Stonel™ Eclipse™ compact, modular on/off valve monitor

EC series
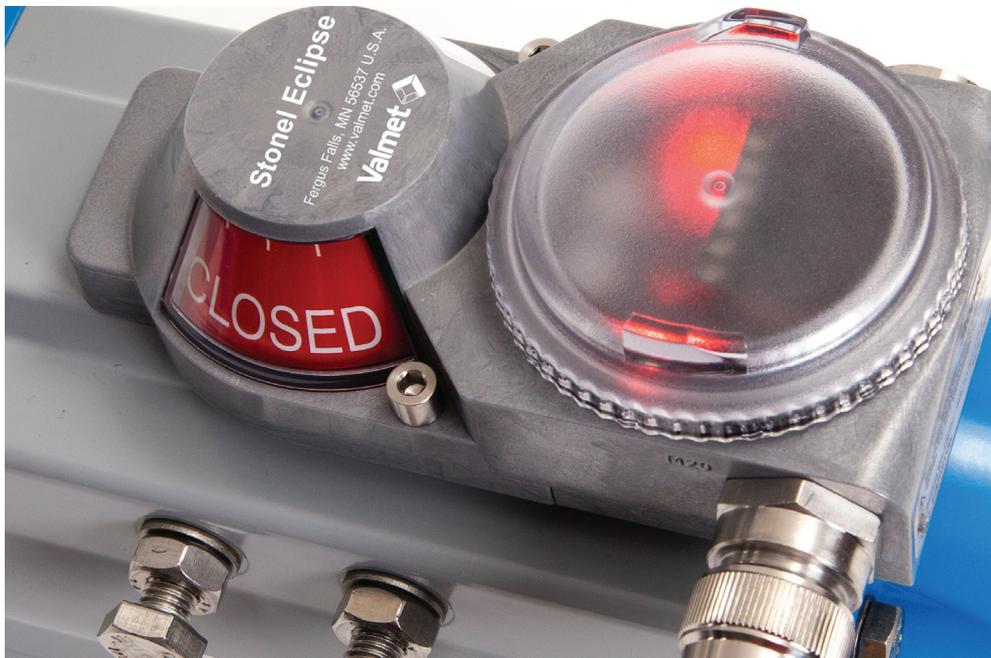
Compact and modular with solid state reliability

Stonel 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 EC series is compact and available for hazardous areas.

Advanced notification diagnostics

The Eclipse EC with IO-Link features advanced diagnostics that minimizes failure risks, optimizes maintenance and scheduling, and reduces effort needed for troubleshooting.

- Easily change diagnostic settings using the advanced configuration feature in the Stonel Wireless Link app
- Enable alarm conditions to generate an event on the IO-Link network
- Experience faster commissioning with the simple 3-wire sensor connection
- Automatically adjust circuits accordingly with device's patented auto-detection feature for PNP/NPN input and outputs (I/O) to PLC

EC: Compact valve with integral wire termination area

- Rapid enclosure entry for convenient access to wiring
- Easy commissioning and configuration
- Withstands high-pressure washdowns and typical process environment corrosives
- Wireless Link app for commissioning and diagnostics

Features

1. **Red/green visual indicator** boldly displays valve status, and coordinates with red/green LEDs.
2. **Direct attachment** to ISO/NAMUR mounting pads with simple mounting kit (sold separately).
3. **High intensity red and green LEDs** indicate electronic switch status to confirm electrical operation.
4. **Sensor settings** on touch pad enable position settings to be conveniently locked in. Switch settings are retained even after power is removed.
5. **Submersible** and capable of high pressure washdown, Eclipse sensors and electronics are fully sealed to eliminate hazard threat and corrosion problems.
6. **Extremely compact, rugged enclosur**e integrates position sensors, communication, electronics, and power outputs for solenoids.
7. **All mechanical part**s are made of polycarbonate 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.

Red/green option

Specifications	
Materials of construction	
Housing	Polycarbonate
Drum components	Polycarbonate
Fasteners	Stainless steel
Triggers and coupling	Stainless steel
Quick connectors	Stainless steel
Operating life	Unlimited
Temperature range	-40° C to 80° C (-40° F to 176° F)
Warranty	
Dual modules	Five years
Mechanical components	Two years

Ratings	
Nonincendive *(Class I and II, Div. 2)*	All models*
Intrinsically safe *(Ex ia, Zone 0 or Class I and II, Div. 1)*	Function 45*
Enclosure protection	
Type 4, 4X and 6	All models
Ingress Protection 67	All models
Approvals*	See manufacturer's website

* Only models listed on Valmet 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 function module. Select from 3-wire PNP/NPN, IO-Link, NAMUR sensors, SST switching, or AS-Interface communication terminals. An integrated magnetic resistive sensor system monitors exact valve position throughout the rotational range. Touch-sensitive or remote open and closed position setting along with microprocessor based operation make this state-of-the-art system convenient, reliable, and smart.

