

(a)

STR

# SIC IONIZER PWR ION HI

# A CAUTION! | ATTENT

Hazardous voltage, Risk of electric s
 Tension dangereuse, Risque de chr

## And see the gain lonizers

Quick Overview



## And see the gain

"The invisible enemy". "The unseen". These are just a few ways to call and define static electricity.

Unfortunately, static is not like an air leakage that you can hear. Static is indeed invisible, but its effects can certainly be seen. In our visits to customers premises, no matter if they are big, medium or small production plants, we often encounter many locations suffering from the effects of static. Plastic tubes actually levitating, plastic wraps all twisted, or very unstable packaging processes due to clinging bottles. Unfortunately in many occasions, unseen means untackled. Luckily, static can be solved in a very quick, easy and efficient way: with an ionizer.

Implementing an ionizer does not imply complicated installation or maintenance. Basically, you must simply find the right one, plug it in, and forget about annoying unplanned stops, messy products or jolts. Simplicity & effectiveness: that is the motto of our product range.

With SMC's Ionizers you will:

 Forget about product rejections, futile maintenance hours and machine downtime provoked by static electricity – plug it in and see the benefits right away

- **Optimize the quality of your process** – the installation of the appropriate solution will increase production speed and improve output quality in a simple way.
- Create a safe environment for your workers eliminate jolts produced by static.
- Guarantee getting the proper antistatic solution – a wide range for measurement, removal and control of static electricity is at your disposal.

If only all problems could be solved so easily.

Simplicity & effectiveness: that is the motto of our product range.

## **General specifications**

#### **IZF Series**

- ▶ Ion balance: ±5 V or ±13 V. (Depends on series).
- Effective electricity elimination distance: 50 to 1600 mm. (Depends on series)







IONIZER

7 types of alarms (Depends on series)

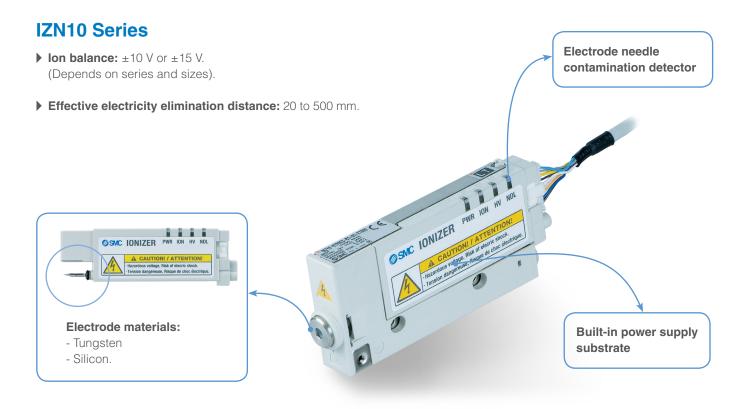


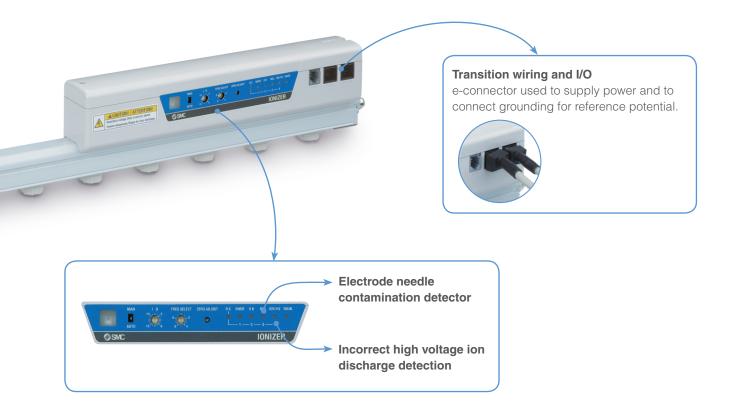
#### **IZS40/41/42 Series**

- ▶ Ion balance: ±30 V (±25 V IZS42).
- Effective electricity elimination distance: 50 to 2000 mm.
- Voltage application method: DC, AC, Sensing AC and Dual AC. (Depends on series)









