

## VALVE COMMUNICATION AND CONTROL

NONINCENDIVE, I.S. & GENERAL PURPOSE COMPACT,  
MODULAR ON/OFF VALVE MONITOR

ECLIPSE  
EN/EG





## Eclipse

### Compact and modular with solid state reliability

StoneL's Eclipse features dual solid state sensors with optional communications neatly integrated into a sealed module. The function module and trigger/indicator attach quickly and conveniently to standard VDI/VDE 3845 (NAMUR) actuator accessory mounting pads.

The Eclipse series is available in nonincendive and intrinsically safe versions (EN) for hazardous areas and in a general purpose completely sealed micro-connector version (EG).

#### Enclosure options



#### EN: Nonincendive with integral wire termination area

- Suitable for all hazardous areas.
- Rated for NEMA 4, 4X, 6 (intrinsically safe and nonincendive rated: IP67).
- Additional termination points and dual conduit entries eliminate junction boxes for solenoid valve termination.
- Convenient wiring compartment and pre-labeled terminal strip enables rapid installation.



#### EG: General purpose with convenient micro-connector wiring

- Available with additional built-in connector for solenoid termination.
- Micro-connectors with potted and sealed enclosure eliminate any threat of moisture contamination in wiring.
- Electronic module integrated permanently into enclosure.

## Features

1. **No moving mating parts** assure long life and trouble-free operation.
2. **Red/green visual indicator** boldly displays valve status, and coordinates with red/green LEDs.
3. **Direct attachment** to ISO/NAMUR mounting pads with simple mounting kit (sold separately)
4. **High intensity red and green LEDs** indicate electronic switch status to confirm electrical operation.
5. **Sensor triggers** are adjustable in 3.5 degree increments through 360 degrees for precision and flexibility.
6. **Submersible** and capable of high pressure washdown, Eclipse sensors and electronics are fully sealed to eliminate hazard threat and corrosion problems.

7. **Extremely compact, rugged enclosure** integrates position sensors, communication, electronics, and power outputs for solenoids.
8. **All mechanical parts** are made of Lexan® or stainless steel for corrosion resistance and durability.



### Triggering and visual indicator

Red and green visual indication is viewable from 360 degrees around the automated valve and from above at distances up to 70 feet. The yellow flow line indicator is also available, which is viewable from all angles at a distance up to 30 feet.

Eclipse solid state inductive sensors are activated by stainless steel targets embedded into the visual indicator drum. Open and closed targets may be independently adjusted in 3.5 degree increments.



Red/green option



Flow line option

### Specifications

#### Materials of construction

Housing	Lexan® polycarbonate
Drum components	Lexan® polycarbonate
Fasteners	Stainless steel
Triggers and coupling	Stainless steel
Quick connectors	Stainless steel
<b>Operating life</b>	Unlimited
<b>Temperature range</b>	-40° C to 80° C (-40° F to 176° F)

#### Warranty

Dual modules	Five years
Mechanical components	Two years

Lexan® is a registered trademark of General Electric Corporation.

### Ratings

Nonincendive (Class I and II, Div. 2)	EN models*
Intrinsically safe (Ex ia, Zone 0 or Class I and II, Div. 1)	EN44*

#### Enclosure protection

NEMA 4, 4X and 6	All models
Ingress Protection 67	All models

**Approvals\*** See StoneL.com/approvals

\* Only models listed on StoneL's official website are approved per specific rating.

# Sensing and communication

The Eclipse offers incredible value and space efficiency. Communications, position sensing, power outputs, and auxiliary inputs are sealed in the Eclipse function module. Select from NAMUR sensors, SST switching, or AS-Interface, or DeviceNet™ communication terminals. All are fully solid state and sealed.

EN features a removable, fully sealed dual module to facilitate quick, convenient maintenance and wiring.



### Switching and sensor specifications

#### SST switching sensors (33, 34)

Configuration	(2) SST solid state sensors (2) Wire terminations for one solenoid
Operation	Select either NO (33) or NC (34) models
Maximum current inrush	1.0 amps @ 125 VAC/VDC
Maximum current continuous	0.1 amps @ 125 VAC/VDC
Minimum on current	2.0 mA
Maximum leakage current	0.5 mA
Voltage range	24 - 125 VAC 8 - 125 VDC
Maximum voltage drop	6.5 volts @ 10 mA 7.5 volts @ 100 mA

