### Table 3-2: System components *(continued)*

| Component | Type | Description |
|---|---|---|
| Backplane | A6371/00 | Trip Voted Trip Relay with 2 out of 3 logic |
| | A6371/10 | Trip Not Voted Trip relay without majority voting |
| Module frame | A6352 | 19” module frame, 3RU |
| Terminal block | A6380 | Sub-D Interface 9 pole |
| | A6381 | Sub-D Interface 25 pole |
| Cables | A6384 | Sub-D cable 9 pole, length: 1 m |
| | A6385 | Sub-D cable 25 pole, length: 1 m |
| | A6386 | Sub-D cable 9 pole, length: 3 m |
| | A6387 | Sub-D cable 25 pole, length: 3 m |
| Configuration Kit | A6910 | Cable for configuration of the monitors and measuring cables with BNC-SMB adapters |

### Table 3-3: Components AMS 6300 SIS Trip Not Voted

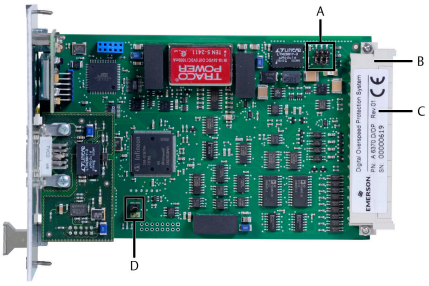
| Component | Type | Number |
|---|---|---|
| Monitors | A6370 D or A6370 D/DP[1] | 3 |
| Backplane | A6371/10 | 1 |
| 19” module frame or other frames | For example: A6352 | 1 |
| Terminal block | A6380 | 3 |
| | A6381 | 3 |
| Cables | A6384 or A6386 | 3 |
| | A6385 or A6387 | 3 |

1 *No mixed card types within a system.*

### Table 3-4: Components AMS 6300 SIS Trip Voted

| Component | Type | Number |
|---|---|---|
| Monitors | A6370 D or A6370 D/DP[1] | 3 |
| Backplane | A6371/00 | 1 |
| 19” module frame or other frames | For example: A6352 | 1 |
| Terminal block | A6380 | 3 |
| | A6381 | 3 |

**Figure 3-2: Monitor - side view**

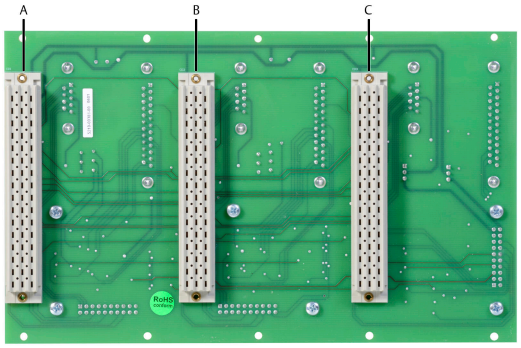



*A. Jumper [J1] RS 485 Bus configuration*
*B. F48 Plug connector*
*C. Type plate with type (PN), serial number (SN), and hardware revision (Rev.)*
*D. Boot jumper [J2] (has to be placed as shown in Figure 3-2)*

### Backplane A6371/xx

Figure 3-3 to Figure 3-5 show the design of the two backplane types. There are three F48 plug connectors for the speed monitors on the front of the backplane. For the connection of input and output signals, there are two Sub-D female connectors for each of the channels at the rear of the backplane. The analog signals which are sensor supply, sensor signal, and current outputs are connected to the three 9-pole Sub-D sockets named "Analog A", "Analog B", and "Analog C". The digital input and output signals such as RS 485 Bus connection, activation of test values, function outputs, and pulse outputs are connected to the three 25-pole Sub-D sockets named "Digital A", "Digital B", and "Digital C". Connection of the system power supply and the Trip or relay logic outputs are made to the terminal strip on the sandwich board.

**Figure 3-3: Backplane Trip Not Voted and Trip Voted - front view**




*A. F48 plugin place Monitor A*
*B. F48 plugin place Monitor B*
*C. F48 plugin place Monitor C*

**Table 4-4: Pin assignment A6371/00 *(continued)***

| Terminal | Designation | |
|---|---|---|
| 10 | NC 2oo3 Out2 | Break contact Relay Out 2 |
| 11 | NO 2oo3 Out2 | Make contact Relay Out 2 |
| 12 | R 2oo3 Out3 | Changeover contact Relay Out 3 |
| 13 | NC 2oo3 Out3 | Break contact Relay Out 3 |
| 14 | NO 2oo3 Out3 | Make contact Relay Out 3 |
| 15 | R 1oo3 COK | Changeover contact Relay Channel Ok |
| 16 | NC 1oo3 COK | Break contact Relay Channel OK |
| 17 | NO 1oo3 COK | Make contact Relay Channel OK |

## 4.2.2 A6371/10 Backplane 'Trip Not Voted'

Connect the outputs of the relay logic to the backplane terminal strip. Connection of the supply voltage for the overspeed protection system is also made through these terminal strip. See Figure 4-7 and Table 4-5.

