

# OVERVIEW

## PRODUCT LINES



**AUTOMATION & CONTROL**

**MOTION**

**SWITCHES & POSITION SENSORS**

**ELECTRICAL PROTECTION**

**COCKPIT CONTROLS**

# ABOUT CROUZET

Since 1921, Crouzet has been committed to designing, manufacturing and supplying efficient components for automated systems to serve a wide range of application in the Aerospace & Defense market; in many Industrial equipment markets, with a specific focus on applications such as Access control, Railway, Nuclear and Industrial valves.

Crouzet’s product lines include Automation and Control devices, Motion products, Switches and Position Sensors, Cockpit Controls and Electrical Protection products.

Crouzet has a heritage of close collaboration with customers in the development of adapted products to fully customized solutions.

Driven by innovation and customer satisfaction, our teams are focused on delivering the right products and services for the right application, always meeting, and often exceeding customers’ expectations.

Crouzet is your trusted partner of choice to face the challenges of today and tomorrow.

Crouzet is a company of InnoVista Sensors™.



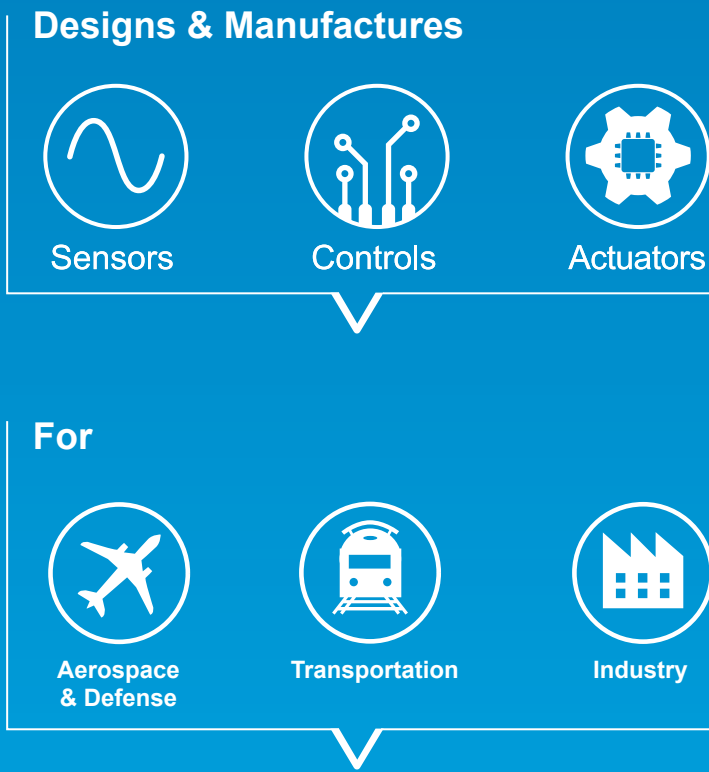
InnoVista Sensors™ is a worldwide industrial specialist of sensors, controllers and actuators for automated systems.

Through its brand Crouzet, InnoVista Sensors™ offers a wide range of reliable, efficient and customizable components dedicated to the Aerospace & Defense, Transportation and Industrial markets and segments.

Thanks to the recognized expertise of its teams and a strong innovation policy, InnoVista Sensors™ brings performance enhancing solutions to its customers worldwide.

InnoVista Sensors™: your trusted partner of choice to face industrial challenges of today and tomorrow.

www.innovistasensors.com



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# EXCELLENCE OVERVIEW

## OUR MARKETS



Aerospace & Defense



Railway



Automotive



Access Control



Nuclear



Other Industrial Applications

## OUR QUALITY SYSTEM

### Quality Management

- ISO 9001
- ISO 14001
- ISO 18001

### Automotive

- ISO/TS 16949

### Nuclear

- EDF certification
- RCC-E

### Hazardous Locations

- ISO/IEC80079-34 (ATEX/IECEX)

### Aerospace

- AS/EN 9100
- NADCAP
- EASA approved (Part 21G & Part 145)



# ADAPTATION WHEEL

Crouzet has developed extensive expertise in adapting its products based on standard ranges, including the necessary project planning skills when it involves a new program.

