INTRINSICALLY SAFE
SAFETY SYSTEMS

Product Catalogue 2025

MM GROUP s.r.o.
CZECH REPUBLIC
1992

WWW.ATEXCERTIFIED.EU

Contents

ISKROBEZPIECZNIE
Paweł Piasecki
office@atexcertified.eu
ph. +48 693 345 823

Measuring, separating and power supply units

ISKROBEZPIECZNIE
Paweł Piasecki
office@atexcertified.eu
ph. +48 693 345 823

MM 200. / 201. / 202. series
Intrinsically Safe Power Supply Units

INTRINSICALLY SAFE
SAFETY SYSTEMS

Intrinsically safe power supply units intended for powering devices located in the explosion hazard zone.
Their power supply input is galvanically separated from the power output.

Product range

- MM 2005: 5 V, single-channel
- MM 2005 B: 5 V, single-channel, increased power
- MM 2009: 9 V, single-channel
- MM 2012: 12 V, single-channel
- MM 2024: 24 V, single-channel

Main characteristics

Classification	II (1)G [Ex ia Ga] IIC; I (M1) [Ex ia Ma] I
ATEX certificate	FTZU 02 ATEX 0308
Power supply U_n	12-80 V_{DC}, 80-230 V_{AC}
Number of channels	1, 2, 3, 4
Output voltage U_o	from 10.8 V to 28.0 V
Output current I_o	from 93 mA to 221 mA
Output power P_o	from 0.407 W to 1.8 W
Ambient temperature T_a	from -20°C to 80°C
Housing protection level	IP20
Mounting	DIN 35 rail
Dimensions (W×H×D)	22,5 × 99 × 114,5 mm

ISKROBEZPIECZNIE
Paweł Piasecki
office@atexcertified.eu
ph. +48 693 345 823

MM GROUP s.r.o. CZECH REPUBLIC 1993

MM 0312 & 3012 AC/DC
Intrinsically Safe Power Supply Units

Intrinsically safe power supply units intended for powering devices located in the explosion hazard zone. Their power supply input is galvanically separated from the power output. Unlike traditional power supply units with linear characteristics where the voltage drops proportionally to the electric current load, MM 0312 AC/DC and MM 3012 AC/DC devices allow for a voltage stability regardless of the electric current load connected.

MM 0312 AC/DC

Classification	**II (1)G [Ex ia Ga] IIB; I (M1) [Ex ia Ma] I**
ATEX certificate	FTZU 12 ATEX 0164

Main characteristics

Power supply U_n	230 V/50 Hz lub 24 $V_{AC/DC}$
Power consumption P_{max}	max. 8 VA
Number of channels	1
Short circuit resistant	yes
Recovery/start time	50 μs
Output voltage U_o	5 V @ 200 mA; 12 V @ 200 mA; 15 V @ 170 mA
The gas group IIB:	U_o: 12.6 V; I_o: 560 mA; C_o: 3 μF; L_o: 300 μH; P_o: 3.53 W
Methane I:	U_o: 12.6 V; I_o: 560 mA; C_o: 10 μF; L_o: 750 μH; P_o: 3.53 W
Housing protection level	IP20
Mounting	DIN 35 rail
Dimensions (W×H×D)	159 × 58 × 90 mm

MM 3012 AC/DC

Classification	**II (1)G [Ex ia Ga] IIA; I (M1) [Ex ia Ma] I**
ATEX certificate	FTZU 14 ATEX 0197

Main characteristics

Power supply U_n	90-265 V_{AC} 90-250 V_{DC}, 9-18 V_{DC}, 18-36 V_{DC}, 36-72 V_{DC}
Power consumption P_{max}	< 50 VA
Number of channels	1
Short circuit resistant	yes
Recovery/start time	500 μs
Output voltage U_o	5 V @ 1.5A; 12 V @ 1.5 A; 16 V @ 0.9 A
The gas group IIA	C_o: 30 μF, L_o: 125 μH for all types
Methane I	C_o: 30 μF, L_o: 125 μH for all types
Ambient temperature T_a	from -20°C to 80°C
Housing protection level	electronics > IP54, terminals IP20
Dimensions (W×H×D)	225 × 66 × 65 mm

ISKROBEZPIECZNIE
Paweł Piasecki
office@atexcertified.eu
ph. +48 693 345 823

MM 70.. / 72.. series
Zener Barriers with Linear Characteristic

INTRINSICALLY SAFE
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Intrinsically safe Zener barriers for positive or negative polarity signals in grounded circuits are used as an interface between intrinsically safe circuits and circuits that are not intrinsically safe. Barriers must be sufficiently grounded (R<1 Ω) using an additional terminal located in the mounting socket of the DIN 35 rail.

