sup>(3)</sup>   | % (typical)        | <25 %                                                                                                                                                                     |
| Dot                              |                    | Point elliptical, point circular                                                                                                                                          |
| DOE                              |                    | Multi line, crosses, grids, circle with dot, etc.                                                                                                                         |
| Focus range                      | mm                 | 100 mm up to 10.000 mm (or customized fixed focus available);<br>ZM18-B-532 >200 mm                                                                                       |

## Keynotes

|                                        |                                                                                                                 |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| <sup>(1)</sup> Line length / fan angle | at >13,5 % I <sub>max</sub>                                                                                     |
| <sup>(2)</sup> Line straightness       | Deviation from best fit line over the middle 80% of the line, for homogeneous lines                             |
| <sup>(3)</sup> Line uniformity         | Maximum relative optical power variation over the middle 80% of the line, for homogeneous lines and fixed focus |

## Electronic versions

|                             | B   | B3  | B        | S3                                     |
|-----------------------------|-----|-----|----------|----------------------------------------|
| Available Wavelengths       | 532 | 520 | 635, 640 | 640-685                                |
| Digital modulation          | na  | na  |          | <500 kHz                               |
| Rise Time (Mod High => 90%) | na  | na  |          | <200 ns                                |
| Fall Time (Mod Low => 10%)  | na  | na  |          | <100 ns                                |
| signal level                | na  | na  |          | VIL_max: < +0,9 V<br>VIH_min: > +2,7 V |
| max. voltage range          | na  | na  |          | 0-30 VDC                               |
| Analog modulation           | na  | na  |          | <10 Hz                                 |
| active range                | na  | na  |          | 0-1 VDC                                |
| max. voltage range          | na  | na  | 0-30     | 0-30 VDC                               |

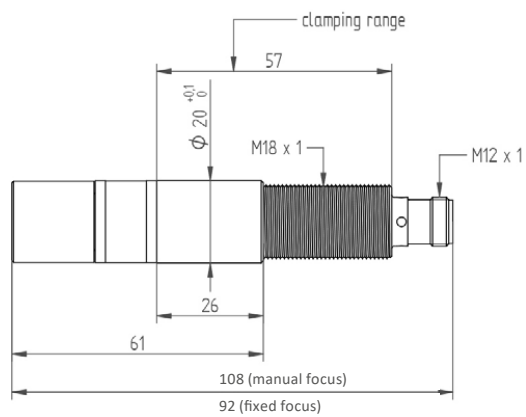
## Environmental conditions

|                                      |         |                                      |
|--------------------------------------|---------|--------------------------------------|
| Operating temperature <sup>(1)</sup> | °C / °F | -10 °C to +50 °C / 14 °F to +122 °F  |
| Storage temperature                  | °C / °F | -40 °C to +85 °C / -40 °F to +185 °F |
| Humidity                             | %       | <90 %, non-condensing                |
| Dissipated heat                      |         | <1 W                                 |

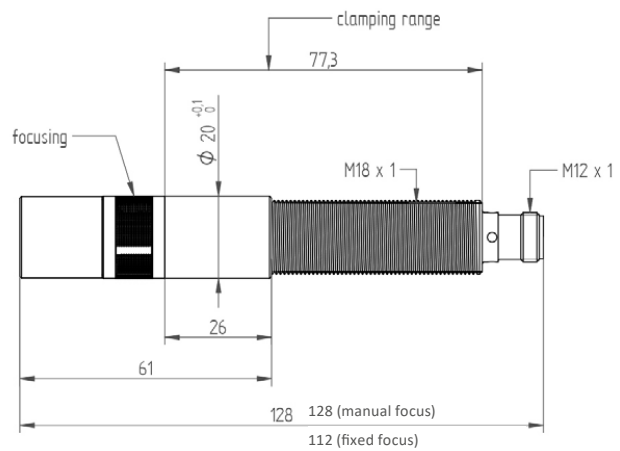
## Mechanical specifications

|                  |         | B                                  | B3                | S3                |
|------------------|---------|------------------------------------|-------------------|-------------------|
| Weight           | g/lbs   | 75 g<br>45 g / 0.1lbs (532nm)      | 75 g / 0.17 lbs   | 85 g / 0.19 lbs   |
| Length           | mm / in | 108 mm / 4,25 in<br>136 mm (532nm) | 108 mm<br>4,25 in | 128 mm<br>5,04 in |
| Diameter head Ø  | mm / in | 20 mm / 0,79 in                    |                   |                   |
| Material         |         | Aluminium                          |                   |                   |
| Protection class |         | IP67                               |                   |                   |

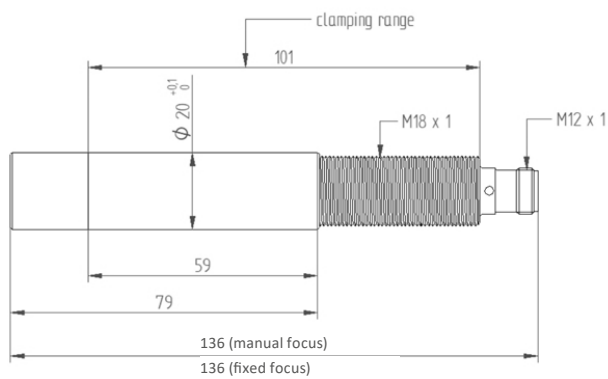
### ZM18B / ZM18B3



### ZM18S3



### ZM18B-532



## M12 4-pin: A-Coding Male Connector

According to IEC 61076-2-101

|       |                                  |
|-------|----------------------------------|
| X 1.1 | 5 - 30 VDC, 15 VA                |
| X 1.2 | Digital modulation TTL (only S3) |
| X 1.3 | GND                              |
| X 1.4 | Analog modulation (only S3)      |