

**Product KSM 100-4**

Measurements in mm (h.x.d.x.w): 100x115x157,5

**Description**

Open programmable safe PLC for machinery and plant construction. The modules can be enhanced up to 130 safe I/O's and / or up to 12 axes. The basic module KSM100-4 supplies 20 safe I/O's, 14 safe inputs and 3 safe cut off channels as well as a memory card slot for easy program and configuration change. option: fieldbus interface can be integrated.

The continuous function chart oriented programming frame SafePLC allows an easy and comfortable implementation of safety related tasks. The firmware of modules offers an comprehensive library for standard functions for safe signal preprocessing of safety related sensors and actors as well as for practical technology functions especially for safe motion of drives.

The spectrum of the modules reaches from conventional safe logic processing through simple safe speed monitoring tasks of single axes up to complex safe more dimensional speed- and range / zone monitoring in multiple axes processing.

- 40 safe I/O's configurable as input or output, 14 safe inputs, 3 cut off channels, thereof 1 safe relay output and 10 messaging outputs in the basic module
- Expandable up to 130 safe I/O's, and / or 12 safe axes via backplane bus (connectors to snap on head rail)
- CFC oriented programming with SafePLC - Software
- Comprehensive library with pre-configured safety related sensors and actors
- Complete speed- and position-oriented safety functions for safe motion according to EN 61800-5-2
- Dimensional functions for safe speed- and range / zone monitoring possible
- Parameter administration for expansion modules in the basic module
- Cross circuit monitoring
- Comprehensive diagnostics integrated in firmware
- Coded status display using a 7-segment display and LED's mounted in the front side
- Quit-/Start-/Reset- button in front side



**Technical data**

| Safety characteristics |  |  |
|------------------------|--|--|
|                        | PI in accordance to EN 13849                   | PI e   |
|                        | PFH/Architecture                               | Typ. 6,0 * 10 <sup>-9</sup> /Architecture Class 4  |
|                        | SIL in accordance to EN 61508                  | SIL 3  |
|                        | Proof-test-interval                            | 20 years = max. period of application  |
| General data           |  |  |
|                        | Max. number of extension modules               | 6  |
|                        | Interface for extension modules                | T-bus-connector (compact assembly) / KSM 51 bus extension module (decentralize assembly) |
|                        | Safe digital input lines                       | 14 incl. 8 OSSD  |
|                        | Safe digital I/O lines                         | 40   |
|                        | Safe digital output lines                      | 2  |
|                        | Safe analog-In                                 | -  |
|                        | Safe relay outputs                             | 1  |
|                        | Standard output lines                          | 10   |
|                        | Pulse output lines (cross-short-cut detection) | 2  |
|                        | Type of connectors                             | Pluggable terminals  |
| Electrical data        |  |  |
|                        | Supply voltage                                 | 24 VDC/2A  |
|                        | Tolerance                                      | -15%, +20%   |
|                        | Power consumption                              | Max. 3,2 W   |
|                        | Rated data digital In                          | 24 VDC; 20 mA, Typ1 in accordance to EN61131-2   |
|                        | Rated data digital Out                         | 24 VDC; 250 mA   |
|                        | Rated data relay output                        | 24 VDC/2A and 230 VAC/2A   |
|                        | Pulse output lines (cross-short-cut detection) | Max. 250 mA  |
|                        | Max. fuse on supply voltage                    | Max. 2 A   |
| Environmental data     |  |  |
|                        | Temperature                                    | 0° up to 50° operational temp.; -10° up to +70° storage temp.                            |
|                        | Protection rating                              | IP 52  |
|                        | Climate class                                  | 3 in accordance to DIN 50 178  |
|                        | EMI  | According to EN 55011 and EN 61000-6-2   |
| Mechanical data        |  |  |
|                        | Size (h.x.d.x.w) [mm]                          | 100x115x157,5  |
|                        | Weight   | 920 g  |
|                        | Mounting                                       | Snap-on mounting on standard head rail   |
|                        | Max. terminal cross-section                    | 1,5 mm <sup>2</sup>  |

