



V18 Series 18 mm Diameter Cylindrical Sensors

- Visible red and laser light sources
- Straight and right angle housings
- No mutual interference
- Rugged metal housing



Diffuse Mode with Background Suppression

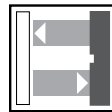
See page 394

Features:

- Adjustable background suppression
- Consistent detection of light and dark objects

Sensing Range: 120 mm

Output: 4-in-1



Diffuse Mode

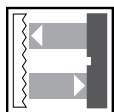
See page 395

Features:

- Light on/dark on modes
- Adjustable sensitivity

Sensing Ranges: 400 mm

Output: 4-in-1



Retro-Reflective Mode

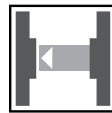
See pages 396-397

Features:

- Polarized filters detect shiny targets
- Adjustable sensitivity

Sensing Range: 3.5 m, 15 m

Output: 4-in-1



Thru-Beam Mode

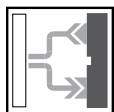
See page 398

Features:

- Adjustable focus
- Adjustable sensitivity

Sensing Range: 60 m

Output: 4-in-1



Fiber Optic Diffuse and Thru-Beam Mode

See page 399

Features:

- Adjustable sensitivity
- Wide selection of mating fiber optic heads and lengths

Sensing Range: Determined by fiber optic cable

Output: 4-in-1



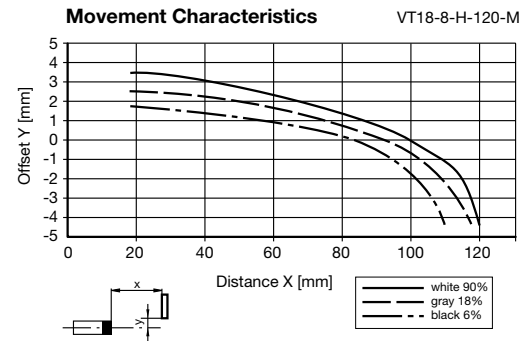
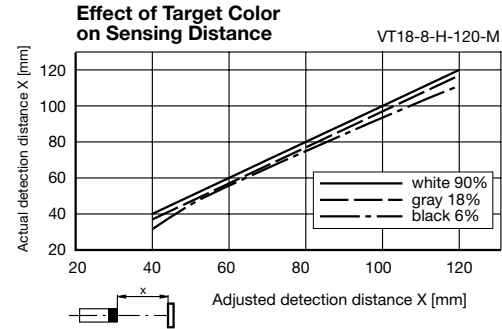
Diffuse Mode with Background Suppression

Specifications	
SENSING RANGE	20-120 mm
SENSITIVITY ADJUSTMENT	Yes
SENSING HEAD	Straight
MODEL NUMBER(S)	VT18-8-H-120-M/40a/65b/118/128 \neq
OUTPUT	4-in-1* <small>FOUR OUTPUTS ONE SENSOR</small>
LOAD CURRENT	200 mA max.
VOLTAGE DROP	≤ 1.5 V
SHORT CIRCUIT AND OVERLOAD PROTECTION	Yes
REVERSE POLARITY PROTECTION	Yes
SUPPLY VOLTAGE	10-30 VDC
VOLTAGE RIPPLE	10%
LED(s)	Yes (2) [†]
CURRENT CONSUMPTION	≤ 35 mA
OPERATING MODE	Light on/dark on
RESPONSE TIME	≤ 1 ms
SWITCHING FREQUENCY	500 Hz
STANDARDS	EN 60947-5-2
PROTECTION (IEC)	IP67
LIGHT SOURCE DIAMETER	≈ 6 mm at a range of 120 mm
LIGHT SOURCE	Visible red LED 660 nm
AMBIENT LIGHT RESISTANCE	$\leq 30,000$ lux
TEMPERATURE RANGE	<i>WORKING</i> -13 °F to +158 °F <i>STORAGE</i> -22 °F to +158 °F
HOUSING MATERIAL	Nickel-plated brass
LENS	PMMA
WEIGHT	2.1 oz
APPROVALS	CE UL
ELECTRICAL CONNECTION	Quick disconnect type V1
ADDITIONAL DATA	See pages 400-402

*NPN normally open, NPN normally closed, PNP normally open, or PNP normally closed






[†]See dimensional drawings for LED functions.

