ExCos-P Pressure sensor 20 Pa ... 7.500 Pa

Electrical, explosion-proof pressure/differential pressure sensors
24 VAC/DC supply voltage, 0...10 V/(0)4...20 mA analogue output
EC type-approved in acc. with ATEX directive 2014/34/EU for zone 1, 2, 21, 22


<table>
<thead>
<tr>
<th>Type</th>
<th>Sensor</th>
<th>Supply</th>
<th>Range</th>
<th>min. Setting</th>
<th>max. Pressure</th>
<th>Output</th>
<th>Ex-i output</th>
<th>Wiring diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>ExCos-P- 100</td>
<td>Pressure/Diff. press.</td>
<td>24 VAC/DC</td>
<td>± 100 Pa</td>
<td>20 Pa</td>
<td>25.000 Pa</td>
<td>(0)4...20 mA / 0...10 V</td>
<td>–</td>
<td>SB 1.0</td>
</tr>
<tr>
<td>ExCos-P- 250</td>
<td>Pressure/Diff. press.</td>
<td>24 VAC/DC</td>
<td>± 250 Pa</td>
<td>50 Pa</td>
<td>25.000 Pa</td>
<td>(0)4...20 mA / 0...10 V</td>
<td>–</td>
<td>SB 1.0</td>
</tr>
<tr>
<td>ExCos-P- 500</td>
<td>Pressure/Diff. press.</td>
<td>24 VAC/DC</td>
<td>± 500 Pa</td>
<td>100 Pa</td>
<td>50.000 Pa</td>
<td>(0)4...20 mA / 0...10 V</td>
<td>–</td>
<td>SB 1.0</td>
</tr>
<tr>
<td>ExCos-P- 1250</td>
<td>Pressure/Diff. press.</td>
<td>24 VAC/DC</td>
<td>± 1.250 Pa</td>
<td>250 Pa</td>
<td>50.000 Pa</td>
<td>(0)4...20 mA / 0...10 V</td>
<td>–</td>
<td>SB 1.0</td>
</tr>
<tr>
<td>ExCos-P- 2500</td>
<td>Pressure/Diff. press.</td>
<td>24 VAC/DC</td>
<td>± 2.500 Pa</td>
<td>500 Pa</td>
<td>50.000 Pa</td>
<td>(0)4...20 mA / 0...10 V</td>
<td>–</td>
<td>SB 1.0</td>
</tr>
<tr>
<td>ExCos-P- 5000</td>
<td>Pressure/Diff. press.</td>
<td>24 VAC/DC</td>
<td>± 5.000 Pa</td>
<td>1.000 Pa</td>
<td>75.000 Pa</td>
<td>(0)4...20 mA / 0...10 V</td>
<td>–</td>
<td>SB 1.0</td>
</tr>
<tr>
<td>ExCos-P-7500</td>
<td>Pressure/Diff. press.</td>
<td>24 VAC/DC</td>
<td>± 7.500 Pa</td>
<td>1.500 Pa</td>
<td>120.000 Pa</td>
<td>(0)4...20 mA / 0...10 V</td>
<td>–</td>
<td>SB 1.0</td>
</tr>
</tbody>
</table>

ExCos-P-...-A Types as above with additional intrinsically safe analogue output to connect an external digital indicator
(0)4...20 mA
SB 3.1

ExCos-P-...-CT Types as above with aluminium housing and seawater resistant coating (cable glands M16 brass nickel-plated, screws in stainless steel)

ExCos-P-...-OCT Types as above, offshore version with aluminium housing and seawater resistant coating (stainless steel tubes for clamping ring connection, cable glands M20 brass nickel-plated, screws in stainless steel)

ExCos-P-...-VA Types as above with stainless steel housing for aggressive ambient (cable glands M20 brass nickel-plated, screws in stainless steel)

ExCos-P-...-OVA Types as above, offshore version with stainless steel housing for aggressive ambient (tubes for clamping ring connection and screws in stainless steel, cable glands M20 brass nickel-plated)

Product views and applications

Description

The ExCos-P-... pressure sensor generation from ± 100 Pa to ±7.500 Pa (acc. to type) is a revolution for differential pressure measuring in HVAC systems, in chemical, pharmaceutical, industrial and offshore/onshore plants, for use in hazardous areas zone 1, 2 (gas) and zone 21, 22 (dust).

Highest protection class (ATEX) and IP66 protection, small dimensions, universal functions and technical data guarantee safe operation even under difficult environmental conditions.

