



# Corning® Varioptic® C-C-39N0-A1-120 Auto Focus Lens Module

## Overview

The Corning® Varioptic® C-C-39N0-A1-120 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 or SPI input. With a 12 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-A1-120 auto focus lens module:** I2C, SPI or RS232 with 3.3 V signal.

## Key Features

- Variable focus from 15 cm to infinity
- Functions quietly
- Supports I2C - RS232 - SPI interfaces
- Supports closed loop operation



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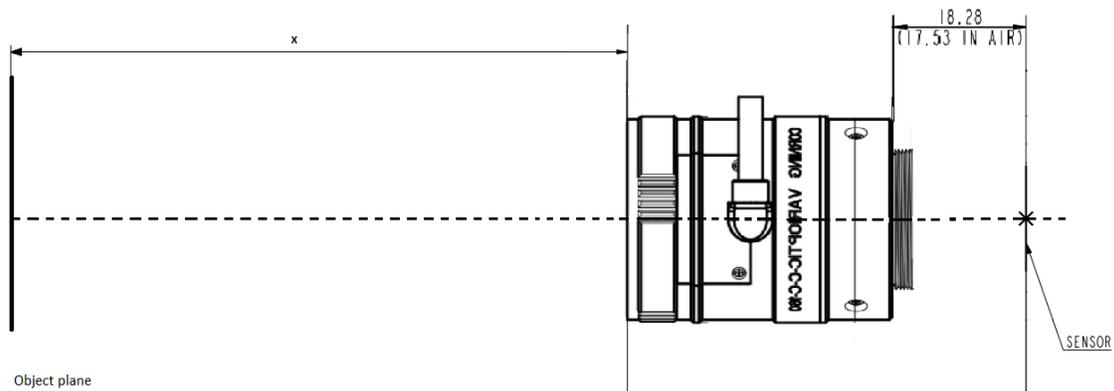
# Opto-Electrical Performance

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	$V_{\infty}$		37		V	(1)
Focal length at $V_{inf}$	EFL		12		mm	
Image circle diameter			17.6		mm	
Corner Chief Ray Angle	CRA		< 7		°	
Flange distance			17.5		mm	(2)
F- number	F#		4.7		-	
Diagonal Field of view	DFOV		78		°	(3)
<b><i>Focus control performances</i></b>						
Focus distance	x	15		$\infty$	cm	(1)
Voltage for x= 15 cm	$V_{15cm}$		40		V	(1)

Notes:

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

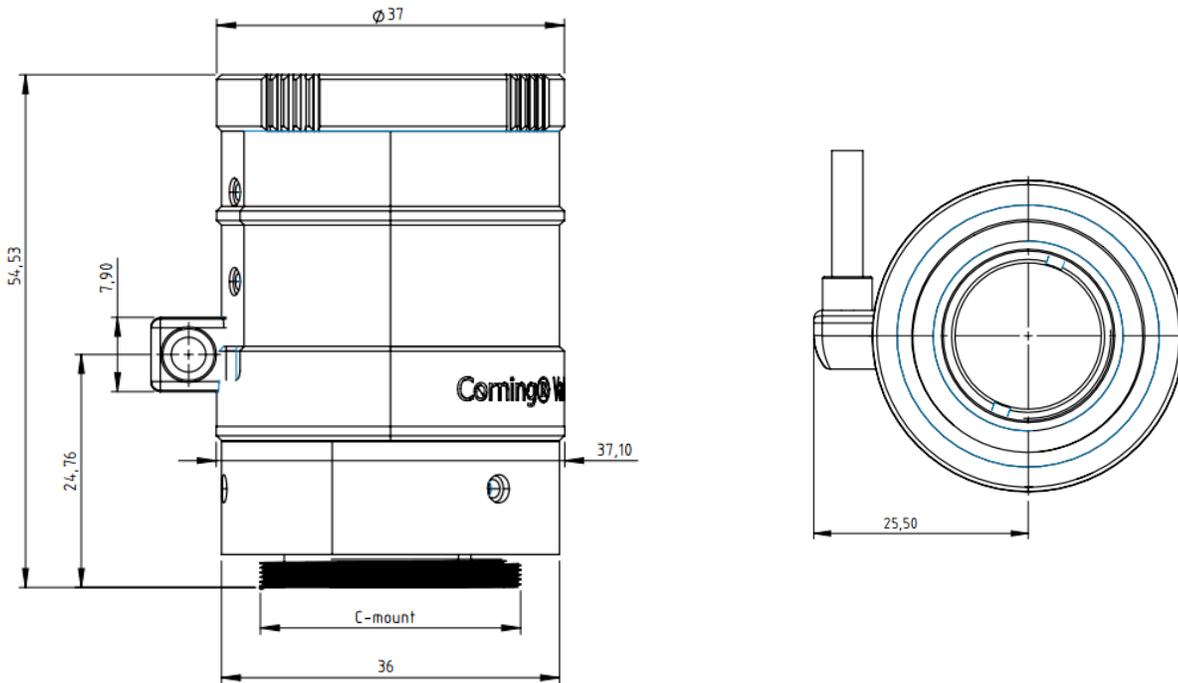


- (2) Refer to ISO 10935.  
 (3) For a sensor size of 1.1".

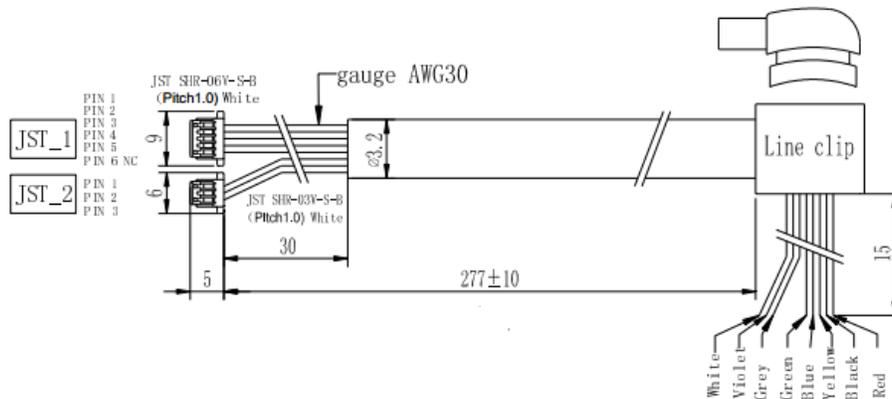
# Temperature Range

Parameter	Unit	Min	Typ	Max	Notes
Operating temperature range	°C	-20°C	25	+70°C	
Storage temperature range	°C	-40°C	25	+85°C	

# Mechanical Dimensions



Weight: 121g

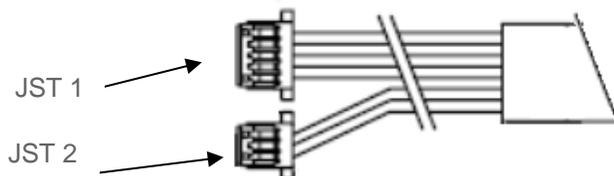


## Electrical Connection

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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