Sensing Characteristics





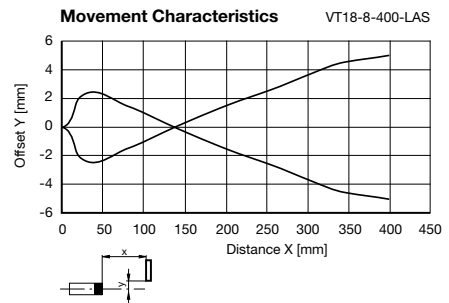
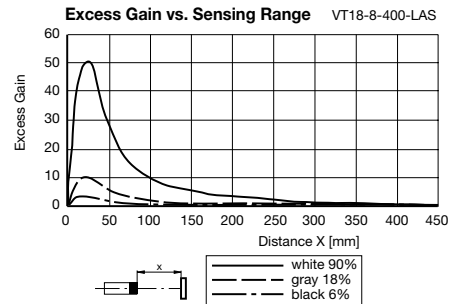
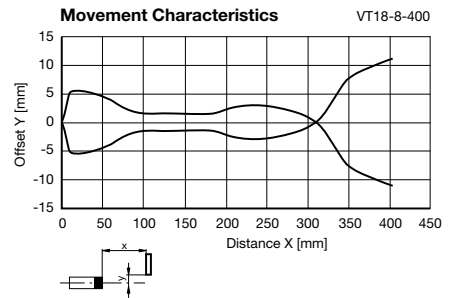
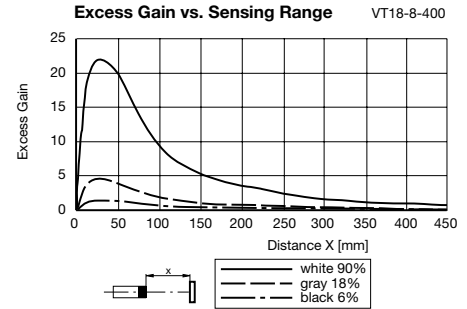
Diffuse Mode

Specifications	Laser	
SENSING RANGE	25-400 mm	25-400 mm
SENSITIVITY ADJUSTMENT	Yes	Yes
SENSING HEAD	Straight	Straight
MODEL NUMBER(S)	VT18-8-400-M/40a/118/128 ✂	VT18-8-400-M-LAS/40a/118/128 ✂
OUTPUT  /128	4-in-1*	4-in-1*
LOAD CURRENT	200 mA max.	200 mA max.
VOLTAGE DROP	≤ 2.5 VDC	≤ 2.5 VDC
SHORT CIRCUIT AND OVERLOAD PROTECTION	Yes	Yes
REVERSE POLARITY PROTECTION	Yes	Yes
SUPPLY VOLTAGE	10-30 VDC	10-30VDC
VOLTAGE RIPPLE	10%	10%
LED(s)	Yes (2) [†]	Yes (2) [†]
CURRENT CONSUMPTION	≤ 30 mA	≤ 30 mA
OPERATING MODE	Light on/dark on	Light on/dark on
RESPONSE TIME	≤ 1.0 ms	≤ 1.0 ms
SWITCHING FREQUENCY	500 Hz	500 Hz
STANDARDS	EN 60947-5-2	EN 60947-5-2
PROTECTION (IEC)	IP67	IP67
LIGHT SOURCE DIAMETER	≈ 4 mm at a range of 120 mm	≈ 0.5 mm at a range of 170 mm
LIGHT SOURCE	Visible red LED 660 nm	Visible red laser 660 nm
AMBIENT LIGHT RESISTANCE	≤ 30,000 lux	≤ 30,000 lux
TEMPERATURE RANGE	<i>WORKING</i> -13 °F to +158 °F <i>STORAGE</i> -22 °F to +158 °F	-13 °F to +158 °F -22 °F to +158 °F
HOUSING MATERIAL	Nickel-plated brass	Nickel-plated brass
LENS	PMMA	PMMA
WEIGHT	2.1 oz	2.1 oz
APPROVALS		
ELECTRICAL CONNECTION	 Quick disconnect type V1	 Quick disconnect type V1
ADDITIONAL DATA	See pages 400-402	

*NPN normally open, NPN normally closed, PNP normally open, or PNP normally closed

[†]See dimensional drawings for LED functions.