Classification	**I (M1) [Ex ia Ma] I; II (1)G [Ex ia Ga] IIC** **I M1 Ex ia I Ma; II 1G Ex ia IIC T4 Ga**
ATEX certificate	**OBAC 19 ATEX 0291X**

Product range

- MM JBB 702.: Single-channel barrier
- MM JBB 704., 714.: Dual-channel barrier
- MM JBB 708.+,718.+: Single-channel barrier with feedback diode, 4-20 mA current
- MM JBB 705.+, 715.+: Dual-channel barrier, alternating or bipolar signals
- MM JBB 707., 717., 727.: Single-channel barrier, alternating or bipolar signals, star topology

Main characteristics

Number of channels	1, 2
Ambient temperature Ta	from -20°C to 60°C
Housing protection level	IP20
Mounting	DIN 35 rail
Dimensions (W×H×D)	12.5 × 99 × 114.5 mm

ISKROBEZPIECZNIE
Paweł Piasecki
office@atexcertified.eu
ph. +48 693 345 823

MM GROUP s.r.o. CZECH REPUBLIC 1993

MM 9474 series
ATEX certified ethernet interface

INTRINSICALLY SAFE
SAFETY SYSTEMS

Intrinsically safe 9474-ET/ETG Ethernet interface equipped with RJ45 connectors provides connectivity between non-IS and IS Ethernet networks. ATEX Certified barrier must be sufficiently grounded (R<1 Ω) using an additional terminal located in the mounting socket of the DIN 35 rail. This is the same requirement as for any device with a Zener barrier protection. The wiring used should have a cross-section of 0.75 mm^2. The Gigabit version is suitable for gas groups IIB, the 100 Mbps version is suitable for gas groups IIC. It is recommended to use an RJ 45 Cat.5e cable. The LAN connection in a hazardous area is marked with blue SAFE label to avoid confusion.

Classification	**II 1(G) [Ex ia Ga] IIC; II 1(G) [Ex ia Ga] IIB; II 1(G) [Ex ia Da] IIIC; I (M1) [Ex ia Ma] I**
ATEX certificate	FTZU 19 ATEX 0000

Product range

- MM 9474-ET: Ethernet networking 10/100 Mb/s
- MM 9474-ETG: Gigabit Ethernet networking 10/100/1000 Mb/s

Main characteristics

Number of channels	1, 2
Ambient temperature Ta	from -20°C to 60°C
Housing protection level	IP20
Mounting	DIN 35 rail
Dimensions (W×H×D)	12.5 × 99 × 114.5 mm

ISKROBEZPIECZNIE
Paweł Piasecki
office@atexcertified.eu
ph. +48 693 345 823

MM GROUP s.r.o. CZECH REPUBLIC 1993

MM 501. / 502. / 503. series
Intrinsically Safe Relays (switching amplifiers)

INTRINSICALLY SAFE
SAFETY SYSTEMS

Intrinsically safe relays acting as active barrier used to supply and transmit signal from or to the explosion hazard zone. The power supply input as well as device's input/output circuits are galvanically separated from each other. The input circuits are designed to accept inductive, capacitive and other sensors according to EN 60947-5-6 (NAMUR), clean contacts as well as voltage or current impulses. The output can be equipped with a power relay or configured as Open Collector NPN.

Classification	**II (1)G [Ex ia Ga] IIC; I (M1) [Ex ia Ma] I**
ATEX certificate	FTZU 02 ATEX 0284

Product range

- MM 5011: Single-channel
- MM 5011 SW: Single-channel, input signal negation
- MM 5011 B: Single-channel, line fault detection
- MM 5011 C: Single-channel, line fault detection, fault status output
- MM 5012: Single-channel, line fault detection, OC output
- MM 5013: Single-channel, OC output
- MM 5013 A: Single-channel, dual OC output
- MM 5013 B: Single-channel, line fault detection, dual OC output
- MM 5013 C: Single-channel, line fault detection, dual OC output, LFD output
- MM 5014: Single-channel, line fault detection, dual relay output
- MM 5014 A: Single-channel, line fault detection, dual relay output, LFD output
- MM 5015: Dual-channel, line fault detection, dual OC output
- MM 5015 A: Dual-channel, line fault detection, dual OC output, LFD output
- MM 5015 B: Dual-channel, dual OC output
- MM 5015 C: Dual-channel, OC output, start/stop function
- MM 5016: Dual-channel, dual relay output
- MM 5017: Dual-channel, line fault detection, dual relay output, LFD output
- MM 5018: Dual-channel, line fault detection, dual relay output
- MM 5019: Triple-channel, triple relay output
- MM 5019 A: Triple-channel, triple OC output
- MM 5020: Single-channel, reversing, binary signals conversion
- MM 5032: Pulse isolator, limit or level switching, OC output
- MM 5033: Pulse isolator, limit or level switching, relay output
- MM 5032 P: Pulse isolator, posistor protection, OC output
- MM 5033 P: Pulse isolator, posistor protection, relay output
- MM 5032 STP: Power supply unit for conductivity sensors, OC output
- MM 5033 STP: Power supply unit for conductivity sensors, relay output