Position settings are made using the touch-sensitive buttons on the module's overlay. Simply operate the actuator to the open position and touch the SET OPEN button. Operate the actuator to the closed position and touch the SET CLOSED button.

*Position settings remain locked in even when power is removed and reapplied.*

Specifications, 30S, 30W (3-wire with IO-Link)

Configuration	(2) 24 VDC N.O. solid state sensors. Self-learning outputs for NPN/PNP/Sinking/Sourcing PLC input cards.
	(1) 24 VDC output for external solenoid. Self-learning control input for NPN/PNP/Sinking/Sourcing PLC output cards.
Voltage range	18 - 30 VDC
Minimum on current	2.0 mA
Maximum continuous current	0.1 amps
Maximum leakage current	0.0
Maximum voltage drop	0.1 volts @ 10 mA 0.5 volts @ 100 mA
Operating power (1 LED "ON" Solenoid "OFF")	0.6 watts
Operating power (1 LED "ON" 2W Solenoid "ON")	3.0 watts
Circuit protection	Protected against short circuits and direct application of voltage with no load.
Output Specifications	
Solenoid input voltage	18 - 30 VDC
Solenoid output voltage	24 VDC
Solenoid output current	85 mA
Solenoid output power	2.0 watts
Circuit protection	External solenoid output is short circuit protected
Bluetooth features (30W)*	Allows Set Open / Set Closed via Bluetooth Stroke times *(Only functions when attached to external solenoid)* Valve Position graph Lifetime Cycle Count *(non-resettable)*
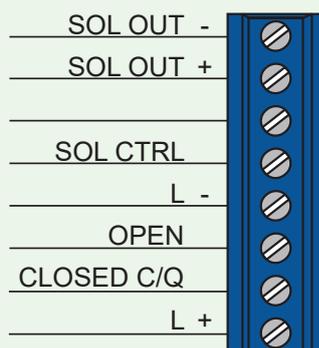
Specifications, 34S (SST)

Configuration	(2) Universal voltage N.C. 2-wire solid state sensors (2) Wire terminations for one solenoid
Voltage range	20 - 250 VAC 50/60 Hz; 20 - 250 VDC
Minimum on current	2.0 mA
Maximum continuous current	0.1 amps
Maximum leakage current	<0.5 mA
Maximum voltage drop	6.7 volts @ 10 mA 7.5 volts @ 100 mA
Circuit protection	Protected against short circuits and direct application of voltage with no load.
Solenoid pass-thru specifications	
Solenoid voltage range	20 - 250 VAC 50/60 Hz; 20 - 250 VDC
Maximum solenoid current	0.75 amps

SST

- SOL 1
- SOL 2
- SOL PWR 1
- SOL PWR 2
- CLOSED NC
- CLOSED C
- OPEN NC
- OPEN C

3-Wire

 IO-Link

- SOL OUT -
- SOL OUT +
- SOL CTRL
- L -
- OPEN
- CLOSED C/Q
- L +

Specifications, 35S (SST)

Configuration	(2) Universal voltage N.O. 2-wire solid state sensors (2) Wire terminations for one solenoid
Voltage range	20 - 250 VAC 50/60 Hz; 20 - 250 VDC
Minimum on current	2.0 mA
Maximum continuous current	0.1 amps
Maximum leakage current	<0.5 mA
Maximum voltage drop	6.7 volts @ 10 mA 7.5 volts @ 100 mA
Circuit protection	Protected against short circuits and direct application of voltage with no load.

Solenoid pass-thru specifications

Solenoid voltage range	20 - 250 VAC 50/60 Hz; 20 - 250 VDC
Maximum solenoid current	0.75 amps

SST

SOL 1
SOL 2
SOL PWR 1
SOL PWR 2
OPEN NO
OPEN C
CLOSED NO
CLOSED C

Specifications, 45S (NAMUR)

Configuration	(2) N.C. NAMUR sensors (EN 60947-5-6; IS) (2) Wire terminations for one solenoid
Voltage range	5 - 25 VDC
Current ratings	Target present current < 1.0 mA Target absent current > 2.1 mA

Solenoid pass-thru specifications

Solenoid voltage range	30 VDC max
Maximum solenoid current	0.75 amps

Use with intrinsically safe repeater barrier. NAMUR sensors conform to EN 60947-5-6 standard.