#### Wiring diagram (33, 34)

#### NAMUR sensors (44)

Configuration	(2) NAMUR sensors (EN 60947-5-6; I.S.) (2) Wire terminations for one solenoid
Operation	Normally closed NAMUR sensors (solid state)
Voltage range	5 - 25 VDC
Current ratings	Target on I<1 mA Target off I>3 mA

#### Wiring diagram (44)

### Valve Communication Terminal (VCT) specifications

#### AS-Interface (96)

Configuration	(2) Discrete sensor inputs (2) Auxiliary discrete inputs (2) Power outputs (solenoids)
Maximum current	160 mA, both outputs combined
Auxiliary inputs	24 VDC @ 2 mA (self-powered)
Output	4 watts @ 24 VDC both outputs combined
Outputs, voltage	21 - 26 VDC
Configuration code	ID=F, IO=4; user defined (4DI/2DO)
AS-i version	3.0
Devices per network	31

#### Wiring diagram (96)

#### AS-Interface VCT with extended addressing (97)

Configuration	(2) Discrete sensor inputs (2) Auxiliary discrete inputs (1) Power output (solenoid)
Maximum current	100 mA
Auxiliary inputs	24 VDC @ 2 mA (self-powered)
Output	2 watts @ 24 VDC
Output, voltage	21 - 26 VDC
Configuration code	ID=A, IO=4; user defined (4DI/1DO)
AS-i version	3.0
Devices per network	62

#### Wiring diagram (97)

### Valve Communication Terminal (VCT) specifications

**DeviceNet™ (92)**

Configuration	(2) Discrete inputs (open and closed) (2) Power outputs (solenoids) (1) 4-20 mA auxiliary analog input, 10-bit resolution; no additional power source required
Transmission rate	Software selectable 125K, 250K or 500K baud
Messaging	Polling, cyclic and change of state
Outputs	4 watts @ 24 VDC outputs combined
Outputs, voltage	24 VDC (with input voltage ranging from 10 - 24 VDC)
Other features	Predetermined output fail state

**Wiring diagram**

(92)

DeviceNet Bus

- V+
- CAN H
- SHIELD
- CAN L
- V-
- Ain -
- Ain +
- OUT1 -
- 24 VDC+
- OUT2 -

4-20 mA Transmitter

Solenoid Valve

Solenoid Valve

## Eclipse visual indicator designations

DESIGNATION	0°	90°
<b>D</b>	<b>RED CLOSED</b>	<b>GREEN OPEN</b>
<b>N</b>	<b>GREEN CLOSED</b>	<b>RED OPEN</b>
<b>L</b>		
<b>S</b>		
<b>T</b>		
<b>X</b>	Specialty configuration - please consult factory	

### Model selector

**SERIES**  
EN Nonincendive or intrinsically safe

**FUNCTIONS**

**Sensor/switching dual modules**

33 (2) SST NO sensors  
34 (2) SST NC sensors

**Intrinsically safe dual module**

44 (2) NAMUR sensors (EN 60947-5-6; I.S.) [available with conduit/connector option 02]

**Valve Communication Terminals (VCT)**

92 DeviceNet™  
96 AS-Interface  
97 AS-Interface with extended addressing

**ENCLOSURE**

P North American (NEC/CEC)  
A International (IEC)  
I Brazilian

**CONDUIT/CONNECTORS**  
[consult factory for additional quick connector options]

02 (2) ½" NPT conduit entry  
05 (2) M20 conduit entry  
11 (1) 5-pin mini-connector  
12 (1) 5-pin mini and (1) 3-pin-connector

**VISUAL INDICATOR** [see chart on page 41]

DM Red closed/green open  
LM Flow line  
SM T-1 three-way (90° rotation)  
TM T-2 three-way (90° rotation)  
XM Special

Model number example  
EN 44 A 02 DM - OPTIONAL

MODEL NUMBER	PARTNERSHIP ID
Mounting hardware required and sold separately.	Some models may include 5-digit identification suffix.

### Model selector

**SERIES**  
EG General purpose

**FUNCTIONS**

**Sensor/switching dual modules**

33 (2) SST NO sensors [available with connector options 23 or 26]  
34 (2) SST NC sensors [available with connector options 23 or 26]

**Intrinsically safe dual module**

44 (2) NAMUR sensors (EN 60947-5-6) [available with connector option 23]

**Valve Communication Terminals (VCT)**

92 DeviceNet™ [available with connector options 25 or 26]  
96 AS-Interface [available with connector options 23 or 24]  
97 AS-Interface with extended addressing [available with connector options 23 or 24]