Sensing Characteristics



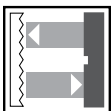
CAUTION

LASER RADIATION – DO NOT STARE INTO BEAM

660nm LASER LIGHT
< 2mW PEAK POWER











PRODUCT CONFORMS TO 21CFR1040
CLASS II LASER PRODUCT

◀ AVOID EXPOSURE – Laser radiation is emitted from this aperture



Retro-Reflective Mode

Photoelectric V18 Series 18 mm Diameter

Specifications		Laser*		
SENSING RANGE		0-3.5 m	0-3.5 m	0-15 m
SENSITIVITY ADJUSTMENT		Yes	Yes	Yes
REFLECTOR DISTANCE		400 mm-3.5 m	400 mm-3.5 m	600 mm-15 m
POLARIZED FILTER		Yes	Yes	Yes
SENSING HEAD		Straight	Right angle	Straight
MODEL NUMBER(S)		VL18-54-M/40a/118/128 •	VL18-54-MS/40a/118/128 •	VL18-54-M-LAS/40a/118/128 •
OUTPUT  /128		4-in-1†	4-in-1†	4-in-1†
LOAD CURRENT		200 mA max.	200 mA max.	200 mA max.
VOLTAGE DROP		≤ 2.5 VDC	≤ 2.5 VDC	≤ 2.5 VDC
SHORT CIRCUIT AND OVERLOAD PROTECTION		Yes	Yes	Yes
REVERSE POLARITY PROTECTION		Yes	Yes	Yes
SUPPLY VOLTAGE		10-30 VDC	10-30 VDC	10-30 VDC
VOLTAGE RIPPLE		10%	10%	10%
LED(s)		Yes (2)‡	Yes (2)‡	Yes (2)‡
CURRENT CONSUMPTION		≤ 35 mA	≤ 35 mA	≤ 35 mA
OPERATING MODE		Light on/dark on	Light on/dark on	Light on/dark on
RESPONSE TIME		≤ 1.0 ms	≤ 1.0 ms	≤ 1.0 ms
SWITCHING FREQUENCY		500 Hz	500 Hz	500 Hz
STANDARDS		EN 60947-5-2	EN 60947-5-2	EN 60947-5-2
PROTECTION (IEC)		IP67	IP67	IP67
LIGHT SPOT SIZE		≈ 200 mm at a range of 3.5 m	≈ 160mm at a range of 3.5 m	≈ 150 mm x 100 mm at a range of 12 m
LIGHT BEAM ANGLE		≈ 3°	≈ 3°	≈ 1°
LIGHT SOURCE		Visible red LED 660 nm	Visible red LED 660 nm	Visible red laser 660nm
AMBIENT LIGHT RESISTANCE		≤ 30,000 lux	≤ 30,000 lux	≤ 30,000 lux
TEMPERATURE RANGE				
		WORKING	-13 °F to +158 °F	-13 °F to +158 °F
		STORAGE	-22 °F to +158 °F	-22 °F to +158 °F
HOUSING MATERIAL		Nickel-plated brass	Nickel-plated brass	Nickel-plated brass
LENS		Plastic	Plastic	Plastic
WEIGHT		2.1 oz	2.1 oz	2.1oz
APPROVALS		 	 	 
ELECTRICAL CONNECTION		 Quick disconnect type V1	 Quick disconnect type V1	 Quick disconnect type V1
ADDITIONAL DATA		See pages 400-402		




*Micro-structure corner-cube reflectors are recommended with laser retro-reflective mode sensors.

†NPN normally open, NPN normally closed, PNP normally open, or PNP normally closed

‡See dimensional drawings for LED functions.