NAMUR

SOL +
SOL -
SOL PWR +
SOL PWR -
OPEN +
OPEN -
CLOSED +
CLOSED -
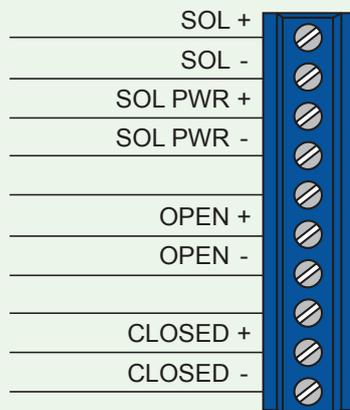
Specifications, 96S (ASi)

Communication protocol	AS-Interface v3.0
Configuration	(2) Discrete inputs (sensors) (1) Discrete output (solenoid)
Input voltage	26.5-31.6 VDC (AS-I voltage)
Output voltage	24 VDC (+/- 10%)
Quiescent current	32 mA
Maximum output current	85 mA
Maximum output power	2 watts
Output overcurrent protection	100 mA
Default address	00
Maximum devices per network	31
ID/IO codes	ID = F; IO = 4; ID1 = F; ID2 = E (S-4.F.E.)

Bit assignment

Inputs	Outputs	Parameters
Bit 0 = not used Bit 1 = not used Bit 2 = Valve open Bit 3 = Valve closed	Bit 0 = not used Bit 1 = not used Bit 2 = output (OUT +/-) Bit 3 = not used	Bit 0 = wink Bit 1-3 = not used

ASI +
ASI -
ASI +
ASI -
OUT +
OUT -
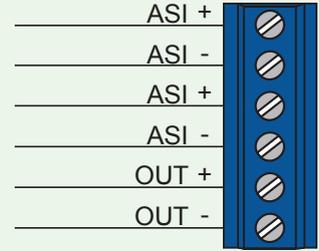
Specifications, 97S, 97W (ASi)

Communication protocol	AS-Interface v3.0
Configuration	(2) Discrete inputs (sensors) (1) Discrete output (solenoid)
Input voltage	26.5-31.6 VDC (AS-I voltage)
Output voltage	24 VDC (+/- 10%)
Quiescent current	32 mA
Maximum output current	85 mA
Maximum output power	2 watts
Output overcurrent protection	100 mA
Default address	0A
Maximum devices per network	62
ID/IO codes	ID = A; IO = 7; ID1 = F; ID2 = E (S-7.A.E.)

Bit assignment

Inputs	Outputs	Parameters
Bit 0 = Valve closed Bit 1 = Valve open Bit 2 = not used Bit 3 = not used	Bit 0 = output (OUT +/-) Bit 1 = not used Bit 2 = wireless link unlocked *[97W only]* Bit 3 = not available	Bit 0 = wink Bit 1-3 = not used

ASI +
ASI -
ASI +
ASI -
OUT +
OUT -
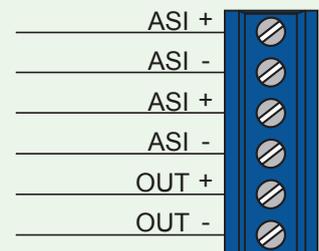
Stonel Wireless Link capabilities

Easily access hard-to-reach automated valves

Discover convenient remote access of your automated valves when you install an Eclipse EC series featuring *Bluetooth®* technology. Devices may be remotely accessed from up to 50 meters depending on obstructions. For AS-Interface models the setting changes and solenoid control are enabled through the AS-Interface network or by the AS-Interface power supply jumper.

Special features

- Improve safety by easily controlling hard-to-reach automated valves without putting plant personnel at risk.
- Look up factory preset module code and serial number remotely.
- Electronically enter and store key automated valve system information including user tag and maintenance log.
- Reduce network commissioning time by accessing the VCT address to make changes.
- Reduce maintenance time by monitoring valve cycle count, cycle times, storing maintenance logs, and accessing multiple valves from one location.
- Conveniently retrieve installation manuals for additional technical information when connected to internet.
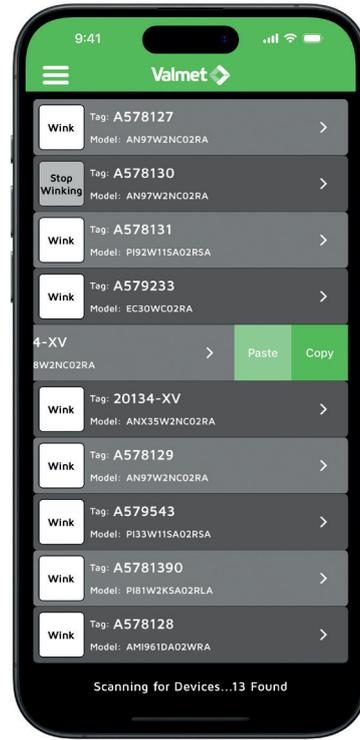
Customize the tag for a device, change the address, force the solenoids on or off, wink the device, and set the valve limits.