SMC | 5

## Static electricity elimination equipment lineup

		Features	lon generation method	lon balance [V]	Flow rate [I/min]
Bar type ic	nizer, IZS series				
IZS40		<ul> <li>Effective and efficient in the rapid elimination of static</li> <li>Built-in, high accuracy and feedback</li> </ul>	Corona discharge	±30	300 (High-speed) <sup>1)</sup> 156 (Energy saving) <sup>1)</sup>
IZS41	- 10000 111	sensors - Energy saving and high speed de-ionizing cartridges - Low maintenance electrode cartridges			
IZS42		<ul> <li>Electrostatic removal from flat surfaces and remote surfaces</li> <li>Suitable for applications in all industries</li> </ul>		±25	
Fan type io	onizer, IZF series				
IZF10			Corona discharge	±13	IZF10: 660 IZF10L: 460
IZF10R		<ul> <li>Compact and lightweight</li> <li>Flow rate adjustment function</li> <li>Electrostatic removal in the atmosphere around a work piece</li> <li>Operates without the need of a compressed air supply</li> <li>Suitable for applications in all industries</li> </ul>		±13	190 to 800
IZF21/31				±5	IZF21: 400 to 1800 IZF31: 1300 to 4400
Nozzle typ	Nozzle type ionizer, IZN series				
IZN10		<ul> <li>Slim design</li> <li>Built-in power supply substrate</li> <li>Energy saving and large flow nozzles</li> <li>Removal from a small work piece or total electrostatic removal in confined spaces. Suitable for dust removal.</li> <li>Suitable for applications in all industries</li> </ul>	Corona discharge	±10 (Energy saving) ±15 (Large flow)	5 to 45 (0.1 MPa)

1) These values have been calculated with a bar length of 1120 mm and an inlet pressure of 0.3 MPa (relative pressure).

Effective electricity elimination distance [mm]	Discharge output [kV]	Power supply voltage	Temperature range [°C]	Electrode material	Others
50 to 2000	±7	24 VDC ±10 %	0 to 40	<ul> <li>Prevention of the second second</li></ul>	<ul> <li>High charge error</li> <li>Electrode needle contamination detector</li> <li>Ion balance adjustment</li> <li>I/O signals (PNP/NPN)</li> <li>LED indicators</li> <li>Electrode cartridge drop</li> </ul>
	±6				<ul> <li>Drop prevention cover</li> <li>Electrode needle cleaning kit</li> </ul>
300 to 1200	±5	24 VDC ±10 %	0 to 50 (Operation) -10 to 60 (Storage)	Tungsten	<ul> <li>Built-in emitter cleaner (Option)</li> <li>Fan air filter (Optional)</li> <li>Power supply failure alarm</li> <li>Incorrect high voltage alarm</li> <li>Fan motor failure alarm</li> <li>CPU failure alarm</li> <li>Maintenance alarm</li> <li>Emitter cartridge mounting failure alarm</li> </ul>
50 to 1600					<ul> <li>Automatic cleaning failure alarm</li> <li>Electrode needle cleaning kit</li> </ul>
20 to 500	±2.5	24 VDC ±10 %	0 to 55	Tungsten Silicon (Available as special)	<ul> <li>- 360° turnable nozzle</li> <li>- External switch input function (2 inputs):</li> <li>· Detection of pressure drop of compressed air</li> <li>· Energy saving with electrostatic sensor</li> <li>- Electrode needle cleaning kit</li> </ul>

## Bar type ionizer

3 solutions for fast and effective static removal



#### **Main features**

- Standard type Series IZS40
   Simple operation: Only power ON/OFF required.
- Feedback sensor type Series IZS41 Feedback sensor enables the rapid elimination of static electricity.
  - Energy saving run mode
  - Continuous neutralisation run mode.
- Dual AC type Series IZS42
   Reduced potential amplitude: 25 V or less.
- lon balance: ±30 V