**Figure 4-7: Terminal strip A6371/10**

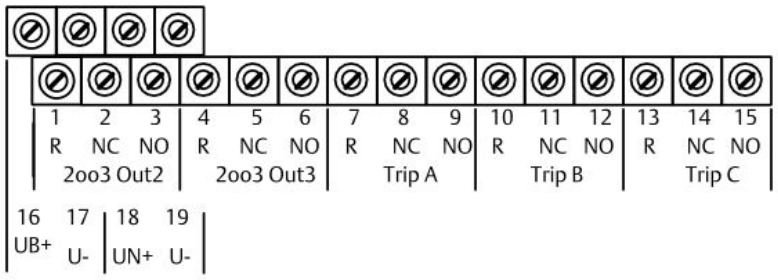



**Table 4-5: Pin assignment A6371/10**

| Terminal | Designation | |
|---|---|---|
| 1 | R 2oo3 Out2 | Changeover contact Relay Out 2 |
| 2 | NC 2oo3 Out2 | Break contact Relay Out 2 |
| 3 | NO 2oo3 Out2 | Make contact Relay Out 2 |
| 4 | R 2oo3 Out3 | Changeover contact Relay Out 3 |
| 5 | NC 2oo3 Out3 | Break contact Relay Out 3 |
| 6 | NO 2oo3 Out3 | Make contact Relay Out 3 |
| 7 | R Trip A | Changeover contact Trip Relay A |
| 8 | NC Trip A | Break contact Trip Relay A |
| 9 | NO Trip A | Make contact Trip Relay A |
| 10 | R Trip B | Changeover contact Trip Relay B |

**Table 4-5: Pin assignment A6371/10 *(continued)***

| Terminal | Designation | |
|---|---|---|
| 11 | NC Trip B | Break contact Trip Relay B |
| 12 | NO Trip B | Make contact Trip Relay B |
| 13 | R Trip C | Changeover contact Trip Relay C |
| 14 | NC Trip C | Break contact Trip Relay C |
| 15 | NO Trip C | Make contact Trip Relay C |
| 16 | UB+ | Supply voltage + (redundant) |
| 17 | U- | Supply voltage (redundant) |
| 18 | UN+ | Supply voltage + (redundant) |
| 19 | U- | Supply voltage (redundant) |

## 4.2.3 Power supply connection

See Table 4-4 for the terminal connection plan of backplane A6371/00 'Trip Voted'. Correspondingly, see Table 4-5 for the terminal connection plan of backplane A6371/10 'Trip not Voted'.

The operation of the AMS 6300 SIS requires the supply with a +24 V dc power supply according to SELV / PELV or the EN 609501 Directive for Office Machines with at least 30 W power capability. The permissible voltage range is +19 V to +31.2 V dc. If the supply voltage increases +33 V dc, the AMS 6300 SIS will disconnect the according supply line. Connection of supply voltage for the complete system inclusive measuring chains is made through connection terminals at the backplane. If required, the AMS 6300 SIS may also be supplied redundantly. For this purpose, the system has redundant supply inputs decoupled by diodes. With a redundant supply, the availability of the supply voltage can be ensured even when one supply input is disconnected, for example, due to over-voltage.

**Note**
The power supply for the monitors is electrically isolated from the remaining circuits on the card.

### Dimensioning of the pre-fuse

The supply voltage circuit of the monitor A6730 is equipped with a permanently installed 1 A fuse. Figure 4-8 shows the typical time-current characteristic of this fuse. For example, the fuse trips at a current of 2 A after 10 seconds. Dimension a pre-fuse higher than the built-in fuse. In case of a monitor failure, the built-in fuse of the monitor should trips at first and then the pre-fuse as the whole AMS 6300 SIS system is equipped with one supply voltage. An appropriately dimensioned pre-fuse ensures the availability of the protection system in case of a monitor failure. The AMS 6300 SIS can be protected, for example, with a 4 A circuit breaker of type 1180-01-4A of the company E-T-A.

| Binary inputs | |
|---|---|
| Number | 4 (Test value 1, Test value 2, Enable Test value, Reset Latch) |
| Signal level "Low" | 0 to 5 V |
| Signal level "High" | 13 V to 31.2 V |
| Input resistance | Typically 6.8 kΩ |

## 8.5 Function outputs and Channel OK output

| Binary outputs | |
|---|---|
| Electrically isolated and short circuit proof | |
| Number of outputs | 7 (Out 1 to Out 6, Channel Ok (OK)) |
| Signal level "Low" | < 100 mV |
| Signal level "High" | "System supply voltage" minus 2 V |
| Maximum current | 25 mA |
| Function and limit value setting | Determined during configuration |
| Switchover open/ closed circuit mode | Freely configurable for each of the function outputs |
| Visualization of function outputs | With yellow LEDs on the front plate for each output Out 1 to Out 6 |
| Visualization Channel Ok output | With a green LED on the front plate |

