SE-709 - The Program Controller XXL

high performance • user friendly • premium quality
The SE-709 is a universal compact automation device for small and medium-sized control tasks, which can be configured optimally for the required automation task by using the integrated software function modules and additional CAN peripherals. Necessary linkages of the function modules among each other as well as connection to I/O field are created by means of the integrated PLC function (instructions list editor).

Analogue device functions like actual values, set values, programmer, controller, tolerances, limit values etc. can be adapted and/or set easily at the device just like the PLC without external tools. This also applies for the other device functions like e.g. the extensive alarm processing with historical alarm recording. Plant visualization can be realized by an external graphic editor which provides a good and clear plant overview and the actual process condition.
EXCELLENT: PRICE / PERFORMANCE

Extensive basic equipment inclusive:
- Programmer
- Controller
- Alarm system
- PLC
- High-resolution glass display
- Capacitive multi-touch screen with gesture control
- Stainless steel housing
- Built up of high-quality parts
- Investment protection by more than 10 years spare part availability

EXTENSIVE OPTIONAL EQUIPMENT

- Recorder
- Visualisation
- C-level
- Humidity calculation
- Interface modules (PROFINET, PROFIBUS)
- Operating hours counter
- S7-Modbus-TCP
- Language packs
EASY CONFIGURATION

- Easy menu-driven configuration without programming knowledge
- Predefined function groups
- Configuration of functions possible without higher previous knowledge
- Easy integration of analogue functions via functional in-/outputs
- PLC STL with comments, status and search function

INTUITIVE OPERATION

- Multi-touch screen
- Lists scrollable
- Intuitive operating logic
- Recorder
- User administration
- Online language switching
- Real-time set and actual value diagram
- Visualisation with 16 million colours, 1280 x 1024 pixels (130 DPI)
- Client operation via MS Windows
HIGH-QUALITY DESIGN

- High-quality manufacturing
- High-quality materials
- Stainless steel housing
- Front panel with glass touch in aluminium mounting profile
- Front panel optional in custom design

STANGE SERVICES

- Technical consulting with manufacturer know-how
- Task analysis and selection of components
- Free support hotline
- Repair center for short repair times
- After-sales service
- Service offices in China and India
Operating Software

Client operating software SE-Config-Print
- PC software for device operation with input keyboard
- Access to one device from several PCs without restrictions for the operator
- Access authorisation via login code

CONFIG.-OUTPUT/PLC EDITOR

Configuration Output:
- Device configuration access via PC software
- Printout of the complete configuration data
- Data storage as PDF and/or Word file

PLC Editor:
- Editor for editing the device statement list
- Display of two statement lists at the same time to take-over already existing functions
- Search function
- Structure by networks
- Assignable symbol list
OPTION: 16/32 CHANNEL RECORDER

- Free configurable 16/32 channel data recorder
- Storage of all alarms according to each log file
- 20 configurable header data fields for each log file
- Text field for further information to each log file
- Analysis with super zoom function and ruler in the SE-709 program controller
- Intermediate storage of 200 batch files and/or daily files

EVALUATION SOFTWARE ECS-AW

- Low-cost evaluation software ECS-AW for PC
- Graph evaluation with all stored channels
- Free configuration of all parameters (channels, colours, legend etc.)
- Any numbers of configurations storable
- Zoom positionable anywhere with the mouse
- Cross-hair to read off detailed values
- Finished files are automatically collected via Ethernet
- User-friendly evaluation options
- Easy convert to CSV or XML format
**INTERFACE FOR S7-1200/1500**

- SE-709 as program controller OP with data recorder for the S7
- Use of the low-cost S7-1200 for digital connections
- Available interface for SIEMENS S7-1200/1500
- Data blocks for the S7 are included in delivery (plug & play)
- Mirroring of all SE-709 function blocks into the S7; Thereby the function blocks of the SE-709 are available in the S7 TIA portal