- Reduction of adjustment and maintenance time using an auto balance sensor:
  - Built-in type (standard): The sensor is installed within the ionizer body and may be mounted anywhere
  - High accuracy type (option): "Ion balance adjustment at external signal input" or "Ion balance adjustment at any time" can be selected.
- Setting ionizer with remote control: can recognize and control up to 16 ionizers through address setting

Stocked items

- Low maintenance electrode cartridges
- Transition wiring may be used

					<ul> <li>Stocked items</li> </ul>
Part number	Characteristics	Bar Length [mm]	Input Signal	Output Signal	Operating Range [mm]
IZS40-340-06B •		340			
IZS40-400-06B ●		400			
IZS40-460-06B ●		460			
IZS40-580-06B ●		580			
IZS40-640-06B ●		640			
IZS40-820-06B •	Plug & Play	820			
IZS40-1120-06B •	i iug a riay	1120			
IZS40-1300-06B •		1300			
IZS40-1600-08B ●		1600			- 50 ~ 2000
IZS40-1900-08B •		1900			
IZS40-2320-08B		2320			
IZS40-2500-08B		2500			
IZS41-340P-06B ●		340			
IZS41-400P-06B ●		400			
IZS41-460P-06B ●		460			
IZS41-580P-06B ●		580			
IZS41-640P-06B ●		640			
IZS41-820P-06B ●	Applicable for feedback	820	2 x PNP	2 x PNP	
IZS41-1120P-06B ●	sensor	1120	2 / 1 101	2 / 1 101	
IZS41-1300P-06B •		1300			
IZS41-1600P-08B ●	-	1600			
IZS41-1900P-08B ●		1900			
IZS41-2320P-08B		2320			
IZS41-2500P-08B		2500			

## Selected part numbers

Stocked items

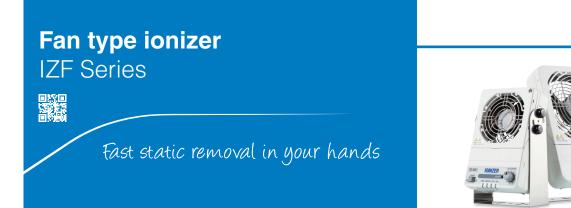
Part number	Characteristics	Bar Length [mm]	Input Signal	Output Signal	Operating Range [mm]
IZS42-340P-06B		340	2 x PNP	2 x PNP	50 ~ 2000
IZS42-400P-06B		400			
IZS42-460P-06B		460			
IZS42-580P-06B		580			
IZS42-640P-06B		640			
IZS42-820P-06B	Potential amplitude	820			
IZS42-1120P-06B	reduction specification	1120			
IZS42-1300P-06B		1300			
IZS42-1600P-08B		1600			
IZS42-1900P-08B		1900			
IZS42-2320P-08B		2320			
IZS42-2500P-08B		2500			

Incl. 3 m power supply cable and bracket.
 Non-standard bar length available upon request, with -X10 option.

Accessories	<ul> <li>Stocked items</li> </ul>	
Part number	Description	
IZS30-M2	Electrode needle cleaning kit	
IZS41-RC •	Remote control	
IZS41-CF02 •	Transition wiring cable (2 m)	
IZS40-NT	High speed de-ionizing cartridge (tungsten)	
IZS40-NJ O	Energy saving - type de-ionizing cartridge (tungsten)	
IZS40-E3 •	Electrode cartridge drop prevention cover for 3 electrodes	
IZS40-E4 •	Electrode cartridge drop prevention cover for 4 electrodes	
IZS40-E5 •	Electrode cartridge drop prevention cover for 5 electrodes	
IZF10-CG2EU	AC Adapter for IZS40	
IZS41-CG2EU	AC Adapter for IZS41/42	
IZS40-BE	End bracket	
IZS40-BM •	Intermediate bracket	
IZS31-DF	Feedback sensor	
IZS31-DG O	Auto balance sensor	