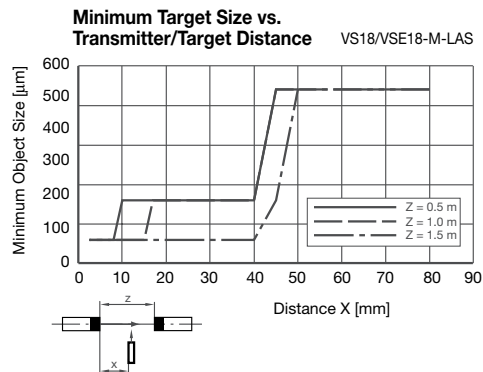


Thru-Beam Mode

Specifications		Laser
SENSING RANGE		0-60 m
SENSITIVITY ADJUSTMENT		Yes
SENSING HEAD		Straight
MODEL NUMBER(S)	<i>Transmitter</i>	VS18-M-LAS/76a/118 •
	<i>Receiver</i>	VSE18-M-LAS/40a/118/128 •
OUTPUT	 /128	4-in-1*
<i>LOAD CURRENT</i>		200 mA max.
<i>VOLTAGE DROP</i>		≤ 2.5 VDC
<i>SHORT CIRCUIT AND OVERLOAD PROTECTION</i>		Yes
<i>REVERSE POLARITY PROTECTION</i>		Yes
SUPPLY VOLTAGE		10-30 VDC
VOLTAGE RIPPLE		10%
LED(s)		Yes (2)†
CURRENT CONSUMPTION		≤ 20 mA transmitter ≤ 15 mA receiver
OPERATING MODE		Light on/dark on
RESPONSE TIME		≤ 100 μs
SWITCHING FREQUENCY		5 kHz
STANDARDS		EN 60947-5-2
PROTECTION (IEC)		IP67
LIGHT SPOT SIZE		≈ 100 mm x 100 mm at a range of 85 m
LIGHT BEAM ANGLE		Adjustable
LIGHT SOURCE		Visible red laser 660 nm
AMBIENT LIGHT RESISTANCE		≤ 30,000 lux
TEMPERATURE RANGE	<i>WORKING</i>	-13 °F to +131 °F
	<i>STORAGE</i>	-22 °F to +158 °F
HOUSING MATERIAL		Nickel-plated brass
	<i>LENS</i>	Plastic
WEIGHT		2.1oz per housing
APPROVALS		
ELECTRICAL CONNECTION		 Quick disconnect type V1
ADDITIONAL DATA		See pages 400-402

*NPN normally open, NPN normally closed, PNP normally open, or PNP normally closed
†See dimensional drawings for LED functions.

Sensing Characteristics



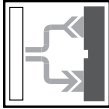
CAUTION

**LASER RADIATION—
DO NOT STARE INTO BEAM**

**660nm LASER LIGHT
< 2mW PEAK POWER**

**PRODUCT CONFORMS TO 21CFR1040
CLASS II LASER PRODUCT**

**AVOID EXPOSURE – Laser radiation
is emitted from this aperture**



Diffuse and Thru-Beam Mode Fiber Optic Sensors

Specifications	
SENSING RANGE	Determined by cable*
SENSITIVITY ADJUSTMENT	Yes
SENSING HEAD	Straight
MODEL NUMBER(S)	VL18LL-M/40a/118/128 ‡
OUTPUT	4-IN-1 /128 4-in-1*
LOAD CURRENT	200 mA max.
VOLTAGE DROP	≤ 1.5 V
SHORT CIRCUIT AND OVERLOAD PROTECTION	Yes
REVERSE POLARITY PROTECTION	Yes
SUPPLY VOLTAGE	10-30 VDC
VOLTAGE RIPPLE	10%
LED(s)	Yes (2)†
CURRENT CONSUMPTION	≤ 35 mA
OPERATING MODE	Light on/dark on
RESPONSE TIME	≤ 1 ms
SWITCHING FREQUENCY	500 Hz
STANDARDS	EN 60947-5-2
PROTECTION (IEC)	IP67
LIGHT SOURCE	Visible red LED 650 nm
AMBIENT LIGHT RESISTANCE	≤ 30,000 lux
TEMPERATURE RANGE	<i>WORKING</i> -13 °F to +158 °F <i>STORAGE</i> -22 °F to +158 °F
HOUSING MATERIAL	Nickel-plated brass
LENS	PMMA
WEIGHT	2.1 oz
APPROVALS	CE UL
ELECTRICAL CONNECTION	Quick disconnect type V1
ADDITIONAL DATA	See pages 400-402

Attaching Fiber Optic Cable

1. Position mounting plate on sensor so that alignment tabs fit into lens holes.



2. With fiber optic cable pulled through metal capnut opening, position cable on mounting plate.



3. Hand tighten metal capnut on sensor.



*See pages 785-820 for glass fiber optic lengths and specifications.

*NPN normally open, NPN normally closed, PNP normally open, or PNP normally closed
 †See dimensional drawings for LED functions.