## SPECIAL PRODUCT

From the very start of a project, Crouzet's team experts work closely with your teams to develop the specifications. All our design, industrialization and approval expertise go into developing solutions. We focus our design, manufacturing and qualification expertise on developing a new product designed to meet your requirements.

## STANDARD PRODUCT

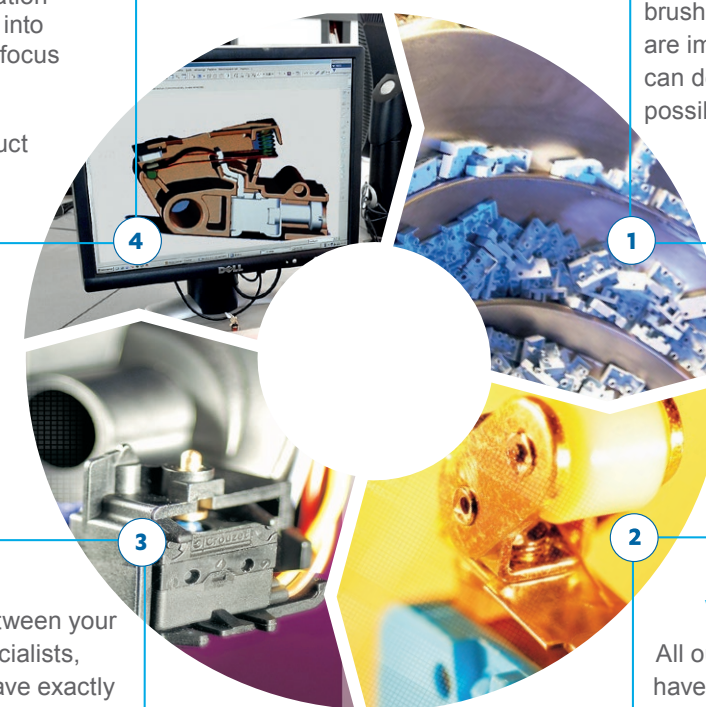
A full range of microswitches, limit switches, manually operated switches, motors and geared motors, including AC synchronous, brush and brushless DC and stepper motors, are immediately available so that you can design your system as quickly as possible.

## ADAPTED PRODUCT

Complete coordination between your project teams and our specialists, these adapted products have exactly the right levels of performance and functionality you need for your applications. All projects are different, so we adapt the performance and functionality of each product to your requirements, ensuring the success of your most complex applications.

## PRODUCT WITH ADDED VALUE

All our standard products can have additional factory-mounted auxiliaries or accessories, including connectors, leads, special terminals, fixings, levers, software etc. Seamless integration into your equipment means you benefit from simpler logistics and optimum installation reliability.

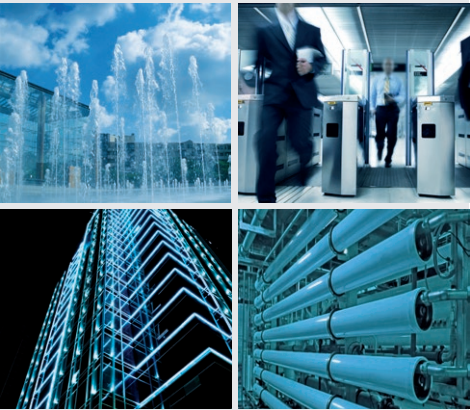




# AUTOMATION & CONTROL

Our experience in physical and electrical values has resulted in an offer which includes timers, monitoring relays, counters, microcontrollers and PLCs.

As a pioneer in the simplification of programming, we offer the easiest-to-use and most adaptable solution for specialized needs.



