



# Corning® Varioptic® C-C-39N0-A1-250 Auto Focus Lens Module

## Overview

The Corning® Varioptic® C-C-39N0-A1-250 auto focus lens module is an electronically controllable focus C-Mount lens, based on the Corning® Varioptic® A-39N variable focus lens. It incorporates the necessary electronic components to drive the lens with just a DC power supply. Focus can be controlled through either an RS232, I2C, Analog or SPI input. With a 25 mm effective focal length and 1.1" 20Mpx sensor compatibility, it is specifically designed for machine vision applications.

## Ordering Information

- **Corning® Varioptic® C-C-39N0-A1-250 auto focus lens module:** I2C, SPI or RS232 with 3.3 V signal.

## Key Features

- Variable focus from 20 cm to infinity
- Functions quietly
- Supports I2C - RS232 - SPI interfaces
- Supports closed loop operation



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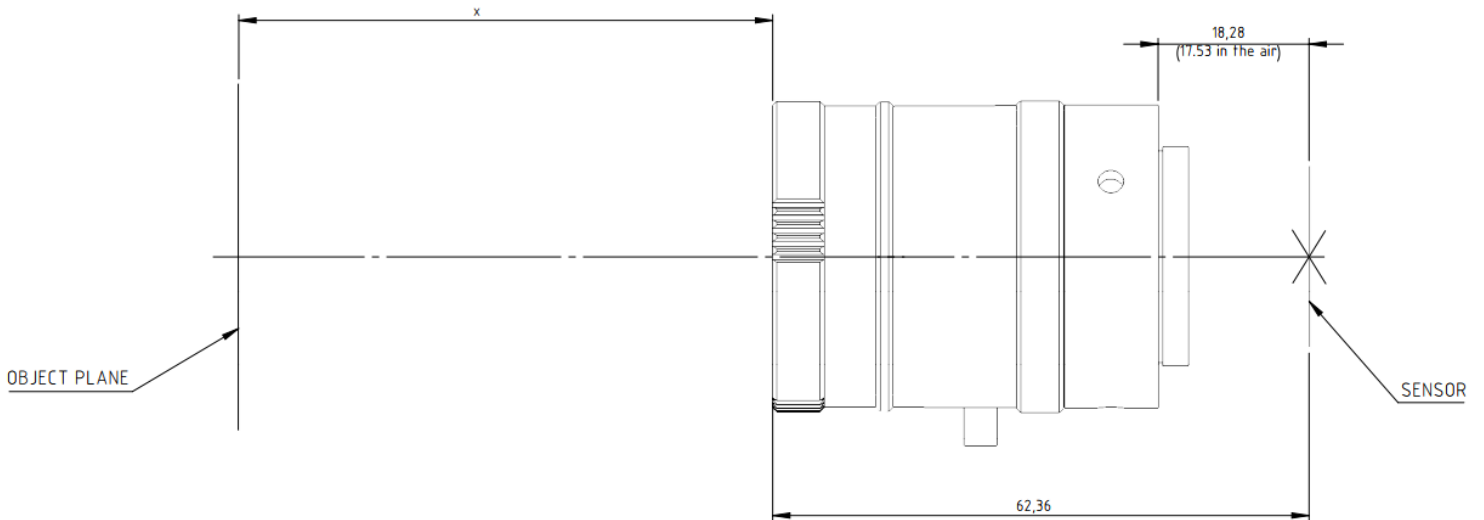
# Opto-Electrical Performance

Performances described below are for 25°C

| <i>Optical Performances at <math>V_{3m}</math></i> | <i>Symbol</i> | <i>Min</i> | <i>Typ</i> | <i>Max</i> | <i>Unit</i> | <i>Notes</i> |
|--|---------------|------------|------------|------------|-------------|--------------|
| Voltage for infinite focus                         | $V_{\infty}$  |            | 35         |            | V           | (1)          |
| Focal length at $V_{\infty}$                       | EFL           |            | 25         |            | mm          |              |
| Image circle diameter                              |               |            | 17.6       |            | mm          |              |
| Corner Chief Ray Angle                             | CRA           |            | < 10       |            | °           |              |
| Flange distance                                    |               |            | 17.5       |            | mm          | (2)          |
| F- number  | F#            | 5          |            | 22         | -           |              |
| Diagonal Field of view                             | DFOV          |            | 38.5       |            | °           | (3)          |
| <b><i>Focus control performances</i></b>           |               |            |            |            |             |              |
| Focus distance                                     | x             | 20         |            | $\infty$   | cm          | (1)          |
| Voltage for x= 20 cm                               | $V_{20cm}$    |            | 52         |            | V           | (1)          |