Operating information
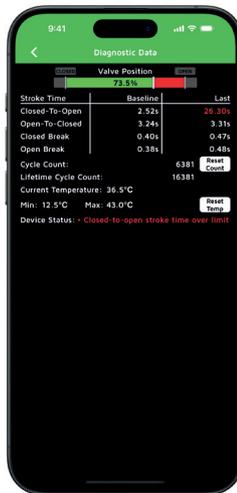
Store and view additional information about a specific valve, real time valve position, cycle count, cycle timing, current valve temperature, error status, and more.

Diagnostic data
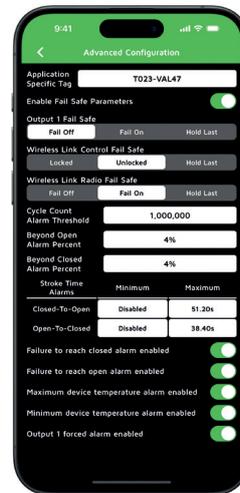
Apply fail safe settings, cycle count alarms, stroke time thresholds, and more.

Advanced configuration

Interfacing devices

Compatible with iPhone® and iPad®
Contact factory regarding additional devices and special enclosures to make these devices suitable for use in hazardous locations.

Stonel Wireless Link
User guide is available

1. By selecting the Menu option in the app
2. At https://www.valmet.com/flowcontrol/stonel-wireless-link-user-guide and
3. By scanning this QR code

Set up and operation

Devices with the wireless function are commissioned and set up identically to a standard unit. In addition, when powered up with a conventional power source or by the network, it may be accessed by standard iOS devices. The Eclipse is accessed with the Bluetooth® protocol using the Stonel Wireless Link application.

Sequence of operation is:

1. Download the Stonel application from the App Store onto your device (free of charge)
2. Start the application in your Apple® device
3. All energized wireless modules in range will come up
4. Push wink to positively confirm the device you have linked (device LEDs will flash)
5. Touch the specific ID tag to link with your handheld.

You can then monitor all status and diagnostic information and make necessary information changes to the free form fields at any time. Switch settings, address changes, and solenoid operation may be performed only if network- or power supply-enabled. Other information may also be added to the free form fields.

Wireless Link enabled network

All settings and inputs are locked when standard network communication is functioning. For fast commissioning and asset management you can import and export electronic tags, model number, serial number, device address, descriptive fields, diagnostic data and more to and from standard CSV/Excel® files.

Specifications for Wireless Link	
Standard specifications apply to Eclipse EC30W & EC97W Additional specifications for Wireless Link are as follows:	
Communication	*Bluetooth*® technology; single mode (not compatible with *Bluetooth* Classic)
Transmit power	4dBm or ~2.5 milliwatts
Data rate	1 Mbit/second; effective information transmit rate ~10 Kbits/second
Range	Up to 100 meters (330 feet) in free space. Range is reduced by obstructions between hand-held device and Wireless Link VCT. Line of site is not necessary.
Registrations	FCC, IC, CE
CE compliance	Exceeds industrial compliance standards
VCT identification	VCTs in range will be displayed
VCT link	One device accessed at a time between client (hand-held device) and server (VCT). Each server accessed by one client at a time
Application	Stonel Wireless Link available from the App store
Hand-helds	Compatible with iPhone® and iPad®

Model selector (left)

	SERIES				
EC	Nonincendive or intrinsically safe				

FUNCTIONS

Sensor/switching dual modules with IO-Link

| 30S	(2) 24 VDC NO solid state sensors *[self-learning outputs for NPN/PNP/Sinking/Sourcing PLC input cards]* and (1) 24 VDC output for external solenoid *[self-learning control input for NPN/PNP/Sinking/Sourcing PLC output cards]*
30W	(2) 24 VDC NO solid state sensors *[self-learning outputs for NPN/PNP/Sinking/Sourcing PLC input cards]* and (1) 24 VDC output for external solenoid *[self-learning control input for NPN/PNP/Sinking/Sourcing PLC output cards]* with Wireless Link

Sensor/switching dual module

34S	(2) SST NC sensors
35S	(2) SST NO sensors

Intrinsically safe module

45S	(2) NAMUR sensors (EN 60947-5-6; I.S.)