## MARKETS & APPLICATIONS

- › Building Equipment
- › Water and Waste Treatment
- › Industrial OEMs
- › Renewable Energy
- › Access Control

### TELECONTROLLER em4 Alert



- › Connect your equipment to the 3G GPRS network wherever you are
- › Automatic alerts via text message and e-mail minimize the downtime of machines and systems
- › Simple monitoring and Control via text message
- › Receive data reports via text message or datalogs via email or FTP in .CSV (Excel) file
- › Adapt your application along the way of its lifecycle thanks to the remote application program update feature via FTP



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### NANO-PLC em4 Ethernet/Local



- › Up to 46 I/Os - Base 16 DI (4 HighSpeed/ 12 AI), 8 DO + 2 Solid State Relays
- › Analog Inputs 4-20 mA, 0-10 VDC and 0-VDC 12 bits
- › Ethernet Modbus TCP/IP (Client/Server) and Modbus RTU RS485 via interface (Master/Slave)
- › Event management & datalog via mail or FTP server
- › PLC performance with the shape and ease of use of a logic controller



INFO +

### LOGIC CONTROLLER Millenium EVO



- › Up to 44 I/Os - Base 16 DI (4 HighSpeed/8 AI) - 8 DO
- › Wireless programming & control with bluetooth Interface and Crouzet Virtual Display
- › Ethernet Modbus TCP/IP (Client/Server) and Modbus RTU Network via interface (Slave)
- › Event and Datalog Management via mail/FTP server or Locally
- › Up to 1000 programing blocks with intuitive Crouzet Soft to go from simple to complex applications



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### LOGIC CONTROLLER Millenium 3



- › Highly visible blue LCD with 4 lines of 18 characters and configurable backlighting
- › Allow the use of the entire library of specific functions blocs of the software workshop
- › Extended temperature range (-20 °C → +70 °C)
- › Parameter setting: possibility to choose the adjustable parameters on the front panel



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### SOFTWARES

- › Visual programming and a wide choice of pre-programmed function blocks for the most intuitive and easy-to-use software, even for new users, and it is free.

| Crouzet Soft | Crouzet Virtual Display | Millenium 3 Soft | Crouzet Touch Soft |
|--------------|-------------------------|------------------|--------------------|
|              |                         |                  |                    |

### COMPLEMENTARIES PRODUCTS: EM4, MILLENIUM EVO, MILLENIUM 3



- › Touch screen 4.3 / 7 / 9.7 pouces
- › Digital extensions and analog extensions
- › T° probes
- › Light sensors
- › Starter kits
- › Powers supplies



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### MONITORING RELAYS



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- |              |                                                                 |                                                                                 |                                                                                                         |                                                                     |
|--------------|-----------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| Key features | › Controls its own supply voltage<br>› LED status<br>› True RMS | › AC & DC voltages<br>› 0.2 mA to 600 V<br>› Choice between under & overvoltage | › AC & DC currents<br>› 2 mA to 10 A, direct<br>› 100 A with CT<br>› Choice between under & overcurrent | › 1 or 2 levels<br>› Probes with AC<br>› Time delay from 0.1 to 5 s |
|--------------|-----------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|

|                   |                                 |                     |                       |                                     |
|-------------------|---------------------------------|---------------------|-----------------------|-------------------------------------|
| Relay output      | 1x5 A / 2x5 A                   | 1x5 A / 2x5 A       | 1x5 A / 1x8 A / 2x5 A | 1x5 A / 1x8 A / 2x5 A               |
| Casing width      | 17.5 - 22.5 - 35 mm             | 17.5 - 22.5 - 35 mm | 17.5 - 22.5 - 35 mm   | 22.5 - 35 mm                        |
| Measurement range | phase sequence<br>phase failure | under & overvoltage | from 2 mA to 20 A     | filling (UP) and/or emptying (DOWN) |
| Supply Voltage    | 120 → 480 VAC 50/60 Hz          | 24 → 240 VAC/DC     | 24 → 240 VAC/DC       | 24 → 240 VAC/DC                     |

