CORNING

Varioptic® Lenses

Marketing Datasheet

# 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



## Contents

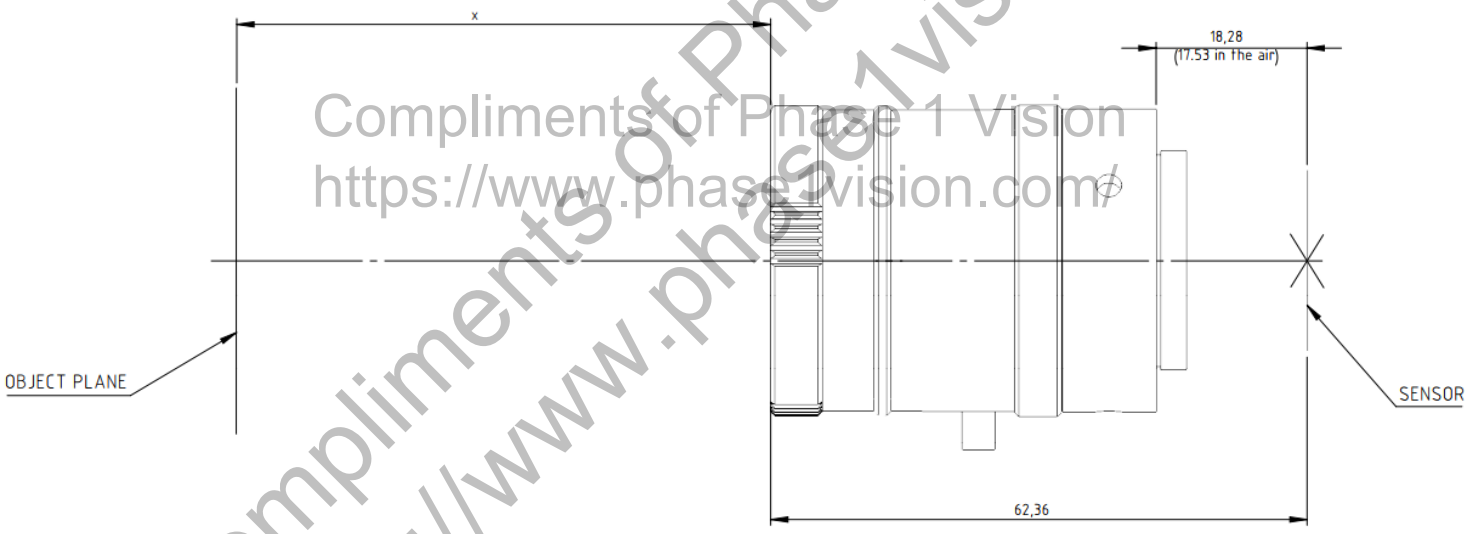
# Opto-Electrical Performance

Performances described below are for 25°C

| *Optical Performances at $V_{3m}$* | *Symbol* | *Min* | *Typ* | *Max* | *Unit* | *Notes* |
|---|---|---|---|---|---|---|
| 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) |
| ***Focus control performances*** | | | | | | |
| Focus distance | x | 20 | | ∞ | 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:

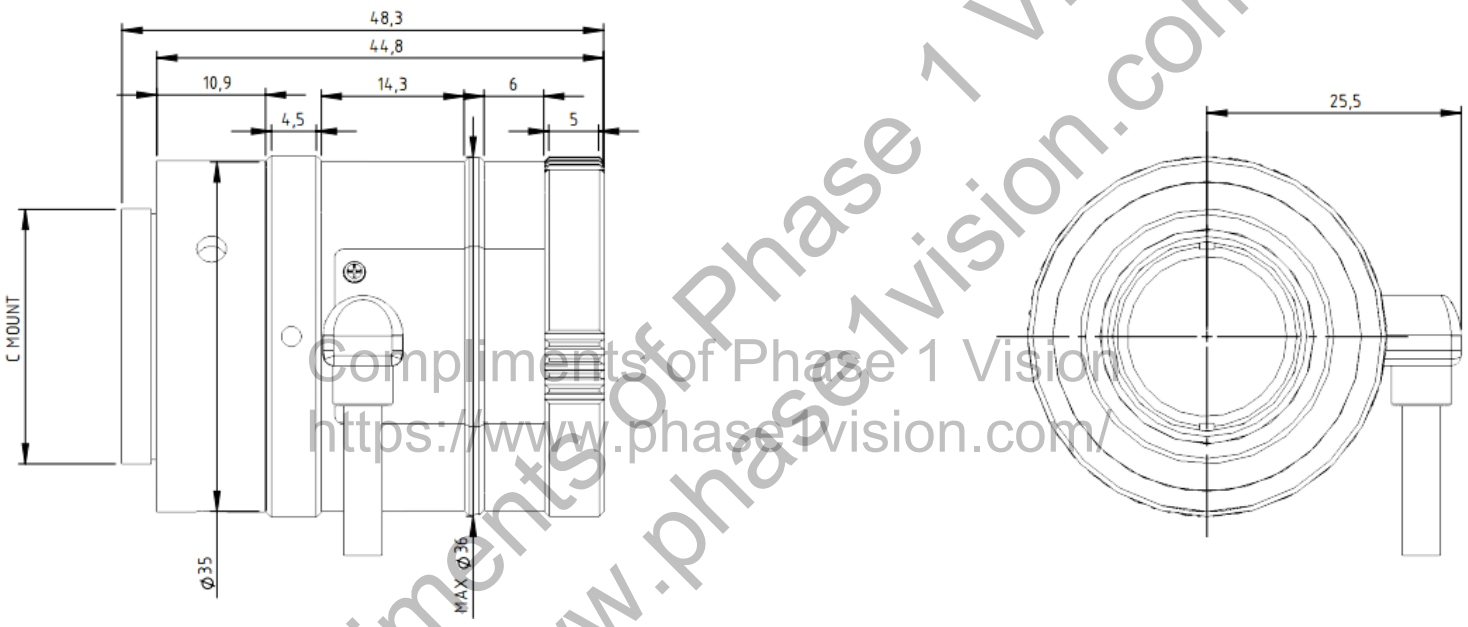



(2) Refer to ISO 10935.
(3) For a sensor size of 1.1".

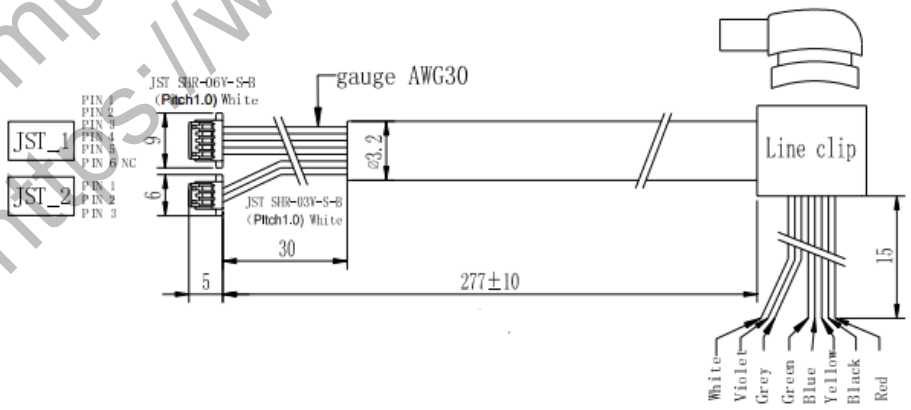
## Temperature Range

| 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

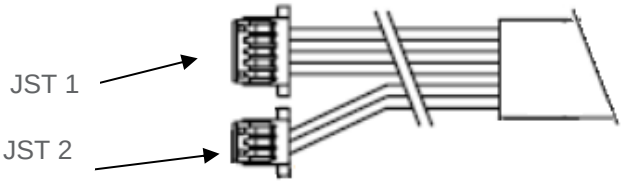


# Electrical Connection

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

| *Pin* | *Name* | *Description* |
|---|---|---|
| 1 | VIN | Positive power supply (+3.3 to +24 VDC/ red wire) |
| 2 | GND | Ground (black wire) |
| 3 | I2Csda_Rx_SDI | Multipurpose pin (depending on the part/ yellow wire) |
| 4 | I2Cscl_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:

| *Pin* | *Name* | *R33* | *SPI* | *I2C* |
|---|---|---|---|---|
| 3 | I2Csda_Rx_SDI | Rx (3.3V) | SDI | SDA |
| 4 | I2Cscl_Tx_SCK | Tx (3.3V) | SCK | SCL |
| 5 | SDO_Ana | Analog input | SDO | Analog input |

## Time of Flight Terminal JST_2

| *Pin* | *Name* |
|---|---|
| 1 | TOF_SDA |
| 2 | TOF_SCL |
| 3 | TOF_VIN |

# Electrical Specifications

| Parameter | Symbol | Min | Typ | Max | Unit | Notes |
|---|---|---|---|---|---|---|
| ***Power supply*** | | | | | | |
| Input voltage | $V_{cc}$ | 3.3 | 5 | 24 | V | |
| Current consumption - Active mode | $I_{cc}$ | | 15 | | mA | (1) |
| ***Control voltage*** | | | | | | |
| *RS33/I2C/SPI* | | | | | | |
| I2Csda_Rx_SDI / I2Cscl_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 Icc (mA)

| *Driver state and voltage applied to Lens* | | *25V* | *50 V* | *70 V* |
|---|---|---|---|---|
| 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.