Main characteristics

Power supply	12-80 V_{DC}, 80-230 V_{AC}
Number of channels	1, 2, 3
Input from Ex / output to normal area	yes
Input from normal area / output to Ex	yes
Input signals	NAMUR, relay, impulse
Outputs	relay 230 V/10 A; OC 28 V/50 mA
Ambient temperature Ta	from -20°C to 60°C
Housing protection level	IP20
Mounting	DIN 35 rail

ISKROBEZPIECZNIE
Paweł Piasecki
office@atexcertified.eu
ph. +48 693 345 823

MM GROUP s.r.o. CZECH REPUBLIC 1992

MM 504. / 505. / 506. series

Intrinsically Safe Isolating Amplifiers (separating amplifiers)

INTRINSICALLY SAFE
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Intrinsically safe separating amplifiers acting as active barriers used to supply and transmit signal from or to the explosion hazard zone. The input supply powering the device as well as its input/output circuits are galvanically separated from each other. The input and output circuits are designed to be active or passive.

Classification	**II (1)G [Ex ia Ga] IIC; I (M1) [Ex ia Ma] I**
ATEX certificate	FTZU 02 ATEX 0308

Product range

- MM 5040: Dual-channel, combined driver/repeater
- MM 5041 x: Analogue 4-20 mA signal barrier I/I
- MM 5041 Pr: Analogue signal barrier I/I, programmable repeater/comparator
- MM 5041 A: Analogue signal barrier U/I
- MM 5041 B: Analogue signal barrier I/U
- MM 5041 C: Analogue signal barrier U/U
- MM 5042: Analogue signal barrier I/I, bidirectional communication (HART)
- MM 5043: Analogue signal barrier I/I/I, dual output
- MM 5044: Analogue signal barrier I/I, dual-channel
- MM 5044 PT 100: PT100/I(U) or R/I(U) barrier, dual-channel
- MM 5044 type 3: Analogue signal barrier I/I, I/U, U/I, U/U, triple-channel
- MM 5045: Current loop isolation driver
- MM 5046: Current loop isolation driver, bidirectional communication (HART)
- MM 5049: Current loop isolation driver, comparator, I/contact, dual output
- MM 5050: PT100/I(U) or R/I(U) converter, single-channel
- MM 5064: RS485, CAN and RS422 bus converter/repeater

Main characteristics

Power supply	12-80 V_{DC}, 80-230 V_{AC}
Number of channels	1, 2, 3
Input from Ex / output to normal area	yes
Input from normal area / output to Ex	yes
HART	yes
Input / output	0-10 V, 4-20 mA; RS485; CAN
Ambient temperature Ta	from -20°C to 60°C
Housing protection level	IP20
Mounting	DIN 35 rail

ISKROBEZPIECZNIE
Paweł Piasecki
office@atexcertified.eu
ph. +48 693 345 823

MM GROUP s.r.o. CZECH REPUBLIC 1993

MM 311. series
Intrinsically Safe Humidity and Temperature Detectors

INTRINSICALLY SAFE
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Intrinsically safe room temperature and humidity detectors for outdoor and indoor use. Measured temperature and relative humidity are further converted to other humidity expressions - dew point temperature, absolute humidity, specific humidity, mixing ratio or specific enthalpy.

Classification	**II 3G Ex ic IIC T6 Gc; III 3D Ex tc IIIC T6 Gc**
ATEX certificate	FTZU 13 ATEX 0189X

Product range

- MM 3110 Ex: Humidity and temperature detector
- MM 3111 Ex: Humidity and temperature detector, T+RH probe with 1 m cable
- MM 3111 Ex-2: Humidity and temperature detector, T+RH probe with 2 m cable
- MM 3111 Ex-4: Humidity and temperature detector, T+RH probe with 4 m cable
- MM 3113 Ex: Humidity and temperature detector, ventlillation duct mount, length 150 mm

Main characteristics

Power supply	9-30 V_{DC}
Number of detection channels	3
Output	4-20 mA, galvanically separated
Temperature detection range	from -30°C to 80°C
Temperature detection accuracy	± 0.4°C
Temperature detection resolution	0.1°C
Humidity detection range	from 0 to 100% RH
Humidity detection accuracy	± 2.5 RH; from 5% to 95% @ 23°C
Humidity detection resolution	0.1% RH
Dew point detection range	from 0 to 100% RH
Dew point detection accuracy	± 1.5°C @ T_a < 25°C and RH > 30%
Dew point detection resolution	0.1°C
Ambient temperature T_a	from -30°C to 60°C
Housing protection level	electronics IP65, sensors IP40
Dimensions (W×H×D)	88.5 × 170 × 39.5 mm
Probe length	75 mm

ISKROBEZPIECZNIE
Paweł Piasecki
office@atexcertified.eu
ph. +48 693 345 823

MM GROUP s.r.o. CZECH REPUBLIC 1993

MM 63. series
Intrinsically Safe Measurement Displays

INTRINSICALLY SAFE
SAFETY SYSTEMS

Intrinsically safe measurement displays attached to the current loop can display the required value. The configuration of display parameters is available in the 633 range via hardware and in the 634 range via software. Displays can additionally be produced in various housings made of eg. ABS plastic or in industrial aluminum finish.