### TIMERS SyrLine



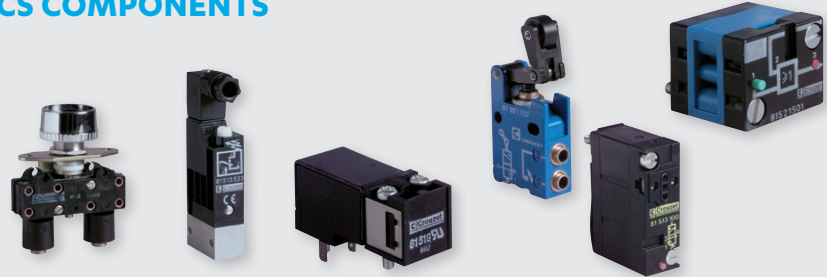
|              |                           |                    |                           |                                  |                                   |
|--------------|---------------------------|--------------------|---------------------------|----------------------------------|-----------------------------------|
| Max counting | 0.5 s → 240 H             | 0.5 s → 240 H      | 0.055 s → 9999 H          | 0.5 s → 100 H                    | 0.001 s → 999.999 H               |
| Outputs      | 1x16 A or 2x8 A           | 1x8 A or 2x8 A     | 1x5 A or 2x10 A           | 1x8 A or 2x8 A                   |                                   |
| Dimensions   | 17.5 mm<br>DIN rail mount | 35 mm<br>Removable | 48 x 48 mm<br>panel mount | 17.5 & 22.5 mm<br>DIN rail mount | 24x48 mm /<br>48x48 mm            |
| Supply       | 12 → 240 V~               | 12 → 240 V~        | 24 → 240 V~               | 12 → 240 V~                      | 10 → 30 V~ / 24 V~<br>90 → 260 V~ |

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### RELATED PRODUCTS: PNEUMATICS COMPONENTS

- › Human/Machine Interface Components
- › Position Detectors
- › Pressure Switches
- › Electro-Pneumatic Valves
- › Pneumatic Logic Components
- › Industrial Vacuum Components



MOTION

We provide a complete offer of direct drives, geared motors and motion control solutions for applications where performance is key.

Our customized solutions meet most customers' demanding specifications where security, reliability and precision are crucial.

POSITION, SPEED AND TORQUE REGULATION

|                      | MOTORS                                                                                                                                                                                                                                                      |                                                                                                                                                                         |                                                                                                                                                                          |                                                                                                |                                                                                       |                                                                                     |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                      | Industrial Brush                                                                                                                                                                                                                                            | DCmind Brush                                                                                                                                                            | DCmind Brushless                                                                                                                                                         | Stepper                                                                                        | Synchronous                                                                           |                                                                                     |
|                      |                                                                                                                                                                            |                                                                                        |                                                                                        |             |    |  |
|                      | Ø 32 / Ø 42<br>Ø 63                                                                                                                                                                                                                                         | Ø 42 / Ø 63                                                                                                                                                             | SQ57<br>SQ75                                                                                                                                                             | Ø 35 / 51<br>Ø 57 / 65                                                                         | Ø 35 / 51<br>Ø 57 / 65                                                                |                                                                                     |
| Nominal Power (W)    | 0,9 → 95                                                                                                                                                                                                                                                    | 15 → 104                                                                                                                                                                | 66 → 600                                                                                                                                                                 | 0.5 → 5                                                                                        | 0.3 → 3                                                                               | 0.2 → 0.4                                                                           |
| Voltage              | 12 / 24 /<br>48 VDC                                                                                                                                                                                                                                         | 12 → 120 VDC                                                                                                                                                            | 9 → 75 VDC                                                                                                                                                               | 3 → 64 VDC                                                                                     | 24 → 240 VAC<br>50 → 60 Hz                                                            |                                                                                     |
| Nominal Speed (rpm)  | 3000 → 3700                                                                                                                                                                                                                                                 | 3000                                                                                                                                                                    | 3000                                                                                                                                                                     | 1500                                                                                           | 250 → 600                                                                             | 600 / 720                                                                           |
| Nominal Torque (mNm) | 2.2 → 270                                                                                                                                                                                                                                                   | 50 → 290                                                                                                                                                                | 125 → 1900                                                                                                                                                               | 15 → 300                                                                                       | 10 → 110                                                                              | 2.5 → 8                                                                             |
| Noise Level (dBA)    | 55                                                                                                                                                                                                                                                          | 35                                                                                    | 45 / 50                                                                                                                                                                  | 35         | 30                                                                                    | 45                                                                                  |
| Service Life (hrs)   | Up to 5 000                                                                                                                                                                                                                                                 | Up to 5 000                                                                                                                                                             | 20 000                                                                                                                                                                   | 20 000                                                                                         | 20 000                                                                                | 10(Mr*)<br>on/off                                                                   |
| Gearboxes            |    |   |   |           |  |                                                                                     |
| Connection           |                                                                                       |                                                                                      |   |           |  |                                                                                     |
| More information     |                                                                                                                                                                          |                                                                                                                                                                         |                                                                                      |           |  |                                                                                     |
|                      |  Connector                                                                                                                                                               |  Cable                                                                               |  Lead                                                                                |  Terminal |                                                                                       |                                                                                     |
|                      |  Worm                                                                                                                                                                    |  Planetary                                                                           |  Parallel Shaft                                                                      |  Silent   |                                                                                       |                                                                                     |