#### **Accessories**

9 SMC.





## IZF21/31 Series main features

- Extensive and rapid static neutralisation
- lon balance: ±5 V
- Optional adjustable louver to adjust the static neutralisation area
- Improved performance and easier maintenance through several functions and features:
  - Functions: averaging function, automatic balance adjustment function, optional automatic cleaning function, flow rate adjustment function
  - Tool-less replaceable emitter cartridge
  - Optional filter to prevent the entry of foreign matter to the motor and to avoid short-circuit between emitters.
- Modular, compact and slim design

#### **Selected part numbers**

Ociceica pari	<ul> <li>Stocked items</li> </ul>	
Part number	Flow rate [l/min]	Input/Output
IZF21-P	400 to 1800	PNP
IZF31-P	1300 to 4400	FINE

Included 3 m power supply. AC adapter, bracket, automatic cleaning unit, louver and filter not included.
 NPN option available upon request.

Stocked items

#### Accessories

		<ul> <li>Stocked items</li> </ul>
Part	number	Depaription
IZF21	IZF31	Description
IZF21-NT	IZF31-NT	Emitter cartridge
IZS4	1-CP 🔵	Power supply cable (3 m)
IZS4	1-CPZ 🔵	Power supply cable (10 m)
IZF2	1-CG2EU	AC adapter (with AC cord)
IZF2	1-CG2 🔵	AC adapter (without AC cord)
IZF21-HW	IZF31-HW	Adjustable louver
IZF21-B1	IZF31-B1 🔵	Bracket
IZF21-HS	IZF31-HS	Automatic cleaning unit
IZF21-FL	IZF31-FL	Air suction side filter: filter
IZF21-FU	IZF31-FU 🔵	Air suction side filter: filter + filter holder
IZF21-M3	IZF31-M3	Cleaning arm (for automatic cleaning unit)
IZS3	0-M2 🔵	Cleaning kit
IZS30-M1 ●		Adjustment screwdriver

#### IZF10/10R Series main features

- Rapid static neutralisation
- Two types available (IZF10): Fast elimination of static electricity type: 1.5 seconds deionising time. Low noise fan type: 48 dB(A).
- Flow rate adjustment function (IZF10R)
- lon balance: ±13 V
- Alarm functions: high-voltage error, electrode needle contamination detector

#### **Selected part numbers**

S

Part number	Nozzle type	Flow rate [I/min]	Output
IZF10-P	Rapid deionising type	660	
IZF10-LP	Low noise type	460	PNP
IZF10R-P	_	190 to 800	

1) Power supply cable (3 m) included. AC adapter, bracket and e-connector not included.

2) NPN option available upon request.

#### Accessories

ALLESSU	165	<ul> <li>Stocked items</li> </ul>
Part r	number	Description
IZF10	IZF10R	Description
IZF10-CP •	IZF10R-CP	Power supply cable (3 m)
IZF10-CPZ •	IZF10R-CPZ	Power supply cable (10 m)
IZF10-CG2EU	IZF10R-CG2EU	AC adapter (with AC cord)
IZF10-CG2 O	IZF10R-CG2	AC adapter (without AC cord)
IZF1	0-B1 🔵	Bracket
IZF10-A1	IZF10R-A1	Cartridge case
ZS-28-C •	—	E-con connector
IZS30-M2 •		Cleaning kit
IZS30-M1		Adjustment screwdriver

## Nozzle type ionizer IZN10 Series

聖得

## Efficient local static removal



## Main features

Different nozzles to adapt several applications Available either as IZN10 (standard type) and IZN10-X367 (with right angles and 360° rotation): Energy saving static electricity elimination nozzle.

High flow static electricity elimination nozzle.

- Ion balance: ±10 V (Energy saving), ±15 V (Large flow)
- Compact and slim design

- With built-in power supply substrate
- Easy maintenance: electrode needle contamination detector with easy replacement of the cartridge
- Mounting variations: direct mount, bracket mount
- **External switch input function (2 inputs).** Switch output: PNP/NPN.