**PROFINET INTERFACE**

- SE-709 as program controller OP with data recorder for the S7
- Available interface for SIEMENS S7-1200/1500
- Data blocks for the S7 are included in delivery (plug & play)
- Mirroring of all SE-709 function blocks into the S7; Thereby the function blocks of the SE-709 are available in the S7 TIA portal
STANGE-SIOS I/O-MODULES

CAN bus connection group for up to 64 modules:

- SIOS-IW1-XL, 1 universal analogue input
- SIOS-IW2, 2 analogue inputs (standard signal)
- SIOS-DAC2, 2 analogue outputs
- SIOS-DI4, 4 digital inputs
- SIOS-DO4, 4 digital outputs

STANGE-CAN I/O-MODULES

CAN bus connection group for up to 4 modules:

- CAN-IW4-XL/CAN-IW8-XL, 4/8 analogue inputs
- CAN-IW8-Q, 8 standard signal inputs
- CAN-DAC1/2/4, 1, 2, 4 analogue outputs (DAC)
- CAN-E16A16, 16 digital inputs/16 digital outputs
- CAN-E32, 32 digital inputs
- CAN-A32, 32 digital outputs
- CAN-REL8-8A, 8 relay outputs
### Programmer

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
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<tbody>
<tr>
<td>Programs</td>
<td>250</td>
</tr>
<tr>
<td>Loops per program</td>
<td>8</td>
</tr>
<tr>
<td>Set values</td>
<td>30</td>
</tr>
<tr>
<td>Digital tracks</td>
<td>64</td>
</tr>
<tr>
<td>Segments</td>
<td>max. 50 per program</td>
</tr>
<tr>
<td>Process steps</td>
<td>max. 50, freely configurable</td>
</tr>
</tbody>
</table>

### Controller

<table>
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<tr>
<th>Feature</th>
<th>Value</th>
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<tr>
<td>Control zone</td>
<td>20</td>
</tr>
<tr>
<td>Controller types</td>
<td>PID linear, 2-point, 2-point PID, 3-point, 3-point PID, 3-point stepping (PI), configurable</td>
</tr>
<tr>
<td>PID parameter</td>
<td>8 parameter sets</td>
</tr>
<tr>
<td>Tolerance band</td>
<td>1 per control zone</td>
</tr>
<tr>
<td>Limit values</td>
<td>2 limit values per control zone</td>
</tr>
</tbody>
</table>

### Formula

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<th>Value</th>
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<tr>
<td>Formula</td>
<td>20</td>
</tr>
<tr>
<td>Operations</td>
<td>+, -, *, /, (, ), square root, e^x, Lg (logarithm), absolute value, sinus, cosine</td>
</tr>
</tbody>
</table>

### Tolerances

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<thead>
<tr>
<th>Feature</th>
<th>Value</th>
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<tr>
<td>Tolerances</td>
<td>40</td>
</tr>
<tr>
<td>Tolerance outputs</td>
<td>32</td>
</tr>
<tr>
<td>Comparisons</td>
<td>Av-Sv, Av-Av, X-Sv, X-Av, X-X</td>
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</table>

### Limit Values

<table>
<thead>
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<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limit values</td>
<td>40</td>
</tr>
<tr>
<td>Possible values</td>
<td>Sv, Av, X, variable value, Y, controller Av, controller Av</td>
</tr>
</tbody>
</table>

### Alarms

<table>
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<th>Feature</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Alarms</td>
<td>64 (optional: 200); internal error alarms 16, alarm priorities 8, alarm delays 8 (= priorities), 0.1 ... 99.9 sec, configurable, alarm processing 1:1, binary or BCD, configurable, system alarm output, visual and acoustic signal, acknowledgement of individual alarms selective</td>
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</tbody>
</table>