|                     | CONTROL ELECTRONICS                                                                 |                                                                                     |                                                                                     |                                                                                     |
|---------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                     | Integrated                                                                          |                                                                                     | External                                                                            |                                                                                     |
|                     |  |  |  |  |
|                     | TNi21                                                                               | SMi21                                                                               | SMi22                                                                               | BDE 30 / BDE 40                                                                     |
| Compatible models   | SQ57                                                                                |                                                                                     | SQ75                                                                                | SQ57                                                                                |
| Speed Torque        | ●                                                                                   |                                                                                     | ●                                                                                   | ●                                                                                   |
| Position (c/t)      |                                                                                     |                                                                                     | 4096                                                                                | 4096                                                                                |
| Programming         | DCmind Soft &<br>DCmind Soft +<br>CANopen                                           |                                                                                     | DCmind Soft<br>+ CANopen                                                            | PWM or<br>0 → 10 V---                                                               |
| Communication Bus   | CANopen<br>Option                                                                   |                                                                                     | CANopen<br>Standard                                                                 |                                                                                     |
| Voltage             | 10 → 36 V---                                                                        | 9 → 75 V---                                                                         | 9 → 75 V---                                                                         | 10 → 36 V---                                                                        |
| Maximum Current (A) | 17                                                                                  | 17                                                                                  | 75                                                                                  | 14                                                                                  |
| Adaptations         | Programs: Custom firmware as per customer specifications                            |                                                                                     |                                                                                     |                                                                                     |

|                    | GEARBOXES                                                                             |                                                                                       |                                                                                       |
|--------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                    | Spur gear                                                                             | Planetary                                                                             | Worm                                                                                  |
|                    |  |  |  |
|                    | 10 models                                                                             | 7 models                                                                              | 2 models                                                                              |
| Torque (Nm)        | 0.5 → 6                                                                               | 0.8 → 120                                                                             | 10 → 20                                                                               |
| Power (W)          | 0.2 → 50                                                                              | 8 → 600                                                                               | 25 → 600                                                                              |
| Service life (Mr*) | 1 → 10                                                                                | 50                                                                                    | 50                                                                                    |
| Ratios             | 4 → 4500                                                                              | 4 → 308                                                                               | 5 → 100                                                                               |
| Options            | Shafts: stainless steel, pulleys, pinions, special bearings etc.                      |                                                                                       |                                                                                       |

\* Million revolutions



INFO 



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MARKETS & APPLICATIONS

- › Railway
- › Medical
- › Valves and Pumps
- › Energy Distribution
- › Industrial Automation
- › Access Control
- › Agriculture and Forestry

DCMIND SOFT: SIMPLIFIED\*

DCMIND SOFT (SMI21) & DCMIND SOFT+CANOPEN (SMI21 & SMI22) FOR DCMIND BRUSHLESS

- › Precise configuration of the position, speed and torque
- › The most user-friendly software on the market
- › Two programming modes: application & expert
- › Application programs: dosing, valves, machinery, conveyor belt, access control

\* Free software on our website ([motors.crouzet.com](http://motors.crouzet.com)) or can be supplied on a USB stick in the «starter kit».