#### **Selected part numbers**

Stocked items				
Part number Nozzle type		Port size	Output specification	
IZN10-01P06 Energy saving static electricity elimination nozzle				
IZN10-02P06 •	High flow rate nozzle			
IZN10-11P06	Rc1/8 female threads for piping	Ø 6 (metric size)	PNP	
IZN10-01P06-X367 •	Energy saving static electricity elimination nozzle			
IZN10-02P06-X367 •	High flow rate nozzle			

1) Included 3 m power supply cable.

2) NPN option available upon request.

#### Accessories

Stocked items

Part number	Description
IZN10-B1 •	L Bracket
IZN10-B2 •	Pivoting bracket
IZN10-B3 •	Din rail mounting bracket
IZN10-CP	Power supply cable (3 m)
IZN10-CPZ •	Power supply cable (10 m)
IZN10-NT	Electrode needle assembly
IZS30-M2	Electrode needle cleaning kit

## Other static electricity elimination equipment

#### **Desktop duster box – ZVB Series**



- Integration of three processes static neutralisation, dust removal and dust collection - in a single box by using nozzle type ionizers
  - Efficient static neutralisation with a diffusion-type nozzle
  - Dust removal with dedicated nozzles for the air blow
  - Dust collection with a maintenance-free pneumatic dust collector.
- ▶ Ion balance: ±10 V
- Use of emitters that are easy to remove, replace and clean
- Optional photoelectric sensor reflecting plate for automatic workpiece detection.

#### Selected part numbers

Part number	Static neutralisation space [mm] (width x depth)	Dimensions [mm] (width x depth)	Dust collector: exhaust flow rate [l/min]	Air consumption [I/min]	lonizer: no. of mounted units
ZVB20-B	202 x 212	210 x 297	410 to 1580	420	1
ZVB40-B	392 x 298	400 x 384	820 to 3160	800	2

#### **Accessories**

Part number	Description	
ZVB-D3A	3 m exhaust duct hose	
ZVB-D1A	1 m exhaust duct hose	
ZVB-P1A	Dust collecting bag	
ZVB-AC1EU	AC adapter	
IZN10-NT-X325	Emitter	
AS2001F-06D-X678	Air blow adjustment needle valve	

#### Electrostatic sensor – IZD10 Series



- Potential measurement: ±20 kV (detected at a 50 mm distance), ±0.4 kV (detected at a 25 mm distance)
- Analogue output: the measured electrostatic potential is converted into a 1 to 5 V output that can be used with the electrostatic monitor IZE11
- Small and easy to mount.

#### Selected part numbers

Selected part numbers		<ul> <li>Stocked items</li> </ul>
Part number	Potential measurement	Output voltage
IZD10-110	±0.4 kV	1 to 5 V
IZD10-510	±20 kV	1 to 5 V

CE

## **Electrostatic monitor – IZE11 Series**



- Electrostatic sensor IZD10 monitor
- Output: switch output x 2 + analogue output (1 to 5 V, 4 to 20 mA)
- Supports two types of sensors: ±0.4 kV and ±20 kV
- Two colour display (red and green)
- Minimum unit setting: 0.001 kV (at ±0.4 kV), 0.1 kV (at ±20 kV)
- ▶ Display accuracy: ±0.5 %
- Connection by connector:
  - Connector for power supply / output
  - E-con connector: connector to sensor.

#### Selected part numbers

Selected part numbers • Stocked items			
Part number	Input / Output	Connector cable for power supply/output	Connector for sensor connection
IZE112-LC	2 PNP + (1-5 V)	Yes	Yes
IZE113-LC	2 PNP + (4-20 mA)	Yes	Yes

#### Accessories

#### Stocked items

Part number	Description
ZS-28-A •	Connector cable for power supply/output (2 m)
ZS-28-B •	Bracket
ZS-28-C •	Connector for sensor connection
ZS-27-C •	Panel mount adapter
ZS-27-D •	Panel mount adapter + Front protective cover

#### Handheld electrostatic meter – IZH10 Series



- Portable sensor
- Compact and lightweight
- Rated charge amount range: ±20.0 kV
- Functions:
  - Peak & bottom display function
  - Zero clear function
  - Battery indicator
  - Backlight display