### Analogue Multiplexer

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<th>Feature</th>
<th>Value</th>
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<tr>
<td>MUX modules</td>
<td>10</td>
</tr>
<tr>
<td>Possible values</td>
<td>Sv, Av, formula value X, variable</td>
</tr>
<tr>
<td>Analogue inputs</td>
<td>4 per MUX module</td>
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</table>

### Internal PLC Function

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<th>Feature</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Programming</td>
<td>statement list (STL)</td>
</tr>
<tr>
<td>Statements</td>
<td>max. 3.200</td>
</tr>
<tr>
<td>Commands</td>
<td>logical commands, timer commands (switch-on-, switch-off-delay, time impulse)</td>
</tr>
<tr>
<td>Number of timers</td>
<td>64</td>
</tr>
<tr>
<td>Number of flags</td>
<td>512</td>
</tr>
<tr>
<td>Cycle time</td>
<td>100 ms</td>
</tr>
</tbody>
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### I/O system: STANGE SIOS or CAN (via CAN-Bus)

16 analogue inputs, 16 analogue outputs, 64 digital inputs, 64 digital outputs (optional: 48 analogue inputs, 32 analogue outputs, 200 digital inputs, 200 digital outputs)
## TECHNICAL DATA

### Display
- Display: TFT LCD 48.2 cm (19“)
- Resolution: 1280 x 1024 pixels (SXGA)
- Number of colours: 16 million colours
- Background lighting: LED
- Front screen: Glass 3 mm
- Operation: Capacitive touch

### Protection Class
- Protection class front: IP 65
- Protection class back: IP 20
- EMC interference resistance: EN 61000-6-2
- Electromagnetic radiation: EN 61000-6-3

### Processor / Memory
- Processor: Freescale™ i.MX 6 ARM, 800 MHz
- Main memory: 1 GB DRAM
- Retain memory: 1 MB SRAM, battery-buffered
- microSD memory card: ≥ 1 GB for Firmware

### Interfaces
- I/O interfaces: CAN Master, Modbus TCP-Slave, S7-Modbus (option), Profinet DP-Slave (option), Profinet IO-Device (option)
- System LEDs: PLC, CAN, Alarm, Watchdog
- Ethernet: 10/100 1x USB: 2.0 2x CAN: 1x

### Performance Data
- Power supply: 24 V DC (18 ... 36V)
- Operation: Capacitive touch
- Galvanic separation: Yes
- Power consumption: Typ. 24 W
- Battery back-up: Lithium battery
- Real-time clock (RTC): Date/time
- Operating temperature: 0 ... 45 °C

### Operating System
- Operating system: Windows Embedded Compact 7

### Dimension / Weight
- Dimension (W x H x D): 461.8 x 414.6 x 119 mm
- Weight: 8.3 kg
<table>
<thead>
<tr>
<th>Locations &amp; Representations</th>
<th>USA</th>
<th>Iran</th>
<th>Czech Republic</th>
<th>Brazil</th>
</tr>
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<tbody>
<tr>
<td><strong>Parent Company</strong></td>
<td><strong>USA</strong> Heat Treating Equipment</td>
<td><strong>Iran</strong> OTAD Sanat Novin Co.</td>
<td><strong>Czech Republic</strong> ECOSOND s.r.o.</td>
<td><strong>Brazil</strong> TECPROPRO</td>
</tr>
<tr>
<td>STANGE Elektronik GmbH</td>
<td>82 Heron Drive</td>
<td>No. 10, Parvaneh Str.</td>
<td>K Vódarne 531</td>
<td>Rua Eleonora Cintra, N° 469</td>
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<td>Tehran 14139913593</td>
<td>257 22 Cercany</td>
<td>Tatuapé, São Paulo, SP</td>
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<td><a href="http://www.otad.ir">www.otad.ir</a></td>
<td><a href="http://www.ecosond.cz">www.ecosond.cz</a></td>
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<tr>
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<td><strong>Office India</strong> SukhSwapna, R.L.117, Milap Nagar</td>
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