Notes:

(1) Distance to object refers to the principal plane of the objective lens as shown below:



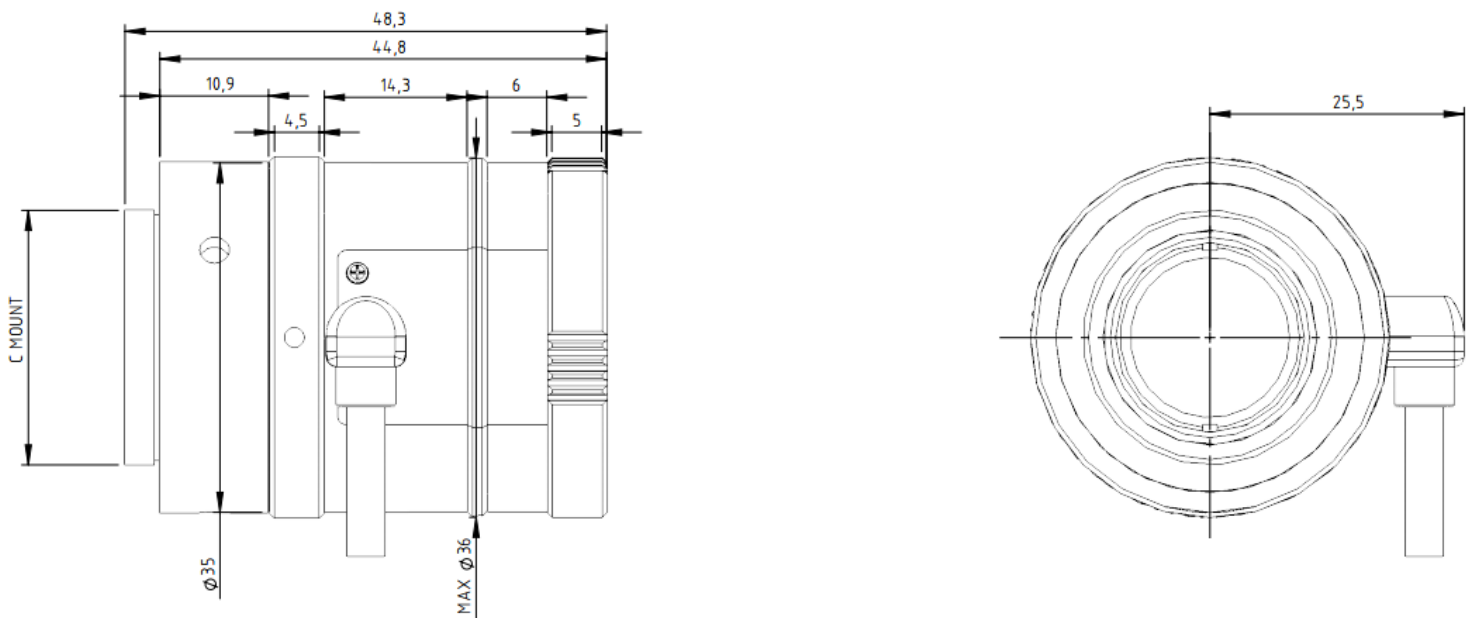
(2) Refer to ISO 10935.

(3) For a sensor size of 1.1".

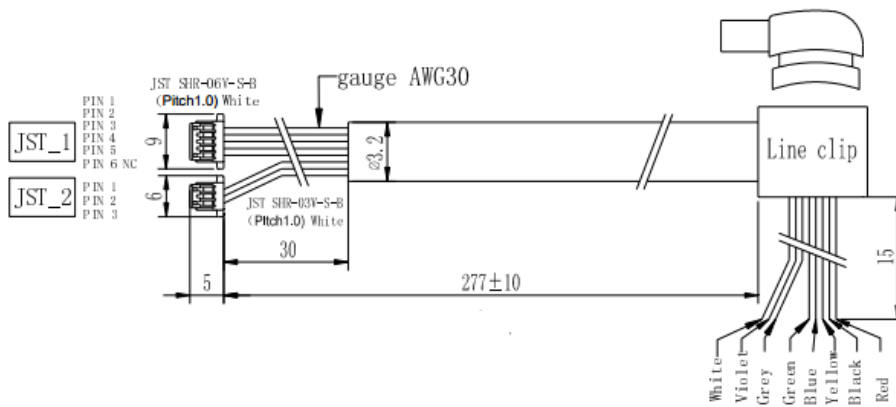
# Temperature Range

| Parameter                   | Unit | Min   | Typ | Max   | Notes |
|-----------------------------|------|-------|-----|-------|-------|
| Operating temperature range | °C   | -20°C | 25  | +60°C |       |
| Storage temperature range   | °C   | -40°C | 25  | +85°C |       |