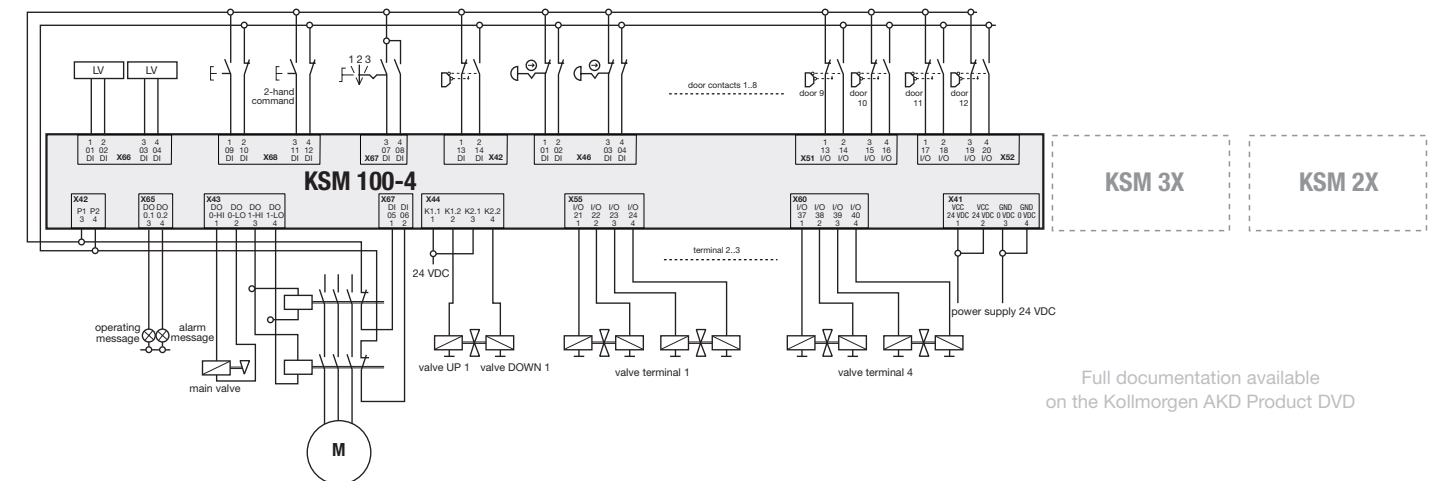
**Pin Out - terminal diagram**

|             |  |
|-------------|--|
| <b>X 41</b> | 1 - U24 external powersupply module +24 Volts<br>2 - U24 external powersupply module +24 Volts<br>3 - GND external powersupply module 0 VDC<br>4 - GND external powersupply module 0 VDC   |
| <b>X 42</b> | 1 - DI 13 digital IN 13<br>2 - DI 14 digital IN 14<br>3 - P1 pulse output P1<br>4 - P2 pulse output P2   |
| <b>X 43</b> | 1 - DO 0 - HI HISIDE-output 0<br>2 - DO 0 - LO LOSIDE-output 0<br>3 - DO 1 - HI HISIDE-output 1<br>4 - DO 1 - LO LOSIDE-output 1   |
| <b>X 44</b> | 1 - K1.1 relay output 1<br>2 - K1.2<br>3 - K2.1 relay output 2<br>4 - K2.2   |
| <b>X 53</b> | 1 - U24 external powersupply module +24 Volts<br>2 - U24 external powersupply module +24 Volts<br>3 - GND external powersupply module 0 VDC<br>4 - GND external powersupply module 0 VDC   |
| <b>X 54</b> | 1 - IO 21 digital I/O 21<br>2 - IO 22 digital I/O 22<br>3 - DO 07 pulse output 7<br>4 - DO 08 pulse output 8   |
| <b>X 55</b> | 1 - IO 23 digital I/O 23<br>2 - IO 24 digital I/O 24<br>1 - IO 25 digital I/O 25<br>2 - IO 26 digital I/O 26<br>1 - IO 27 digital I/O 27<br>2 - IO 28 digital I/O 28<br>1 - IO 29 digital I/O 29<br>2 - IO 30 digital I/O 30   |
| <b>X 56</b> | 1 - IO 23 digital I/O 23<br>2 - IO 24 digital I/O 24<br>1 - IO 25 digital I/O 25<br>2 - IO 26 digital I/O 26<br>1 - IO 27 digital I/O 27<br>2 - IO 28 digital I/O 28<br>1 - IO 29 digital I/O 29<br>2 - IO 30 digital I/O 30   |
| <b>X 55</b> | 1 - IO 23 digital I/O 23<br>2 - IO 24 digital I/O 24<br>1 - IO 25 digital I/O 25<br>2 - IO 26 digital I/O 26<br>1 - IO 27 digital I/O 27<br>2 - IO 28 digital I/O 28<br>1 - IO 29 digital I/O 29<br>2 - IO 30 digital I/O 30   |
| <b>X 56</b> | 1 - IO 27 digital I/O 27<br>2 - IO 28 digital I/O 28<br>1 - IO 29 digital I/O 29<br>2 - IO 30 digital I/O 30   |
| <b>X 65</b> | 1 - NC NC<br>2 - NC NC<br>3 - DO 0.1 messaging and auxiliary output 1<br>4 - DO 0.2 messaging and auxiliary output 2   |
| <b>X 66</b> | 1 - DI 01 digital IN 01 OSSD compatible<br>2 - DI 02 digital IN 02 OSSD compatible<br>3 - DI 03 digital IN 03 OSSD compatible<br>4 - DI 04 digital IN 04 OSSD compatible   |
| <b>X 45</b> | 1 - U24 external powersupply module +24 Volts<br>2 - U24 external powersupply module +24 Volts<br>3 - GND external powersupply module 0 VDC<br>4 - GND external powersupply module 0 VDC   |
| <b>X 46</b> | 1 - IO 01 digital I/O 1<br>2 - IO 02 digital I/O 2<br>3 - DO 03 messaging and auxiliary output 3<br>4 - DO 04 messaging and auxiliary output 4   |
| <b>X 47</b> | 1 - IO 03 digital I/O 3<br>2 - IO 04 digital I/O 4<br>1 - IO 05 digital I/O 5<br>2 - IO 06 digital I/O 6   |
| <b>X 48</b> | 1 - IO 07 digital I/O 7<br>2 - IO 08 digital I/O 8<br>1 - IO 09 digital I/O 9<br>2 - IO 10 digital I/O 10  |