#### Selected part numbers

#### Stocked items

Stocked items

Part number	Option	
IZH10	None	
IZH10-H •	High-voltage measuring handle	

#### Accessories

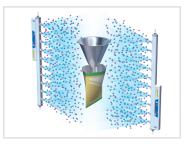
Part number	Description	
IZH-A-01	Ground wire, 1.5 m	
IZH-B-01	Soft case	
IZH-C-01	High-voltage measuring handle	

1) IZH-B-01 and IZH-A-01 already attached to the IZH series.

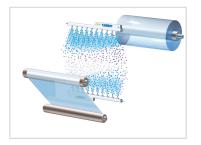
## **Applications**



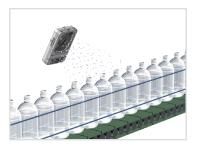
Prevents static electricity charging when opening bags and clinging on the inside of confectionary bags



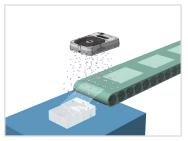
**Rolls of films** Prevents dust adhesion and winding failure due to wrinkles



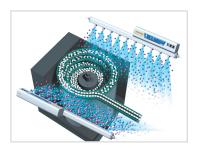
**PET bottles** Prevents trip-resistance during conveying and dust adhesion



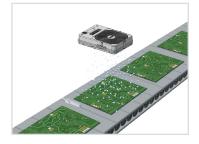
Film moulded goods Prevents attaching to conveyer and dispersion of finished goods



Parts feeder Prevents clogging



Large electric substrates Prevents element disruption due to discharge and dust adhesion



Films Prevents dust sticking



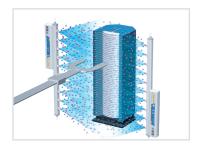
Packaging materials made from polystyrene foam

Prevents darkening due to dust adhesion

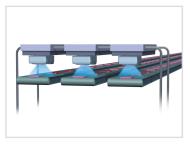


Wafer transfer

Prevents breakage due to discharge between wafers and hands



**Conveyors** Eliminates static electricity in a narrow space



#### Resin molded goods

Improves detachability of moulded goods from a die



Lenses Removes dust and prevents dust adhesion



#### IC chips

Prevents breakdown of electric parts and detachment failure



Small electric substrates Prevents breakdown of electric parts



#### Desktop Duster Box Applications

Electronic components

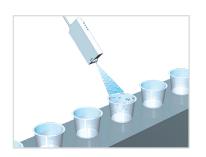


Lamp cover

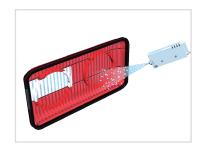


#### **Plastic cups**

Removes dust clinging to cup interiors



Lamp covers Eliminates dust clinging



Lens



Cosmetic case



#### Smartphone



Parts for home appliances



## Antistatic products



SMC has a lineup of products that prevent from charging static electricity.

#### **Tubing**



- ▶ TAS/TAU Series Antistatic tubing
- TAU-X100 Series Antistatic coloured tubing.

### **Fittings**



▶ KA Series – Antistatic one-touch fittings

## Antistatic speed controller

AS-X260 Series - In-line type/elbow type



#### **Conductive vacuum pads**

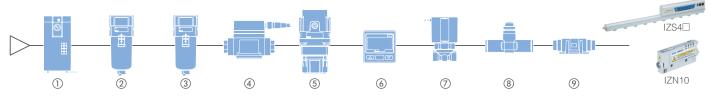


- > ZP3 Series Conductive NBR/conductive silicon rubber
- ZP2 Series Conductive NBR/conductive silicon rubber
- > ZP Series Conductive NBR/conductive silicon rubber.

## **Related product**

SMC can provide all the equipment required to supply air to the ionizer. By using the equipment as shown below you can decrease maintenance, prevent damage and also enjoy energy saving.

#### Recommended pneumatic circuit diagram



#### 1) Air Dryer – IDFA Series

Decreases the dew point of compressed air.