Classification	**II 2G Ex ia IIC T5 Gb; I M1 Ex ia I Ma**
ATEX certificate	FTZU 07 ATEX 350 X

Product range

- MM 633 B/Ex: LCD display, indoor use, passive, 3.5 characters
- MM 633 B M/Ex: LCD display, outdoor use, passive, 3.5 characters, IP54
- MM 634 A1/Ex: LCD display, indoor use, passive, programmable, 4.5 characters, IP54

Main characteristics

Power supply	8-28 V_{DC}
Current consumption	4-20 mA from the current loop
Ambient temperature T_a	from 0°C to 60°C
Housing protection level	plastic housing IP20, aluminium finish IP54
Display type	LCD
Display size	3.5; 4.5 characters

ISKROBEZPIECZNIE
Paweł Piasecki
office@atexcertified.eu
ph. +48 693 345 823

MM GROUP s.r.o. CZECH REPUBLIC 1992

BTS series
Intrinsically Safe Temperature Switches (bimetals)

Intrinsically safe temperature switches (bimetallic thermometers) are universally applicable devices. Areas of application include e.g, monitoring, controlling and signaling temperatures in the refrigeration sector or in compressors, motors, bearings, etc. When the switching temperature is reached, the switch opens. Temperature switches can also be used as temperature controllers.

Classification	**II 1G Ex ia IIB T6-T4 Ga; II 1D Ex ia IIIC T 125°C Da** **I M1 Ex ia I Ma**
ATEX certificate	FTZU 10 ATEX 0211

Product range

- BTS C M1: metal gland and cable, suitable for methane explosion hazard env. **IM1** classification
- BTS C IIG: blue plastic gland and cable, suitable for methane explosion hazard env. **IIG** classification
- BTS LT: metal gland and cable, pressure resistant up to 3 MP. **IM1** or **IIG** classification
- BTS: metal head and ceramic terminal block
- BTS K: connector version
- BTS P: immersion version, IP 68

Main characteristics

Temperature sensor	bimetal
Operating temperature T_o	from 50°C to 160°C
Hysteresis	± 5%
Vibration resistance	10G in central axis, 5Hz to 2kHz
Output	NC
Output connector	DIN 43650
Contact power	0.36 kW; 230 V/50 Hz 1.6 A; 24 V_{ss}/2 A; 12 V_{ss}/4 A
Assembly/thread	M 20 × 1.5; G 1/2″ (other available on request)
Pivot diameter	10 mm
Material	stainless steel (food grade) or other

ISKROBEZPIECZNIE
Paweł Piasecki
office@atexcertified.eu
ph. +48 693 345 823

Ti series
Intrinsically Safe Temperature Sensors (thermometers)

Intrinsically safe temperature sensors of the Ti series are designed to measure the temperature of media in tanks, pipes, reservoirs in the air, etc. The measured medium can be a flammable liquid or an explosive gas. The temperature is converted into an electrical signal using resistance elements – Ni 1000 or Pt 100 type sensors. Temperature sensors can be equipped with electronics in the sensor body, which converts the sensor voltage to a unified electrical signal of 4-20 mA or 0-5/10 V. Sensors are powered by 4-20 mA current loop (two-conductor) or by an intrinsically safe power supply with a digital output (four-conductor).

Classification	**II 1G Ex ia IIC T6-T4 Ga; I M1 Ex ia I Ma**
ATEX certificate	FTZU 02 ATEX 0285; FTZU 10 ATEX 0151

Product range

- Ti… Ex: with stem, installation in a well
- Ti D… Ex: with stem, installation in a well, mining version
- Ti D… Ex – LT: integrated thread and converter
- Ti P… Ex: immersion version, IP 68
- Ti… Ex/PTI: room thermometer

Main characteristics

Temperature sensor	Ni 1000; Pt 100
Operating temperature T_o	from -24°C to 250°C
Output	4-20 mA (analogue transducer)
Output	5-15 Hz (digital)
Output connector	DIN 43650; cable gland; wire
Assembly/thread	M 20 × 1.5; G 1/2″ (other available on request)
Pivot diameter	6 mm; 8 mm; 10 mm
Material	stainless steel (food grade) or other

ISKROBEZPIECZNIE
Paweł Piasecki
office@atexcertified.eu
ph. +48 693 345 823

TS series
Intrinsically Safe Pressure Switches

INTRINSICALLY SAFE
SAFETY SYSTEMS

Intrinsically safe pressure switches are universally applicable devices. Areas of application include e.g, monitoring, controlling and signaling pressures in compressors, pumps, hydraulic setups, etc. When the switching pressure is reached, the switch opens. Pressure switches can also be used as pressure controllers.