All sensors are programmable on site without any additional tools. The measuring ranges are scalable within the maximum ranges. At ExCos-P-100 the smallest ∆P range is 20 Pa. The analogue output signal is either 0...10 VDC or (0)4...20 mA and can be selected on site. The integrated display is for parametrisation and an actual value indication at working mode (can be switched off as needed).

...Cos-P-...-A sensors are equipped with an additional intrinsically safe (IS) output, e.g. for an external indicator.

...Cos-P-...-OCT and ...-OVA offshore versions are equipped with stainless steel tubing Ø 6 mm.

Highlights

► For all types of gases, mists, vapours and dust for use in zone 1, 2, 21 and 22
► Power supply 24 VAC/DC
► Scalable analogue output, selectable 0...10 V / (0)4...20 mA
► Integrated Ex-e terminal box
► No additional Ex-i module required
► No intrinsically safe wiring/installation between panel and sensor required
► No intrinsically safe wiring/installation and no space in the panel required
► Optional IS-output (0)4...20 mA for external indicator in Ex-areas
► Display with backlight, can be switched off
► Password locking
► Down to −20 °C ambient temperature applicable
► Compact design and small dimension
► Robust aluminium housing (optional with seawater resistant coating) or in stainless steel
► IP66 protection
► Offshore versions with pressure tube connection for clamping ring Ø 6 mm

Schischek GmbH
Germany, Muehlsteig 45, Gewerbegebiet Sued 5, 90579 Langenzenn, Tel. +49 9101 9081-0, Fax +49 9101 9081-77, E-Mail info-de@schischek.com

www.schischek.com 1/5
**Technical data**

Supply voltage, frequency
24 VAC/DC ± 20 % (19,2...28,8 VAC/DC), 50/60 Hz

Current, power consumption
150 mA, ~ 4 W, internal fuse 500 mAAT, without bracket, not removable

Galvanic isolation
Supply for analogue in- and outputs min. 1,5 kV, supply for relay output min. 1,5 kV

Electrical connection
Terminals 0,14...2,5 mm² at integrated Ex-e terminal box, stripping length 9 mm, torque 0,4...0,5 Nm, equipotential bonding 4 mm²

Cable glands
2 × M16 × 1,5 mm, Ex-e approved, brass nickel-plated, for cable diameter ~ Ø 6...10 mm

Cable glands...
2 × M20 × 1,5 mm, Ex-e approved, brass nickel-plated, for cable diameter ~ Ø 6...13 mm

Protection class
Class I (grounded)

Display
2 × 16 digits, dot-matrix display, backlight, for configuration, user guidance, parameter and actual value indication

Control elements
3 buttons for configuration

Housing material
Aluminium die-cast housing, coated. Optional with seawater resistant coating (...-CT/...-OCT) or stainless steel housing,

EAC

IP66 in acc. with EN 60529

Enclosure protection

Supply voltage, frequency
24 VAC/DC ± 20 % (19,2...28,8 VAC/DC), 50/60 Hz

Current, power consumption
150 mA, ~ 4 W, internal fuse 500 mAAT, without bracket, not removable

Galvanic isolation
Supply for analogue in- and outputs min. 1,5 kV, supply for relay output min. 1,5 kV

Electrical connection
Terminals 0,14...2,5 mm² at integrated Ex-e terminal box, stripping length 9 mm, torque 0,4...0,5 Nm, equipotential bonding 4 mm²

Cable glands...
2 × M16 × 1,5 mm, Ex-e approved, brass nickel-plated, for cable diameter ~ Ø 6...10 mm

Cable glands...
2 × M20 × 1,5 mm, Ex-e approved, brass nickel-plated, for cable diameter ~ Ø 6...13 mm

Protection class
Class I (grounded)

Display
2 × 16 digits, dot-matrix display, backlight, for configuration, user guidance, parameter and actual value indication

Control elements
3 buttons for configuration

Housing material
Aluminium die-cast housing, coated. Optional with seawater resistant coating (...-CT/...-OCT) or stainless steel housing,

Speaker
Internal speaker

Pressure connection
P+ / P− sleeves Ø 4...6 mm. OCT versions have 2 stainless steel (316L) tube connections for clamp ring fittings Ø 6 mm

Measuring range
± 100 Pa, ± 250 Pa, ± 500 Pa, ± 1.250 Pa, ± 2.500 Pa, ± 5.000 Pa in acc. to type

Min. measuring range 20 % of full range (e.g. 20 Pa at ± 100 Pa sensor)

Response time of sensor
T90 / 5 s

Accuracy of pressure
< ± 1 % typically, max. ± 2 % of end value ± 1 Pa

Non linearity and hysteresis
± 0,05 % typically, max. ± 0,25 % of end value

Start delay
5 s

Setting zero point
Via menu. Short-circuit mechanically both tube connectors P+ / P− for the moment of zero point setting