SWITCHES & POSITION SENSORS

As specialist in snap action technologies our offer includes microswitches, limit switches and manually operated switches which are adaptable in terms of connectors, lever or body size.

High quality and reliability products are crucial in harsh environments with severe constraints

DETECTION & SENSING

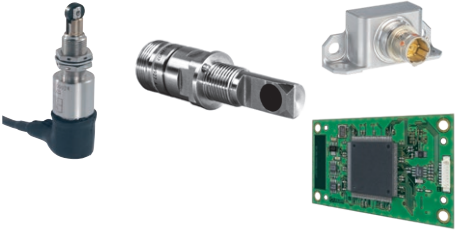
|                               | MICROSWITCHES                                                                        |                                                                                     |                                                                                     |                                                                                     |                                                                                      |                                                                                         |                                                                                       |                                                                                       |                                                                                         |
|-------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
|                               | Sub-Subminiature                                                                     |                                                                                     |                                                                                     | Subminiature                                                                        |                                                                                      |                                                                                         | Miniature & Special                                                                   |                                                                                       |                                                                                         |
|                               |    |                                                                                     |                                                                                     |                                                                                     |                                                                                      |                                                                                         |                                                                                       |                                                                                       |                                                                                         |
| Series                        | V5S<br>8320                                                                          | 83228<br>83229                                                                      | V5D<br>83194<br>83141                                                               | V4/V4D<br>83170<br>8327                                                             | V4S<br>8318                                                                          | 83132<br>83133<br>83134                                                                 | V3/V3D<br>83161/160<br>8326                                                           | V3S/V3DS<br>83169<br>8329                                                             | PBX<br>8324                                                                             |
| Max Rating<br>@250 Vac<br>(A) | 4 A                                                                                  | 5 A                                                                                 | 5 A                                                                                 | 12 A                                                                                | 10 A                                                                                 | 6 A                                                                                     | 25 A                                                                                  | 10 A                                                                                  | 10 A                                                                                    |
| Low level<br>version          |     |    |    |    |   |      |    |    |      |
| Sealing<br>level              | IP67<br>IP69                                                                         |                                                                                     |                                                                                     |                                                                                     | IP67<br>IP69                                                                         |                                                                                         |                                                                                       | IP67<br>IP69                                                                          | IP65<br>IP67                                                                            |
| Double<br>break               |                                                                                      |                                                                                     |                                                                                     |                                                                                     |                                                                                      |  Za |                                                                                       |                                                                                       |  Zb |
| Operating<br>temperature      | -40 °C<br>+90 °C                                                                     | -55 °C<br>+140 °C                                                                   | -55 °C<br>+150 °C                                                                   | -40 °C<br>+150 °C                                                                   | -40 °C<br>+125 °C                                                                    | -40 °C<br>+150 °C                                                                       | -60 °C<br>+150 °C                                                                     | -40 °C<br>+105 °C                                                                     | -50 °C<br>+85 °C                                                                        |
| Environment                   |                                                                                      |                                                                                     |  |                                                                                     |                                                                                      |    |  |                                                                                       |                                                                                         |
| Approval                      |   |  |  |  |  |    |  |  |    |
| More<br>information           |  |                                                                                     |                                                                                     |                                                                                     |                                                                                      |                                                                                         |                                                                                       |                                                                                       |                                                                                         |