Limits moisture generation which can lead to damage.



④ Digital Flow Switch – PF2A Series 2/3-Colour Digital Flow Switch – PFM Series

Decreases air consumption with flow control.



⑦ Port Solenoid Valve – VX2 Series Pilot Operated 2 Port Solenoid Valve for Dry Air – VQ Series



#### ② Air Filter – AF-A Series

Eliminates solid foreign matter such as power particles in the compressed air.



(5) Regulator – AR-B Series Decreases air consumption by setting to an appropriate pressure.



(8) Speed Controller – AS-FS Series Regulates to the appropriate air volume depending upon the installation condition. Decreases the air consumption.



#### **③ Mist Separator – AFM-A Series**

Eliminates oil mist which is difficult to eliminate with an air filter.



(6) **Digital Pressure Switch – ISE30A Series** The pressure control prevents the ability of static electricity removal from being reduced in accordance with the reduction of air pressure.



(9) Clean Air Filter – SFD Series

Built-in capillary element. Nominal filtration rating: 0.01 µm. Adopted hollow fiber elements with over 99.99 % filtering efficiency do not contaminate workpieces.





#### **SMC Corporation**

Akihabara UDX 15F, 4-14-1 Sotokanda, Chiyoda-ku, Tokyo 101-0021, JAPAN Phone: 03-5207-8249 Fax: 03-5298-5362

#### www.smc.eu

Austria	+43 (0)2262622800	W
Belgium	+32 (0)33551464	W
Bulgaria	+359 (0)2807670	W
Croatia	+385 (0)13707288	W
<b>Czech Republic</b>	+420 541424611	W
Denmark	+45 70252900	W
Estonia	+372 6510370	W
Finland	+358 207513513	W
France	+33 (0)164761000	W
Germany	+49 (0)61034020	W
Greece	+30 210 2717265	W
Hungary	+36 23513000	W
Ireland	+353 (0)14039000	W
Italy	+39 0292711	W
Latvia	+371 67817700	W

ww.smc.at ww.smc.bg ww.smc.hr ww.smc.cz ww.smcdk.com ww.smc.fi ww.smc-france.fr ww.smc.de ww.smchellas.gr /ww.smc.hu ww.smcitalia.it ww.smclv.lv

office@smc.at ww.smcpneumatics.be info@smcpneumatics.be office@smc.bg office@smc.hr office@smc.cz smc@smcdk.com www.smcpneumatics.ee smc@smcpneumatics.ee smcfi@smc.fi info@smc-france.fr info@smc.de sales@smchellas.gr office@smc.hu www.smcpneumatics.ie sales@smcpneumatics.ie mailbox@smcitalia.it info@smclv.lv

Lituania	+370 5 2308118	www.smclt.lt	info@smclt.lt
Netherlands	+31 (0)205318888	www.smcpneumatics.nl	info@smcpneumatics.nl
Norway	+47 67129020	www.smc-norge.no	post@smc-norge.no
Poland	+48 222119600	www.smc.pl	office@smc.pl
Portugal	+351 226166570	www.smc.eu	postpt@smc.smces.es
Romania	+40 213205111	www.smcromania.ro	smcromania@smcromania.ro
Russia	+7 8127185445	www.smc-pneumatik.ru	info@smc-pneumatik.ru
Slovakia	+421 (0)413213212	www.smc.sk	office@smc.sk
Slovenia	+386 (0)73885412	www.smc.si	office@smc.si
Spain	+34 902184100	www.smc.eu	post@smc.smces.es
Sweden	+46 (0)86031200	www.smc.nu	post@smc.nu
Switzerland	+41 (0)523963131	www.smc.ch	info@smc.ch
Turkey	+90 212 489 0 440	www.smcpnomatik.com.tr	info@smcpnomatik.com.tr
UK	+44 (0)845 121 5122	www.smcpneumatics.co.uk	sales@smcpneumatics.co.uk

Printing VT 00 Printed in Spain ION-01D-UK