| <b>X 57</b> | 1 - U24 external powersupply module +24 Volts<br>2 - U24 external powersupply module +24 Volts<br>3 - GND external powersupply module 0 VDC<br>4 - GND external powersupply module 0 VDC   |
| <b>X 58</b> | 1 - IO 31 digital I/O 31<br>2 - IO 32 digital I/O 32<br>3 - DO 09 messaging and auxiliary output 9<br>4 - DO 10 messaging and auxiliary output 10  |
| <b>X 59</b> | 1 - IO 33 Digital I/O 33<br>2 - IO 34 Digital I/O 34<br>1 - IO 35 Digital I/O 35<br>2 - IO 36 Digital I/O 36<br>1 - IO 37 Digital I/O 37<br>2 - IO 38 Digital I/O 38<br>1 - IO 39 Digital I/O 39<br>2 - IO 40 Digital I/O 40   |
| <b>X 60</b> | 1 - IO 33 Digital I/O 33<br>2 - IO 34 Digital I/O 34<br>1 - IO 35 Digital I/O 35<br>2 - IO 36 Digital I/O 36<br>1 - IO 37 Digital I/O 37<br>2 - IO 38 Digital I/O 38<br>1 - IO 39 Digital I/O 39<br>2 - IO 40 Digital I/O 40   |
| <b>X 67</b> | 1 - DI 05 digital IN 05<br>2 - DI 06 digital IN 06<br>3 - DI 07 digital IN 07<br>4 - DI 08 digital IN 08<br>1 - DI 09 digital IN 09 OSSD compatible<br>2 - DI 10 digital IN 10 OSSD compatible<br>3 - DI 11 digital IN 11 OSSD compatible<br>4 - DI 12 digital IN 12 OSSD compatible |
| <b>X 49</b> | 1 - U24 external powersupply module +24 Volts<br>2 - U24 external powersupply module +24 Volts<br>3 - GND external powersupply module 0 VDC<br>4 - GND external powersupply module 0 VDC   |
| <b>X 50</b> | 1 - IO 11 digital I/O 11<br>2 - IO 12 digital I/O 12<br>3 - DO 05 messaging and auxiliary output 5<br>4 - DO 06 messaging and auxiliary output 6   |
| <b>X 51</b> | 1 - IO 13 digital I/O 13<br>2 - IO 14 digital I/O 14<br>1 - IO 15 digital I/O 15<br>2 - IO 16 digital I/O 16<br>1 - IO 17 digital I/O 17<br>2 - IO 18 digital I/O 18<br>1 - IO 19 digital I/O 19<br>2 - IO 20 digital I/O 20   |
| <b>X 52</b> | 1 - IO 13 digital I/O 13<br>2 - IO 14 digital I/O 14<br>1 - IO 15 digital I/O 15<br>2 - IO 16 digital I/O 16<br>1 - IO 17 digital I/O 17<br>2 - IO 18 digital I/O 18<br>1 - IO 19 digital I/O 19<br>2 - IO 20 digital I/O 20   |
| <b>X 61</b> | 1 - U24 external powersupply module +24 Volts<br>2 - U24 external powersupply module +24 Volts<br>3 - U24 exterm powersupply module 0 VDC<br>4 - U24 exterm powersupply module 0 VDC   |
| <b>X 62</b> | 1 - NC NC<br>2 - NC NC<br>3 - NC NC<br>4 - NC NC   |
| <b>X 63</b> | 1 - NC NC<br>2 - NC NC<br>3 - NC NC<br>4 - NC NC<br>1 - NC NC<br>2 - NC NC<br>3 - NC NC<br>4 - NC NC   |
| <b>X 64</b> | 1 - NC NC<br>2 - NC NC<br>3 - NC NC<br>4 - NC NC   |

**KSM 100-4 - I/O overview**

| Quantity | I/O s                  |
|----------|------------------------|
| 14       | digital inputs         |
| 40       | digital inputs/outputs |
| 2        | pulse outputs          |
| 2        | digital outputs relays |
| 2        | digital outputs LOSIDE |
| 2        | digital outputs HISIDE |
| 10       | messaging outputs      |
| 1        | memory card            |

**KSM 100-4 - sketch (example)**



Full documentation available on the Kollmorgen AKD Product DVD