

Corning® Varioptic® C-C-39N0-A1-160 Auto Focus Lens Module

Overview

The Corning® Varioptic® C-C-39N0-A1-160 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 16 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-A1-160 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



Contents

Opto-Electrical Performance.....	2
Temperature Range	3
Mechanical Dimensions.....	3
Electrical Connection.....	4
Electrical Specifications.....	5

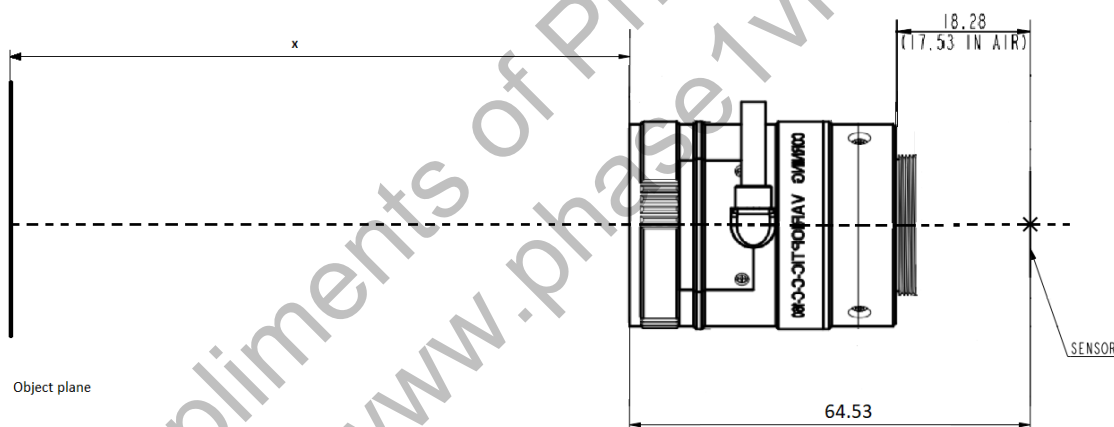
Opto-Electrical Performance

Performances described below are for 25°C

<i>Optical Performances at V_{3m}</i>	<i>Symbol</i>	<i>Min</i>	<i>Typ</i>	<i>Max</i>	<i>Unit</i>	<i>Notes</i>
Voltage for infinite focus	V _∞		35		V	(1)
Focal length at V _{3m}	EFL		16		mm	
Image circle diameter			17.6		mm	
Corner Chief Ray Angle	CRA		< 5		°	
Flange distance			17.5		mm	(2)
F- number	F#		3.8		-	
Diagonal Field of view	DFOV		57		°	(3)
<i>Focus control performances</i>						
Focus distance	x	15		∞	cm	(1)
Voltage for x= 17 cm	V _{17cm}		51		V	(1)

Notes:

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

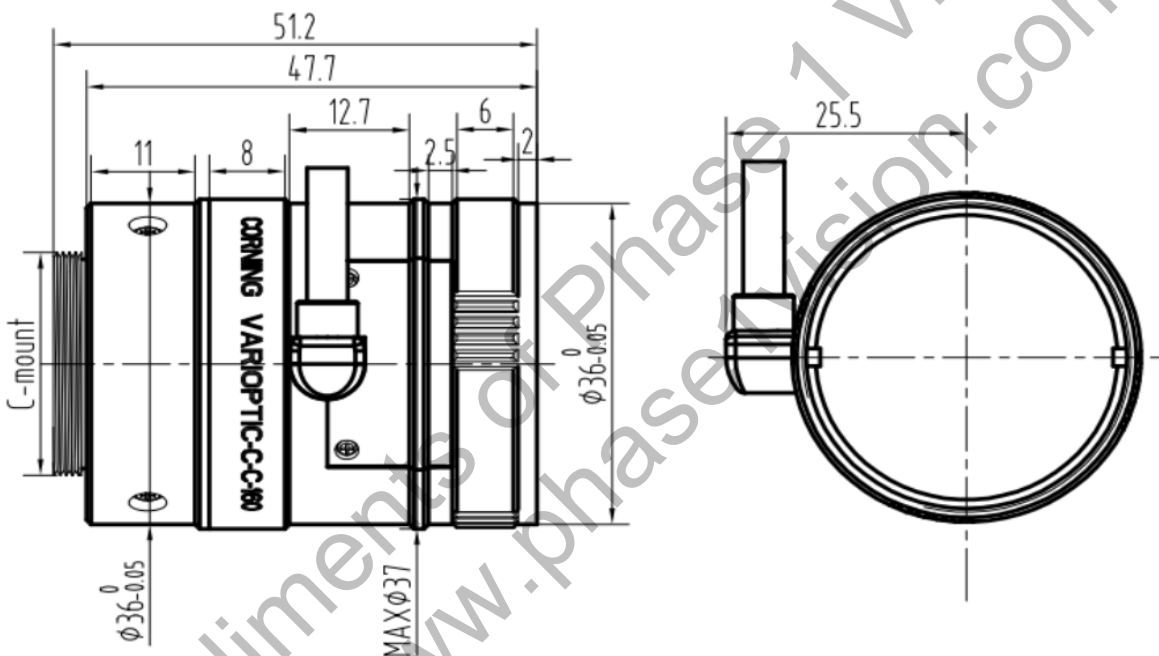


- (2) Refer to ISO 10935.
 (3) For a sensor size of 1.1".

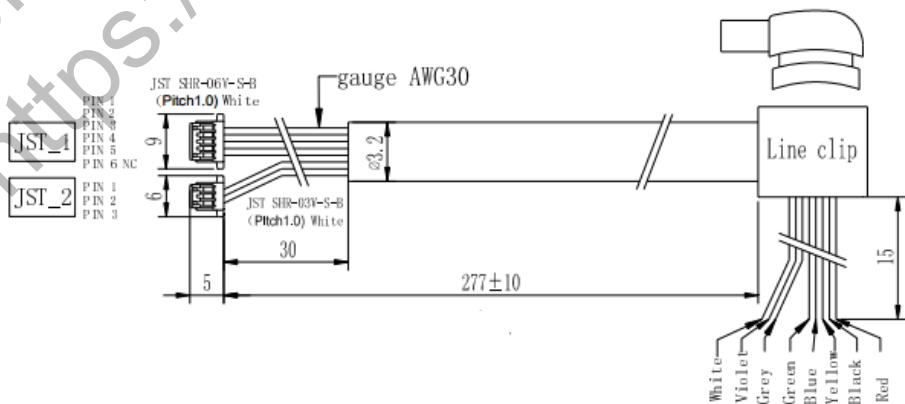
Temperature Range

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: 126g

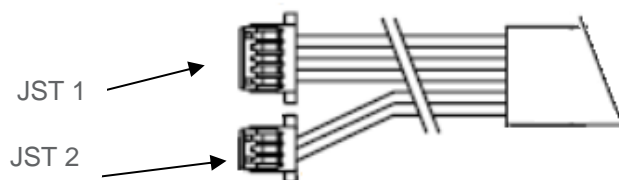


Electrical Connection

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	I2Csd_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	I2Csd_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						
I2C_sda_Rx_SDI / I2C_scl_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_{cc} (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.

Corning reserves the right to change its product specifications at any time without notice. Please ensure you have the latest applicable specification before purchasing a Corning product. Corning does not provide any warranty of merchantability or fitness for a particular purpose. Additionally, the products sold by Corning are not designed, intended or authorized for use in life support, life sustaining, medical device, healthcare, nuclear, military, or any applications in which the failure of such products could reasonably be expected to result in personal injury, loss of life or catastrophic property or environmental damage. Corning does not make any claims or statements that our products have been approved for such applications. Further, Corning has not tested its products for safety and efficacy in any such applications. The customer is responsible for determining the suitability of Corning's product for its application, including any testing, validation, and/or regulatory submissions that may be required to support the safety and efficacy of its intended use. Product specifications are available upon request at varioptic@corning.com