# Mechanical Dimensions



Weight: 99g

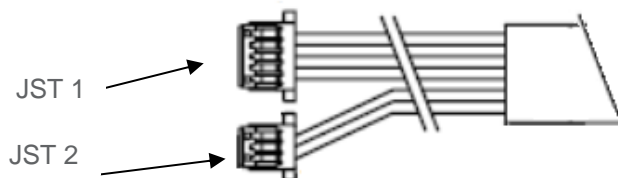


## Electrical Connection

The module has a 6-pin connector for power and control (JST\_1).

Connector reference: JST SHR-06V-S-B  
 Wire reference: JST SH3-SH3-28300

These pins have different functions depending on the module version.



### Communication Terminal JST\_1

| <i>Pin</i> | <i>Name</i>    | <i>Description</i>                                    |
|------------|----------------|---|
| 1          | VIN            | Positive power supply (+3.3 to +24 VDC/ red wire)     |
| 2          | GND            | Ground (black wire)                                   |
| 3          | I2C_sda_Rx_SDI | Multipurpose pin (depending on the part/ yellow wire) |
| 4          | I2C_scl_Rx_SCK | Multipurpose pin (depending on the part/ blue wire)   |
| 5          | SDO_Ana        | Multipurpose pin (depending on the part)              |
| 6          |                |   |

The function of the multipurpose pins depends on the part number:

| <i>Pin</i> | <i>Name</i>    | <i>R33</i>   | <i>SPI</i> | <i>I2C</i>   |
|------------|----------------|--------------|------------|--------------|
| 3          | I2C_sda_Rx_SDI | Rx (3.3V)    | SDI        | SDA          |
| 4          | I2C_scl_Tx_SCK | Tx (3.3V)    | SCK        | SCL          |
| 5          | SDO_Ana        | Analog input | SDO        | Analog input |

### Time of Flight Terminal JST\_2

| <i>Pin</i> | <i>Name</i> |
|------------|-------------|
| 1          | TOF_SDA     |
| 2          | TOF_SCL     |
| 3          | TOF_VIN     |

## Electrical Specifications

| <i>Parameter</i>   | <i>Symbol</i>   | <i>Min</i> | <i>Typ</i> | <i>Max</i> | <i>Unit</i> | <i>Notes</i> |
|--|-----------------|------------|------------|------------|-------------|--------------|
| <b>Power supply</b>  |                 |            |            |            |             |              |
| Input voltage  | V <sub>cc</sub> | 3.3        | 5          | 24         | V           |              |
| Current consumption - Active mode                            | I <sub>cc</sub> |            | 15         |            | mA          | (1)          |
| <b>Control voltage</b>                                       |                 |            |            |            |             |              |
| <i>RS33/I2C/SPI</i>  |                 |            |            |            |             |              |
| I2C <sub>sda</sub> _Rx_SD1 / I2C <sub>scl</sub> _Rx_SCK pins |                 | -0.3       |            | 3.6        | V           | (2)          |
| SDO_Ana pin  |                 | -0.3       |            | 3.6        | V           | (2)          |
| MCLR pin   |                 | -0.3       |            | 3.6        | V           |              |

### Notes:

- (1) Current consumption depends on the voltage applied to the lens.

Typical current consumption I<sub>cc</sub> (mA)

| <i>Driver state and voltage applied to Lens</i> |      | <i>25V</i> | <i>50 V</i> | <i>70 V</i> |
|---|------|------------|-------------|-------------|
| Power supply                                    | 3.3V | 13.7       | 15.2        | 16.9        |
|   | 5V   | 13.9       | 14.8        | 16.1        |
|   | 12V  | 7.3        | 7.8         | 8.5         |
|   | 24V  | 4.4        | 4.7         | 5.3         |

- (2) Absolute maximum ratings.

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