Stability
Long term stability < 0,2 %/year, temperature influence < 0,02 %/K, supply voltage influence < 0,01 %

Output voltage U [V] or current I [mA], selectable on site via menu, protected against short circuit and external voltage up to 24 V and against polarity reversal

Voltage output U
0...10 VDC adjustable, invertible, burden > 1 kΩ, influence < 0,05 %/100 Ω

Current output I
0...20 mA adjustable, invertible, burden < 500 Ω, influence < 0,1 %/100 Ω, open circuit voltage < 24 V

Output in alarm mode
Increasing or decreasing output signal, selectable on site, down to 0 VDC/0 mA or up to 10 VDC/20 mA

Wiring diagram
SB 1.0

Scope of delivery
Sensor, 3 self-tapping screws 4,2 × 13 mm resp. in stainless steel (with ...CT and ...VA versions), short circuit tube

Wire harness
SB 3.1

Parameter at delivery
Min./max. pressure range limits (e.g. ExCos-P-100 = 100...+100 Pa), output 4...20 mA, output in alarm mode decreasing to 0 V/0 mA as above and 1 additional intrinsically safe analogue output

Ex-i analogue output
(0)...20 mA, intrinsically safe (IS), burden max. 400 Ω

Accuracy
± 0,5 %

Wiring diagram
SB 3.1

**Special solutions and accessories**

- **...-CT**
  - Types in aluminium housing with seawater resistant coating,
  - parts nickel-plated

- **...-OCT**
  - Offshore version in aluminium housing with seawater resistant coating,
  - parts nickel-plated

- **...-VA**
  - Types in stainless steel housing, parts nickel-plated

- **...-OVA**
  - Offshore version in stainless steel housing, parts nickel-plated

**Atex directive**
2014/34/EU

**IECEx certified**
IECEX EDS 14.0122X

**Approval for gas**
II 2 (1) G Exema [a Ga] IIC T6...T4 Gb

**Approval for dust**
II 2 (1) D Ex ib [a Da] IIC T80°C...T130°C Db IP66

**CE identification**
CE No 0158

**EMC directive**
2014/30/EU

**Enclosure protection**
IP66 in acc. with EN 60529

**EAC**
TC RU C-DE.6B08.B.01510

**Specifications**

- **SB 1.0**
  - Flexible pressure tube, 2 m, inner Ø 6 mm, 2 connection nipples

- **Kit S8-CBR**
  - 2 cable glands M16 × 1,5 mm, Ex-brass nickel-plated, for cable Ø 5...10 mm

- **Kit-Offs-GL-CBR**
  - 2 cable glands M20 × 1,5 mm, Ex-d, Ms-Ni, for armoured cables

- **Kit-PT-CBR**
  - Connecting tubes for tube fittings Ø 6 mm, stainless steel 316 L

**ExBin-P...-2**

**ExCos-P...-En**

**V02 – 4-Jul-2016**

**Schischek GmbH** Germany, Muehlsteig 45, Gewerbegebiet Sued 5, 90579 Langenzenn, Tel. +49 9101 9081-0, Fax +49 9101 9081-77, E-Mail info-de@schischek.com

**www.schischek.com**
### Electrical connection

All sensors require a 24 VAC/DC power supply. The electrical wiring must be realized via the integrated Ex-e terminal box acc. to ATEX. The terminals’ type of protection is “Increased safety Ex-e”.

**Attention:** Before opening the terminal box cover, the supply voltage must be shut off!

The supply has to be connected at terminals 1 (−~/−) and 2 (+~/+), the analogue output at terminals 3 (mA/0-10 V) and 4 (GND). The optional analogue output at ...Cos-P-...-A is intrinsically safe. Note the maximum connection values of intrinsically safe parameters (see table below).

### Intrinsic safety parameters (IS) – Internal pressure sensor

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>( U_i )</td>
<td>7.9 V</td>
</tr>
<tr>
<td>( I_i )</td>
<td>48 mA</td>
</tr>
<tr>
<td>( P_o )</td>
<td>95 mW</td>
</tr>
</tbody>
</table>

Internal sensor IS values are corresponding to the internal pressure sensor. Due to the matter of fact that there is no external sensor connected, these IS values are not relevant for the customer but shown for the sake of completeness.