Wiring Diagrams

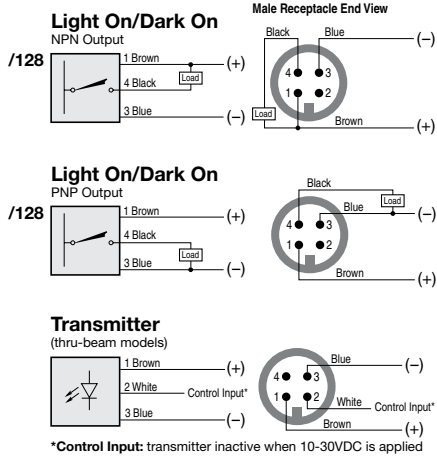
DC



Quick Disconnect

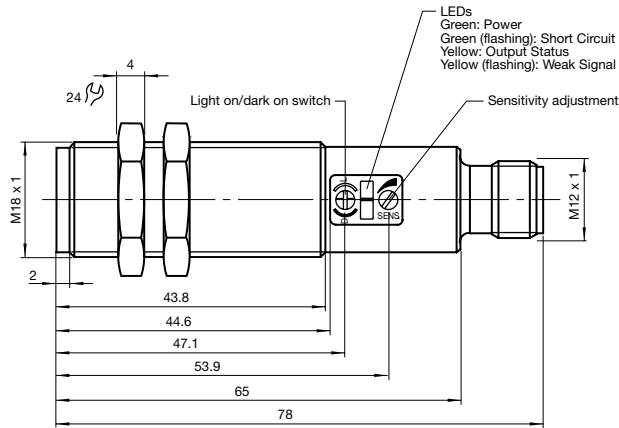
Note: Wiring diagrams show quick disconnect pin numbers.

V1 Type



Dimensions (mm)

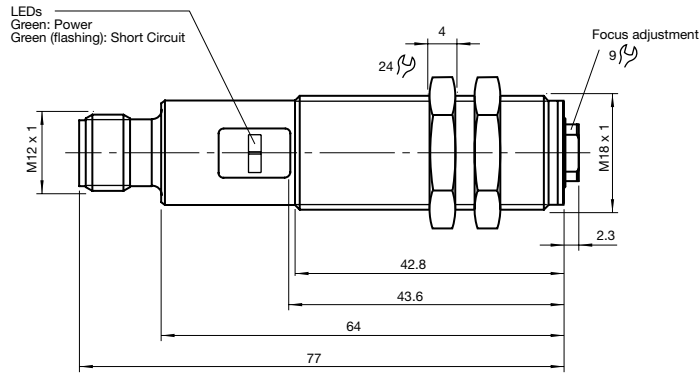
- VT18-8-H-120-M...
- VT18-8-400-M...
- VL18-54-M...
- VSE18-M...
- VL18LL-M...



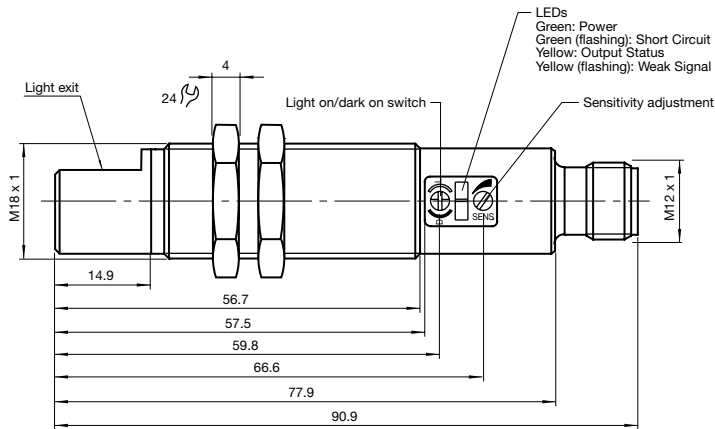
Photoelectric V18 Series 18 mm Diameter

Dimensions (mm)

VS18-M...



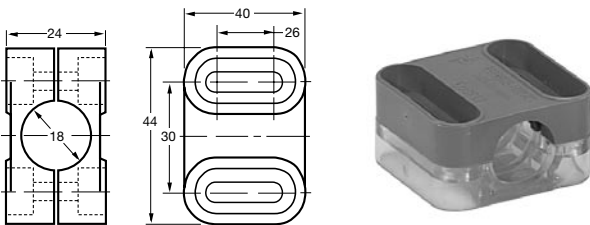
VL18-54-MS...



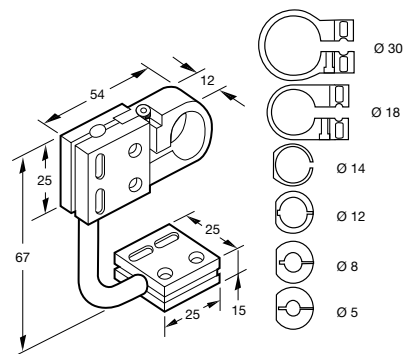
Accessories

(Dimensions in mm)

Adjustable Mounting Bracket Model BF18



Universal Mounting Bracket Model BF5-30



Photoelectric V18 Series 18 mm Diameter