Classification	
ATEX certificate	MM 13 ATEX 003 X; BVS 06 ATEX E 141 X

Product range

- LAYHER 214: pressure switch with NO/NC contact
- LAYHER 300: vacuum switch with changeover contact
- LAYHER 330: vacuum switch with changeover contact
- LAYHER 411, 431: overpressure switch with switching contact - NO
- LAYHER 412, 432: overpressure switch with switching contact - NC
- LAYHER 420, 440: pressure switch with changeover contact - SW
- LAYHER 600: pressure switch with external thread and changeover contact - SW
- LAYHER 601, 603: pressure sensor with internal thread and changeover contact - SW
- LAYHER 640: pressure switch with flange mounting and changeover contact - SW
- LAYHER 705: differential switch for lower pressures
- LAYHER 720: differential switch for higher pressures
- TS MP… Ex: brass pressure switch

Main characteristics

Pressure limit	from 20 mBar to 200 Bar
Differential limit	from 40 Pa to 5 kPa
Output	NC; NO; relay
Electrical output connector	DIN 43650; faston
Hysteresis	15-20%
Temperature range	up to 120°C without cooling
Material	galvanized steel; stainless steel; brass
Sealing	Viton; NBR; EPDM
Media	air; water; hydraulic oil; oil emulsions and others
Sampling frequency	max. 200 / min
Housing protection level	from IP0 to IP65 (type depending)
Number of cycles	1 000 000

ISKROBEZPIECZNIE
Paweł Piasecki
office@atexcertified.eu
ph. +48 693 345 823

MM GROUP s.r.o. CZECH REPUBLIC 1993

TSz series
Intrinsically Safe Pressure Sensors

INTRINSICALLY SAFE
SAFETY SYSTEMS

Intrinsically safe pressure sensors are designed for various industrial solutions, where it is necessary to measure the pressure of volatile substances, fluids, plumbing and measuring their level. Manometers work on the principle of strain gauge measurement. In this case it is about a group of sensors that work in a wide range from very low to very high pressures. Precise implementation for favorable price.

Classification	**II 1/2G Ex ia IIC T6-T5 Ga; II 1G Ex ia IIC T4 Ga; II 1G Ex ia IIB T4 Ga (Ta -40°C... +85°C); I M1 Ex ia I Ma**
ATEX certificate	FTZU 07 ATEX 0311; IBExU10ATEX1014

Product range

- TSz: threaded version (pressure gauge), IP64/IP68
- TSz M: stainless steel separating diaphragm
- PM 111: stainless steel separating diaphragm, LCD display
- MM BAP C Ex: stainless steel separating diaphragm, LCD display, battery operated
- TSz 5: differential pressure sensor, wide detection range
- MM 985 M Ex: differential pressure sensor, LCD display, IP65

Main characteristics

Power supply	8-36 V_{DC}
Pressure limit	from 0 to 100 MPa
Differential limit	from 0 Pa to 600 kPa
Current consumption	4-20 mA from the current loop
Output interface	CAN open, RS 485
Operating temperatures T_o	from -25°C to 60°C
Material	stainless steel 1.4301; 1.4436
Media	air; water; aggresive liquids and others
Number of cycles	1 000 000

ISKROBEZPIECZNIE
Paweł Piasecki
office@atexcertified.eu
ph. +48 693 345 823

MM GROUP s.r.o. CZECH REPUBLIC 1993

TSp series
Intrinsically Safe Level Sensors

Intrinsically safe level sensors are designed for various industrial solutions, where it is necessary to continuously measure the level of volatile and non-volatile liquids or bulk solids. Hydrostatic pressure is converted into an electrical signal by means of a membrane sensor. The movement of the membrane caused by the pressure is transmitted to the silicon wafer, which changes its resistance due to deflection. The body of the device is made of stainless steel, the sheath of the supply cable is either made of PVC, silicone or Teflon, depending on the chemical composition of the measured medium.

Classification	**II 1/2G Ex ia IIC T6-T5 Ga; II 1G Ex ia IIC T4 Ga; II 1G Ex ia IIB T4 Ga (Ta -40°C... +85°C); I M1 Ex ia I Ma**
ATEX certificate	FTZU 07 ATEX 0311; IBExU10ATEX1014

Product range

- TSp: submersible
- TSp M: submersible, suitable for heavily polluted liquids, IP68
- CIS 1: capacitive sensor, NC/NO output
- CIS 1 A: capacitive sensor, 4-20 mA output
- CIS 3 Z: capacitive sensor, NAMUR output, IP65/68
- CIS 3 P: capacitive sensor, submersible, suitable for petroleum products, IP68
- MM SCN Ex: ultrasonic level meter
- RIS 3Z Ex: optical sensor