 Irradiated environment

| LIMIT SWITCHES              |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                     |                          |                                                                                       |                                                                                       |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|--------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Standard                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                     | Harsh Environment        |                                                                                       |                                                                                       |
|                             |                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                     |                          |                                                                                       |                                                                                       |
| Series                      | 8387<br>8388                                                                                                                                                                                                                                                                                                                                                                                                                                         | 83589                                                                                               | 83777<br>83778           | 8399Nuc                                                                               | 8399Ex                                                                                |
| Max Rating<br>@ 250 Vac (A) | 10 A                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 8 A                                                                                                 | 4A                       | 1 A                                                                                   | 1 A                                                                                   |
| Sealing level               | IP66<br>IP67<br>IP69                                                                                                                                                                                                                                                                                                                                                                                                                                 | IP66<br>IP67<br>IP69                                                                                | IP66<br>IP68(4m)<br>IP69 | IP66<br>IP68(18m)<br>IP69                                                             | IP66<br>IP67<br>IP69                                                                  |
| Operating temperature       | -40 °C<br>+70 °C                                                                                                                                                                                                                                                                                                                                                                                                                                     | -40 °C<br>+85 °C                                                                                    | -55 °C<br>+125 °C        | -55 °C<br>+250 °C                                                                     | -40 °C<br>+200 °C                                                                     |
| Environment                 | <div></div> |                                                                                                     |                          |                                                                                       |                                                                                       |
| Approval                    | <br><br><b>EAC</b>                                                                                                                                                                                                                                                         | <br><b>EAC</b> | <b>EAC</b>               |  |  |
| More Information            |                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                     |                          |                                                                                       |                                                                                       |

 High pressure up to 6 bar

 Explosive atmospheres

|                       | SWITCHES AEROSPACE                                                                                                    |                                                                                                                        |                                                                                                                                  |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
|                       | Limit Switch                                                                                                          | Proximity Switch                                                                                                       | Proximity Sensor                                                                                                                 |
|                       |                                    |                                                                                                                        |                                                                                                                                  |
| Key features          | <ul style="list-style-type: none"><li>Hermetically sealed</li><li>Customizable</li><li>Multi-pole functions</li></ul> | <ul style="list-style-type: none"><li>Contactless detection with integrated electronics</li><li>Customizable</li></ul> | <ul style="list-style-type: none"><li>Contactless detection with external electronics</li><li>Built-in test capability</li></ul> |
| Operating force       | 2.5 → 50 N                                                                                                            | NA                                                                                                                     | NA                                                                                                                               |
| Mechanical life       | 100 000 cycles                                                                                                        | NA                                                                                                                     | NA                                                                                                                               |
| Water proofness       | Watertight or hermetic version - DO 160 sect10                                                                        |                                                                                                                        |                                                                                                                                  |
| Weight                | 15 → 300 g                                                                                                            | < 60 g                                                                                                                 | < 50 g                                                                                                                           |
| Operating temperature | -55 → +250 °C                                                                                                         | -55 → +125 °C                                                                                                          | -55 → +125 °C                                                                                                                    |
| More Information      |                                  |                                                                                                                        |                                                                                                                                  |

CUSTOMIZED SOLUTIONS

- › Dedicated application
- › Customer specific product
- › Innovation & industrialization



MANUALLY OPERATED SWITCHES

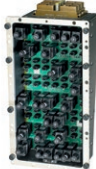
- › Pushbuttons, Momentary and/or Maintained, up to 4 poles
- › Toggles, Maintained and/or Momentary, up to 4 poles
- › Multiway, Momentary
- › Rockers, Momentary and Maintained
- › Triggers, Momentary



# ELECTRICAL PROTECTION

Specialist in Electrical Protection Devices, our products are involved in advanced electrical equipment onboard aircrafts and helicopters. Our expertise in innovative technologies and our compliance with industry standards has given us the reputation of top player in the aerospace industry.

