CORNING

Varioptic® Lenses

Marketing Datasheet

Corning® Varioptic® C-C-39N0-A1-350 Auto Focus Lens Module

Overview

The Corning® Varioptic® C-C-39N0-A1-350 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 and just needs a DC power supply. Focus can be controlled through either an RS232, I2C, analog or SPI input. With a 35 mm effective focal length and 1.1" 20MP sensor compatibility, it is specifically designed for machine vision applications.

Ordering Information

Corning® Varioptic® C-C-39N0-A1-350-XX auto focus lens module where **XX** determines lens configuration:

- **Corning® Varioptic® C-C-39N0-A1-350 auto focus lens module**: I2C, SPI, RS232 with 3.3 V signal or analog operation.
- **Corning® Varioptic® C-C-39N0-A1-350-R12 auto focus lens module**: RS232 with 12 V signal or analog operation.

Key Features

- Variable focus from 25 cm to infinity
- Supports I2C - Analog - RS232 - SPI interfaces
- Supports closed loop operation

Contents

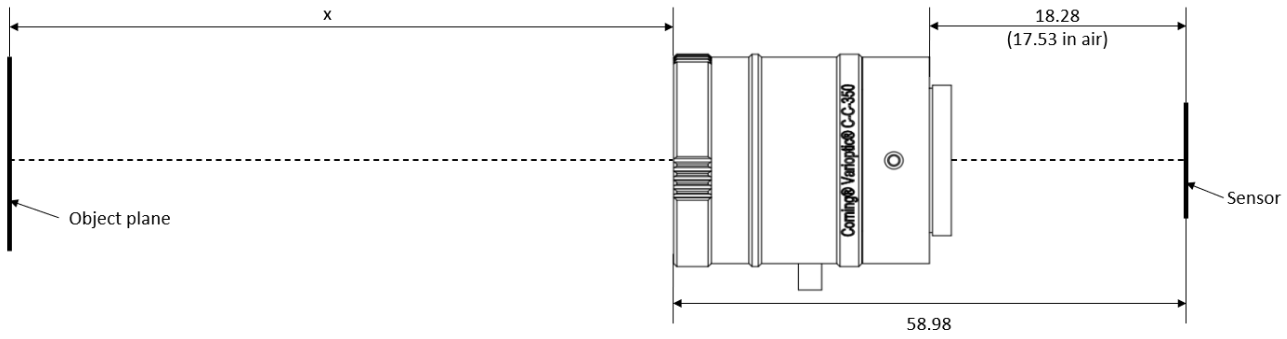
Opto-Electrical Performance

Performances described below are for 25°C

Optical Performances at V_{3m}	***Symbol***	***Min***	***Typ***	***Max***	***Unit***	***Notes***
Voltage for infinity focus	V_{inf}	28	34	40	V	(1)(2)
Focal length at V_{inf}	EFL		35		mm	
Image circle diameter			17.6		mm	
Corner Chief Ray Angle	CRA		< 6		°	
Flange distance			17.5		mm	(3)
F- number	F#	5.6		20	-	
Diagonal Field of view	DFOV		28		°	(4)
Focus control performances						
Focus distance	x	25		inf	cm	(2)
Voltage for x = 25 cm	V_{25cm}		55		V	(2)

Notes:

(1) For more information on the behavior of the C-C-39N0-A1-350 auto focus lens module or the A-39N variable focus lens, please refer to the lens and module full datasheet.
(2) Distance to object refers to the principal plane of the objective lens as shown below:

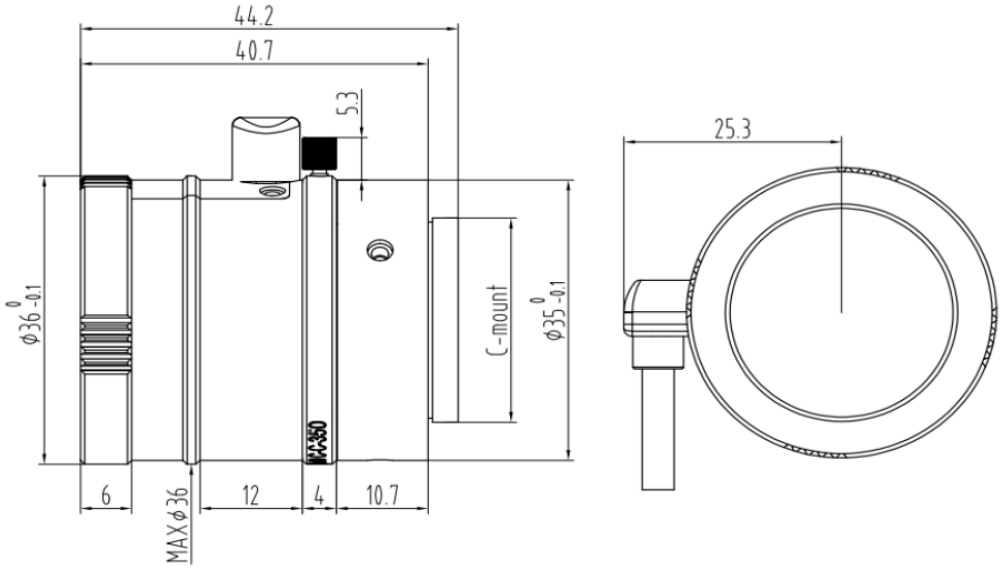


(3) Refer to ISO 10935.
(4) For a sensor size of 1.1”.

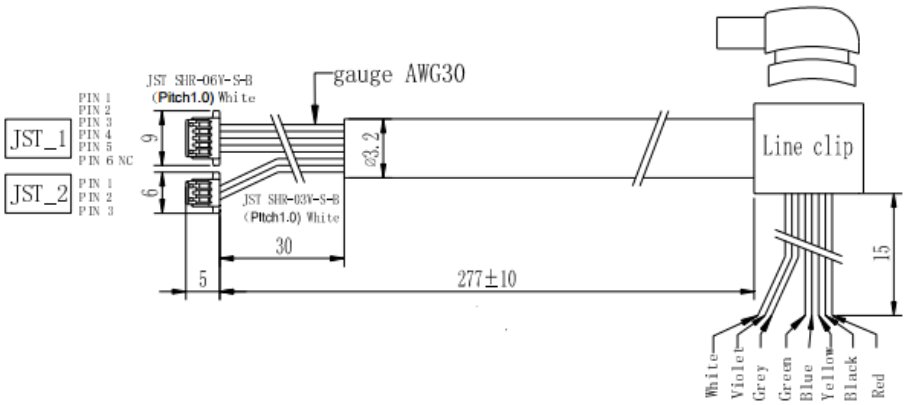
Temperature Range

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: 93.5g

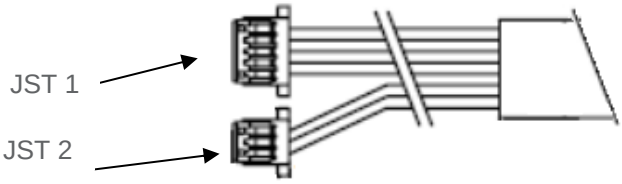


Electrical Connection

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:

Corning® Varioptic® C-C-39N0-A1-350 Auto Focus Lens Module

Pin	*Name*	*R12*	*R33*	*SPI*	*I2C*
3	I2Csda_Rx_SDI	Rx (RS232)	Rx (3.3V)	SDI	SDA
4	I2Cscl_Tx_SCK	Tx (RS232)	Tx (3.3V)	SCK	SCL
5	SDO_Ana	Analog input	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						
RS12						
I2Csda_Rx_SDI / I2Cscl_Rx_SCK pins		-25		25	V	(2)
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.
(2) Absolute maximum ratings.

Analog Control

Corning Varioptic C-C-30N0-A1-350 modules can be controlled by an analog voltage. In this case, the voltage seen by the lens is given by the following equation:

$$V_{rms} = (V_a * 22.5) + 24 \qquad \text{with } 0V < V_a < 2V$$

With:

- V_{rms} : rms value of the voltage seen by the lens (AC voltage)
- V_a : analog input voltage (DC voltage)