Main characteristics

Power supply	5-36 V_{DC}
Pressure limit	from 0 to 3 MPa
Current consumption	4-20 mA from the current loop
Output interface	CAN open, RS 485
Output connector:	DIN 43650 connector; wire
Operating temperatures T_o	from -40°C to 130°C
Material	stainless steel; ABS UV
Media	air; liquids; petroleum products and bulk solids
Number of cycles	1 000 000

ISKROBEZPIECZNIE
Paweł Piasecki
office@atexcertified.eu
ph. +48 693 345 823

LS.. / CS.. series
Intrinsically Safe Spotlights and Indicators

Intrinsically safe LED signal lamps, reflectors (headlights) type LS.. are used to illuminate areas with a risk of explosion. They are produced as LED signal lamps intended for installation in panels (switchboards with IP 54 protection), as reflectors for illuminating areas with a risk of explosion, or as reflectors for mining machines or as two-color beacons.

Classification	**II 1G Ex ia op is IIB T4 Ga; I M1 Ex ia op is I Ma**
ATEX certificate	FTZU 12 ATEX 058

Product range

- LS P12: white LED spotlight, indication of front
- LS P7: red LED spotlight, indication of rear
- LS P1: LED indicator
- CS P6 Case 5: LED spotlight, 25 Lux @ 7m

Main characteristics

Power supply	Intrinsically safe power supply
Number of LEDs	spotlights: 6-12 (low-consumption or efficient) indicator: 1 (low-consumption or efficient)
Power	from 0,5 W to 4,2 W
Luminous flux	400 lm
Illuminance	50 Lux @ 7 m
Colors	white (warm, cold); red; green; blue;
Housing material	stainless steel
Connection	terminal block

ISKROBEZPIECZNIE
Paweł Piasecki
office@atexcertified.eu
ph. +48 693 345 823

Security systems

ISKROBEZPIECZNIE
Paweł Piasecki
office@atexcertified.eu
ph. +48 693 345 823

MM 100.. Ex series
Intrinsically Safe Motion Detectors (PIR)

INTRINSICALLY SAFE
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Intrinsically safe motion detectors are intended for detecting and signalling the entry of an undesirable person to a protected object including an explosion danger zone. To supply and transmit the signal a certified intrinsically safe power supply unit and a transmitting separator for the signal channel separation are used. It is permissible to power only one detector from an intrinsically safe power supply unit.
The connection of the output contacts must be carried out in the same way as above – only one intrinsically safe separator is used per single detector.

Classification	**II 2 G Ex ia IIB T4, V2**
ATEX certificates	FTZU 10 ATEX 0140; FTZU 10 ATEX 0141 FTZU 10 ATEX 0143

Product range

- MM 1002 Ex – VW 33430: PiR
- MM 1003 Ex – VW 33440: PiR + MW
- MM 1004 Ex – VISONIC TOWER 12 Ex: PIR
- MM 1005 Ex – Pyronix KX15DTAM/Ex: PIR + MW
- MM 1006 Ex – Pyronix KX15DD/Ex: PIR
- MM 1007 Ex – Pyronix XDH10TT-AM/Ex: 2× PIR, 1× MW
- MM 1008 Ex – SPY M/Ex: 2× MW

Main characteristics

Current consumption	max 24 mA/12 V
Alarm output	alarm: 15 V DC/100 mA anti masking: 15 V DC/100 mA tamper switch 15 V DC/100 mA alarm delay time: 2 s antimasking delay time 20 s antimasking relay respond time 2 s
Optical sensor	black infrared mirror
Microwave sensor	9.035 GHz or 10.525 GHz or 10.687 GHz
Mounting height	1.5-4.0 m
Environmental conditions	from -10°C to +50°C
Protection level	IP40
Frequency resistance	(0.1 to 2000 MHz) > 20V/m
Dimensions	160 mm × 77 mm × 47 mm 158 mm × 64 mm × 48 mm

ISKROBEZPIECZNIE
Paweł Piasecki
office@atexcertified.eu
ph. +48 693 345 823

MM GROUP s.r.o. CZECH REPUBLIC 1993

MM .. Ex series
Intrinsically Safe Contactrons

INTRINSICALLY SAFE
SAFETY SYSTEMS

Intrinsically safe magnetic contactors for explosive danger areas. Signaling of an intrder entering restricted area including an explosion danger zone. To power up the device and to transmit the signal a certified isolation amplifie is needed.