### Ex-i output (optional) – ExCos-P-...-A

**Connector and terminals:**

Female connector

Male connector

<table>
<thead>
<tr>
<th>Connector</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>( U_m )</td>
<td>30 V</td>
</tr>
</tbody>
</table>

### Intrinsic safety parameters (IS) – Analogue Ex-i output

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>( U_o )</td>
<td>7.9 V</td>
</tr>
<tr>
<td>( I_o )</td>
<td>85 mA</td>
</tr>
<tr>
<td>( P_o )</td>
<td>336 mW</td>
</tr>
</tbody>
</table>

### Zero point compensation

...Cos-P-... pressure sensors are equipped with a zero point compensation to adjust the module to the installation position. The pressure nipples \( P+ / P− \) must be connected with a short circuit tube and the zero point compensation performed by following the menu for parametrisation (menu 18).

Before starting the zero point compensation, the device should be connected to power supply for a minimum of 15 minutes to reach the uniform working temperature!
**Parametrisation and commissioning**

To change from operation to parametrisation mode
push the "ENTER" button for minimum 3 seconds.
If password protected: type password and push .

Back over to menu “Save” and exit.

<table>
<thead>
<tr>
<th>Menu</th>
<th>Function</th>
<th>ENTER</th>
<th>Indication</th>
<th>Select</th>
<th>ENTER</th>
<th>Next indication</th>
<th>Select</th>
<th>ENTER</th>
<th>Next menu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Menu 1</td>
<td>DE, EN, FR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select language: German, English, French</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Operation → Parametrisation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>push ( ) for min. 3 s</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menu 2</td>
<td>no function – menu skip</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menu 3</td>
<td>no function – menu skip</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menu 4</td>
<td>Unit sensor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select physical unit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menu 5</td>
<td>Range</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adjust the measuring range</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menu 6</td>
<td>no function – menu skip</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menu 7</td>
<td>Output V, mA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select output signal as V or mA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menu 8</td>
<td>Output range</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adjust output range</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menu 9</td>
<td>Sensor error</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select signal at sensor error</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menu 10</td>
<td>Output V, mA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select output signal as V or mA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menu 11</td>
<td>no function – menu skip</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menu 12</td>
<td>no function – menu skip</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menu 13</td>
<td>no function – menu skip</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menu 14</td>
<td>no function – menu skip</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menu 15</td>
<td>no function – menu skip</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menu 16</td>
<td>Output Ex-i (option, only at ...Cos-P-...-A)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select lower output signal: 0 mA resp. 4 mA (0...20 or 4...20 mA)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menu 17</td>
<td>no function – menu skip</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menu 18</td>
<td>Zero point compensation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>After short circuit the pressure nipples P+/P− the sensor gets a zero point calibration</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menu 19</td>
<td>Display function</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select display settings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menu 20</td>
<td>Password</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select password protection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menu 21</td>
<td>Save and exit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select: save data, factory setting, discard or back to menu</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menu 22</td>
<td>Set offset</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Add/ subtract offset from measure value</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menu 23</td>
<td>no function – menu skip</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menu 24</td>
<td>Attenuation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Damping the output signal (signal filter)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Example:** Menu language | English
--- | ---
Range | –25...+25 Pa
Output | 4...20 mA
Output Ex-i | 0...20 mA

---

Schischek GmbH
Germany, Muehlsteig 45, Gewerbegebiet Sued 5, 90579 Langenzenn, Tel. +49 9101 9081-0, Fax +49 9101 9081-77, E-Mail info-de@schischek.com
## Dimensions [mm]

### Aluminium housing

<table>
<thead>
<tr>
<th>ExCos-P...</th>
<th>...-CT</th>
<th>...-OCT</th>
<th>...-VA</th>
<th>...-OVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>69</td>
<td>81.3</td>
<td>126.3</td>
<td>~ 61</td>
<td></td>
</tr>
<tr>
<td>Ø 4.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Stainless steel housing

<table>
<thead>
<tr>
<th>ExCos-P...</th>
<th>...-CT</th>
<th>...-OCT</th>
<th>...-VA</th>
<th>...-OVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>181.7</td>
<td>182.7</td>
<td>123.3</td>
<td>~ 226</td>
<td>~ 194</td>
</tr>
<tr>
<td>Ø 4.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Special options**

- ...-CT
- ...-OCT
- ...-VA
- ...-OVA

---

**Schischek GmbH**
Germany, Muehlsteig 45, Gewerbegebiet Sued 5, 90579 Langenzenn, Tel. +49 9101 9081-0, Fax +49 9101 9081-77, E-Mail info-de@schischek.com

---

ExCos-P... ExCos-P...-A
Special options ...-CT ...-OCT ...-VA ...-OVA

---

ExCos-P... en
V02 – 4-Jul-2016

---

www.schischek.com