**ENCLOSURE**

P General purpose, universal

**CONDUIT/CONNECTORS**

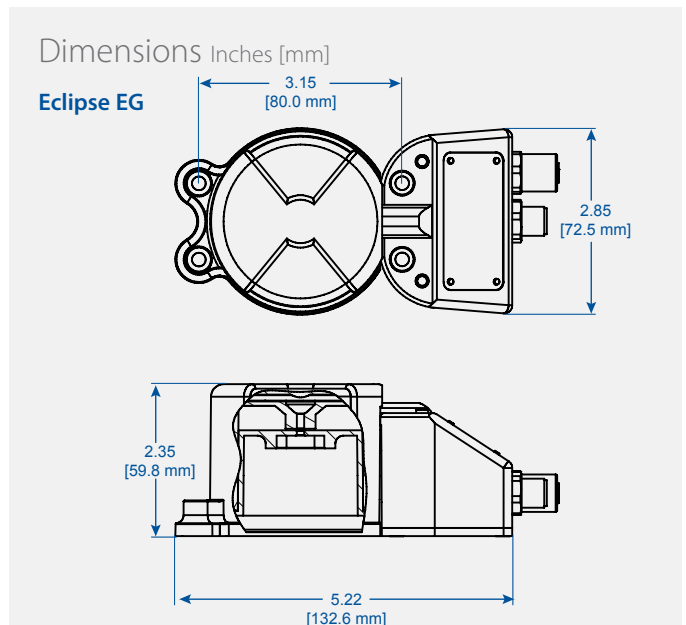
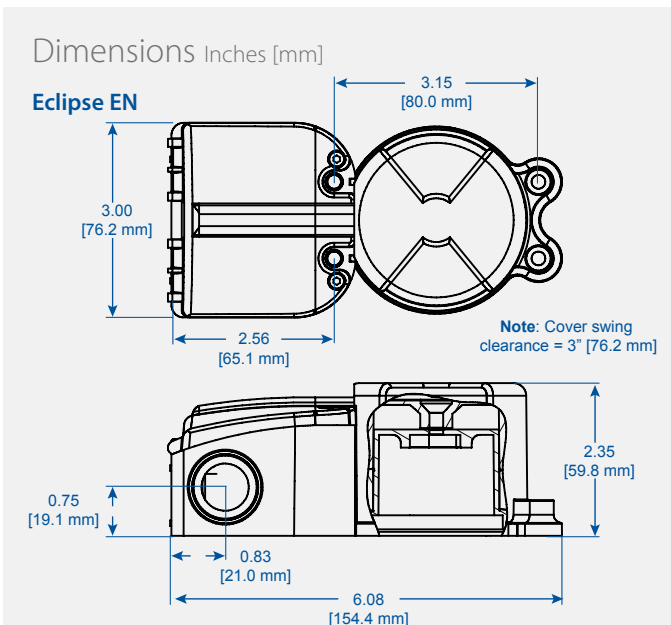
23 (1) 4-pin micro-connector  
24 (2) 4-pin micro-connectors  
25 (1) 5-pin micro-connector  
26 (1) 5-pin and (1) 4-pin-micro-connector

**VISUAL INDICATOR** [see chart on page 41]

DM Red closed/green open  
LM Flow line  
SM T-1 three-way (90° rotation)  
TM T-2 three-way (90° rotation)  
XM Special

Model number example  
EG 96 P 24 LM - OPTIONAL

MODEL NUMBER	PARTNERSHIP ID
Mounting hardware required and sold separately.	Some models may include 5-digit identification suffix.



## Stand alone visual indicator

Clearly view valve position status from up to 75 feet with StoneL's stand alone visual indicator. The indicator's rugged Lexan® construction makes it resistant to physical damage and tolerant to most corrosives.



**Model selector**

**SERIES**

VI Visual indicator

**VISUAL INDICATOR**

D Red closed/green open

S Three-way

T Three-way

X Special

Model number example

VI D - OPTIONAL

**MODEL NUMBER**      **PARTNERSHIP ID\***

Mounting hardware required and sold separately.      Some models may include 5-digit identification suffix.

## Visual indicator designations

DESIGNATION	0°	90°
D	RED CLOSED	GREEN OPEN
N	GREEN CLOSED	RED OPEN
S	A ←→ B C	A ← B C
T	A ← B C	A ←→ B C
X	Specialty configuration - please consult factory	

Dimensions Inches [mm]

**Visual Indicator VI**

3.15 [80.0 mm]

1.18 [30.0 mm]

Ø2.89 [Ø73.4 mm]

2.35 [59.8 mm]

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**[www.metso.com/valves](http://www.metso.com/valves)**

Subject to change without prior notice.