Classification	**II 1G Ex ia IIC T6 Ga; II 3G Ex nA T6** **II 1D Ex ia IIIC T 125°C**
ATEX certificate	–

Product range

- MM ISS 2110 Ex: door type
- MM GP001/AB/G3/Ex: door type
- MM RS007/G3/AB Ex: gate type
- MM SP 500/Ex: door type

Main characteristics

Housing material	aluminium
The gap	max 50 mm
Mounting surface	conductive + non-conductive
Tamper transmitter	yes
Connection (number of strands)	4 lines
Wire's length	45 cm
Alarm output	NC
Colour	grey
Dimensions (H × W × D)	27 mm × 84 mm × 27 mm
Special features	cable housing
Protection level	IP65

ISKROBEZPIECZNIE
Paweł Piasecki
office@atexcertified.eu
ph. +48 693 345 823

MM GROUP s.r.o. CZECH REPUBLIC 1993

MM 0800 Ex

Intrinsically Safe Glass Breakage Detector

INTRINSICALLY SAFE
SAFETY SYSTEMS

Intrinsically safe MM 800 Ex is an acoustic glass breakage detector that signals an alarm when glass is broken – e.g. by an intruder attempting to enter a building through windows, glass doors or glass walls. The detector is based on modern microprocessor technology and is programmed to take into account a wide range of possible acoustic stimulae by evaluating DRC (Digital Room Compensation).

Classification	**II 3G Ex ic IIB T4 Gc V1**
ATEX certificate	FTZU 12 ATEX 058

Main characteristics

Power supply	7-16 V_{DC}
Current consumption	12 mA
Detection range	from 1 m to 9 m @ 165°
Minimal size of broken glass	400 × 400 mm
Outputs	NC, 50 Vss / 50 mA
Ambient temperature Ta	from -20°C to 60°C

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MM 2351 Ex

Intrinsically Safe Multi-criteria Detector (optical & heat)

INTRINSICALLY SAFE
SAFETY SYSTEMS

Intrinsically safe multi-criteria optical and heat detector with a base featuring automatic reset and optical sensor sensitivity adjustment. It is usually connected to alarm control panels as an element of optional fire protection. The detector is made of ABS, which has been covered with a layer of colloidal graphite to eliminate the accumulation of electrostatic charges. The detector is intended for use in explosion danger areas (zone 2). Intrinsic safty is ensured by the power supply unit and separation relay in Ex ia variation.

Classification	**II 3G Ex ic IIB T5 Gc, II 3D Ex ic IIIA T=100°C Dc**
ATEX certificate	**MM 21 ATEX 0001 X**

Main characteristics

Detection radius	6 m
Installation height	max 7.5 m
Activation temperature	A1R 58°C to 90°C (according to customer requirements)
Ambient temperature	from -20°C (A1R -10°C) to 90°C
Output	NC/NO
Optical channel sensitivity	low, moderate and high
Alarm indication	red LED, contact
Normal function indication	green LED
Power supply	intrinsically safe PSU 10-17 V_{DC}
Quiescent current	0.2 mA
Alarm current	43 mA
Alarm output	contact supplied by intrinsically safe relay 10 V/20 mA
Protection level	IP23
Diameter	127 mm
Height	60 mm
Weight	205 g

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Application examples

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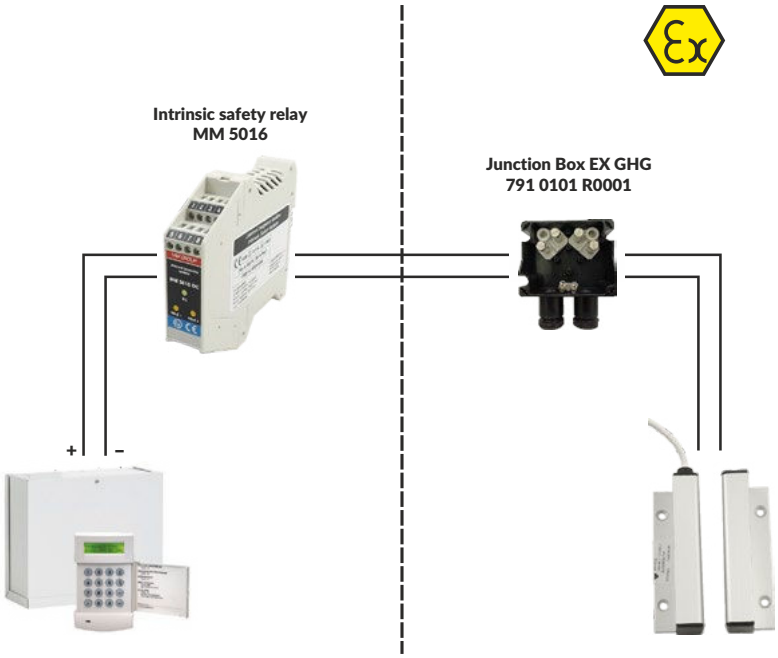
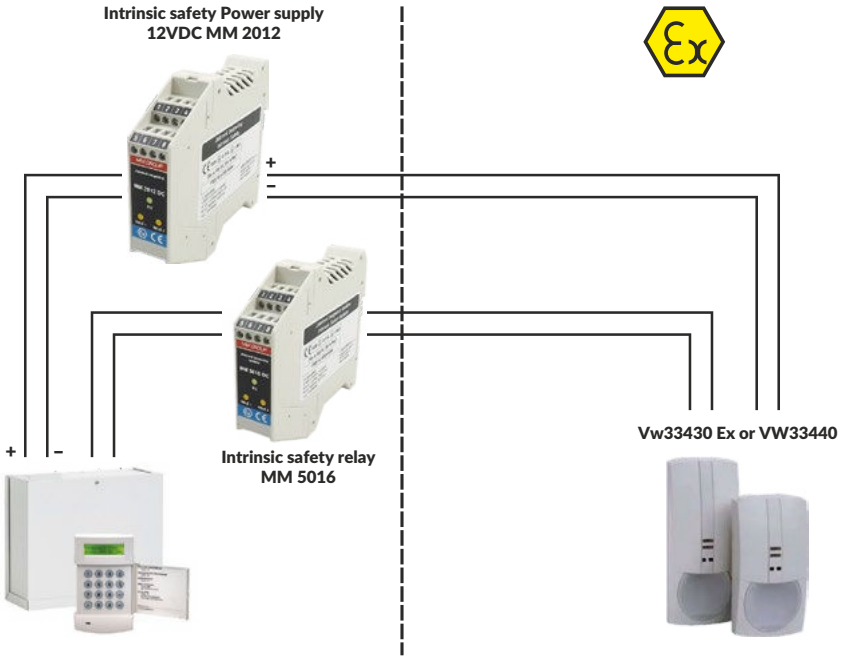
Application examples