## LIGHT, SIMPLE, SAFE

|                       | ELECTROMECHANICS, MECHATRONICS, ELECTRONICS                                                                                         |                                                                                                                                               |                                                                                                                                                     |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
|                       | Circuit Breaker                                                                                                                     | Circuit Breaker Panel                                                                                                                         | Solid State Power Controller                                                                                                                        |
|                       |                                                    |                                                             |                                                                  |
| Key features          | <ul style="list-style-type: none"><li>› Intrinsic fail safe</li><li>› Multiple terminal options</li><li>› Signal contacts</li></ul> | <ul style="list-style-type: none"><li>› Illuminated front panel</li><li>› Qualification documentation for FAA or EASA certification</li></ul> | <ul style="list-style-type: none"><li>› Single channel</li><li>› CAN 2.0 bus communication</li><li>› Adaptable to customers' requirements</li></ul> |
| Power supply          | 28 VDC & 115 VAC                                                                                                                    | 28 VDC & 115 VAC                                                                                                                              | 28V DC & 115 VAC                                                                                                                                    |
| Mechanical life       | 1 M → 7 M FH                                                                                                                        | 20 000 FH                                                                                                                                     | 20 000 FH                                                                                                                                           |
| Quick installation    | Pushfit                                                                                                                             | Pushfit & PWB                                                                                                                                 | NA                                                                                                                                                  |
| Weight                | < 20 g                                                                                                                              | 1000 - 4000 g                                                                                                                                 | 170 → 250 g                                                                                                                                         |
| Operating temperature | -55 → +125 °C                                                                                                                       | -55 → +85 °C                                                                                                                                  | -55 → +70 °C                                                                                                                                        |
| More information      |                                                 |                                                                                                                                               |                                                                                                                                                     |

## MARKETS & APPLICATIONS

- › Commercial Aircrafts
  - › Business Jets
  - › Military Aircrafts
  - › Helicopters
  - › Ground Vehicles
- › Landing gear
  - › Electrical Distribution
  - › Flight Controls



# COCKPIT CONTROLS

With technically-advanced custom grips, control wheels, and buttons, our offer is suitable for major programs worldwide. The large range of pushbuttons and accessories makes it possible to provide solutions for all necessary requirements.

## THE DETAILS THAT MAKE THE DIFFERENCE

|                       | FLIGHT CONTROLS                                                                                                                             |                                                                                                                                                |                                                                                                                                                                                             |                                                                                                                                      |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
|                       | Pushbutton                                                                                                                                  | Multiway                                                                                                                                       | Pilot Grip                                                                                                                                                                                  | Control Wheel                                                                                                                        |
|                       |                                                          |                                                             |                                                                                                          |                                                   |
| Key features          | <ul style="list-style-type: none"><li>› 1, 2, 3, 4 pole</li><li>› Sealed versions</li><li>› More than 200 electrical combinations</li></ul> | <ul style="list-style-type: none"><li>› Tactile effect</li><li>› Silver &amp; gold terminals</li><li>› Different hat shape and color</li></ul> | <ul style="list-style-type: none"><li>› Ergonomy and functions access</li><li>› Aluminium castings or injected in advanced plastic composite</li><li>› Highest level of finishing</li></ul> | <ul style="list-style-type: none"><li>› Comfort and aesthetics</li><li>› Best in class quality</li><li>› Leather finishing</li></ul> |
| Operating force       | 8N → 16N                                                                                                                                    | 3N → 6N                                                                                                                                        | 90 daN                                                                                                                                                                                      | 150 daN                                                                                                                              |
| Mechanical life       | 300 000                                                                                                                                     | 500 000                                                                                                                                        | 35 000 FH                                                                                                                                                                                   | 35 000 FH                                                                                                                            |
| Water proofness       | DO 260 cat W                                                                                                                                | DO 260 cat W                                                                                                                                   | DO 260 cat W                                                                                                                                                                                | DO 260 cat W                                                                                                                         |
| Weight                | 3.6 g → 7.7 g                                                                                                                               | 7.3 g → 15.7g                                                                                                                                  | 420 g → 780 g                                                                                                                                                                               | 960 g → 1 250 g                                                                                                                      |
| Operating temperature | -55 °C → +85 °C                                                                                                                             | -55 °C → +85 °C                                                                                                                                | -55 °C → +85 °C                                                                                                                                                                             | -55 °C → +85 °C                                                                                                                      |
| More information      |                                                        |                                                                                                                                                |                                                                                                                                                                                             |                                                                                                                                      |

## NOTE

This image shows a single sheet of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.[illegible]



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