ENCLOSURE

C	North American (NEC/CEC)
D	International (IEC)

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

02	(2) ½" NPT conduit entry
05	(2) M20 conduit entry
10	(1) 4-pin mini male
11	(1) 5-pin mini male
12	(1) 5-pin mini male and (1) 3-pin mini female
13	(1) 4-pin M12 micro male
14	(1) 4-pin M12 micro male and (1) 5-pin M12 micro female
15	(1) 5-pin M12 micro male
16	(1) 5-pin M12 micro male and (1) 5-pin M12 micro female
33	(1) 6-pin mini male and (1) 3-pin mini female

VISUAL INDICATOR *[see chart on page 8]*

RA	Red closed/green open
1A	T-1 three-way (90° rotation)
2A	T-2 three-way (90° rotation)
XA	Special

Model number example

EC   35S   C   02   RA   –   OPTIONAL

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

Model selector (right)

	SERIES				
EC	Nonincendive				

FUNCTIONS

Valve Communication Terminals (VCT)

96S	AS-Interface
97S	AS-Interface with extended addressing
97W	AS-Interface with extended addressing and Wireless Link

ENCLOSURE

C	North American (NEC/CEC)
D	International (IEC)

CONDUIT/CONNECTORS

02	(2) ½" NPT conduit entry
05	(2) M20 conduit entry
10	(1) 4-pin mini male
13	(1) 4-pin M12 micro male
14	(1) 4-pin M12 micro male and (1) 5-pin M12 micro female
30	(1) 4-pin mini male and (1) 3-pin mini female

VISUAL INDICATOR *[see chart on page 8]*

RA	Red closed/green open
1A	T-1 three-way (90° rotation)
2A	T-2 three-way (90° rotation)
XA	Special

Model number example

EC   96S   C   02   RA   –   OPTIONAL

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

Eclipse visual indicator designations

DESIGNATION	0°	90°
R	RED CLOSED	GREEN OPEN
G	GREEN CLOSED	RED OPEN
1	A →◄ B C	A ◄ B C
2	A ◄ B C	A → B C
X	Specialty configuration - please consult factory	

Dimensions

Eclipse EC

6.13
[155.6 mm]

3.03
[77.0 mm]

1.96
[49.7 mm]

0.62
[15.6 mm]

1.75
[44.5 mm]

0.68
[17.2 mm]

1/2" NPT or M20
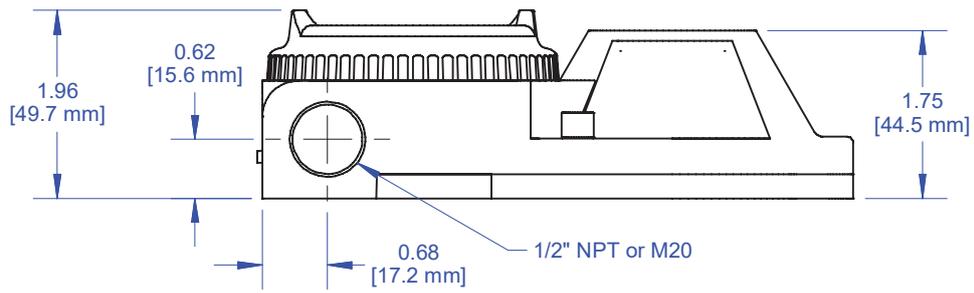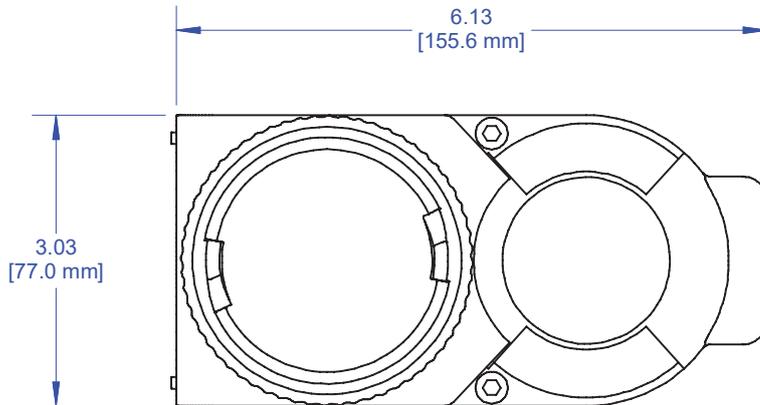
Valmet Flow Control Inc.
Stonel product center
26271 US Hwy 59, Fergus Falls, MN 56537 USA .
Tel. +1 218 739 5774.
sales.stonel@valmet.com
valmet.com/flowcontrol

Valmet