Magnetic contact door



PiR



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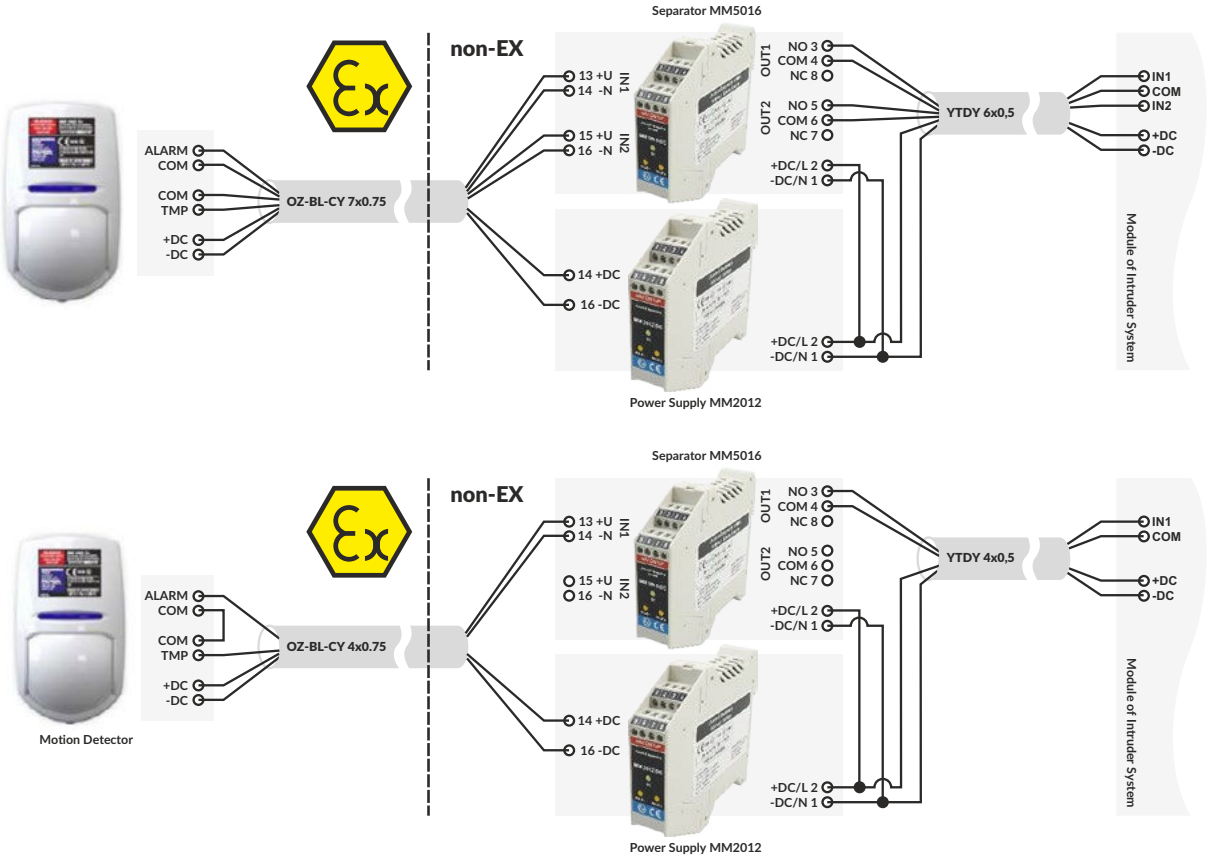
Application examples

Connection PiR



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