## 8.6 Relay outputs

| Relay outputs | |
|---|---|
| Contact load | Relay outputs Out2, Out3 & Channel OK:<br>48 V AC, maximum 4 A<br>30 V DC, maximum 4 A<br>Trip Relay:<br>AC1: 48 V / maximum 4 A<br>AC15: 48 V / maximum 3 A<br>DC1: 24 V / maximum 4 A<br>DC13: 24 V / maximum 4 A / 0.1 Hz |
| Backplane A6371/00 Trip Voted | 2 Relay outputs for Trip in 2oo3 Logic<br>1 Relay output Out 2 in 2oo3 Logic<br>1 Relay output Out 3 in 2oo3 Logic<br>1 Relay output Channel Ok in 1oo3 Logic |
| Backplane A6371/10 Trip Not Voted | 3 Relay outputs for Trip (one per channel)<br>1 Relay output Out 2 in 2oo3 Logic<br>1 Relay output Out 3 in 2oo3 Logic |

# 8.7 Communication interfaces

| USB 2.0 Interface | |
|---|---|
| Configuration interface on the monitor front plate | |
| Socket | Type B |

| RS 485 Interface | |
|---|---|
| Bus interface for the communication with external devices | |
| Maximum number of devices | 32 |
| Baud rate | 38400, 57600, or 115200 Baud |

| Profibus DP-V0 interface | |
|---|---|
| Optional interface for the communication with external systems (only monitors A6370D/DP), 9-pole Sub-D socket on front plate. | |
| Maximum number of devices | 31 |
| Data transfer rate | up to 12 Mbit/s |

# 8.8 Power supply

| System supply voltage | |
|---|---|
| Two redundant supply inputs with common ground, decoupled by diodes. Suitable for supply voltages from SELV/PELV power supplies. | |
| Nominal value | 24 V |
| Range | +19 V to + 31.2 V |
| Maximum power consumption | 30 W |

| Sensor supply | |
|---|---|
| One sensor supply per monitor, short circuit proof, and electrically isolated. | |
| Voltage level | ±24.5 V ±1.5 V |
| Maximum current | 35 mA |

# 8.9 Tolerances and Response times

| Tolerances | |
|---|---|
| Accuracy of the speed measurement | Maximum measuring error ±0.03% from measuring range |

| Response time | |
|---|---|
| Speed measurement | < Measuring time + 8 ms |

| Response time | |
|---|---|
| Detection of rotational direction | < 3 * Period of input signal + 8 ms |
| Typical reaction time | Mode of measurement **1x per rotation**: 35 ms at 3000 $min^{-1}$<br>Mode of measurement **Automatic**: 12.5 ms at 3000 $min^{-1}$ |

## 8.10 Environmental conditions and mechanical design

| Environmental conditions | |
|---|---|
| Temperature range without enforced cooling | -20 to +55°C |
| Temperature range with enforced cooling | -20 to +65°C |
| Temperature storage and transport | -40 to + 70°C |
| Humidity | 5 to 95% non-condensing |
| Vibration | 0.15 mm (58 - 62 Hz)<br>20 $m/s^2$ (up to 150 Hz) |
| Shock | 100 $m/s^2$, 6 ms |
| Protection class | IP 20 for installation according to the operating manual |
| EMC | According to IEC 61326-1, IEC 61326-3-1<br>Unwanted emission according to DIN EN550011 class A |
| Operating altitude | 5000 m<br>2000 m when installed according to CSA approval |
| Permissible pollution level | Category 2 (according to IEC 61010) |
| Environmental area | Indoor use only |

| Weight | |
|---|---|
| Backplane A6371/00 and A6371/10 | 490 g (without rack A6352) |
| Monitor A6370 D | 250 g |
| Monitor A6370 D/DP | 275 g |

| Dimensions | |
|---|---|
| Monitor A6370 D and A6370 D/DP | Width: 14 HP (approximately 71 mm)<br>Height: 3 RU (approximately 128 mm)<br>Printed board: 100 x 160 mm<br>Connector: F48 |
| Backplane A6371/00 | W 211 mm x H 130 mm x D 43 mm |

| Dimensions | |
|---|---|
| Backplane A6371/10 | W 211 mm x H 130 mm x D 58 mm |
| Board coating | Airborne contaminants resistance<br>ISA-S71.04-1985 airborne contaminants class G3, Conformal Coating |
| | Material: HumiSeal® 1B31 EPA<br>According to IPC-CC-830B and IPC-A 610 |
| SubD Interface A6380 | W 36.8 mm x H 72.1 mm x D 46.6 mm |
| SubD Interface A6381 | W 57.1 mm x H 75.8 mm x D 63 mm |
| 19“ Rack A6352 | W 438.6 mm x H 132.5 mm x D 238.5 mm |

| Terminals SubD Interface A6380, A6381 and Backplane A6371/00, A6371/10 | |
|---|---|
| Terminal cross sections for cable connections | Rigid cable: minimum 0.2 $mm^2$<br>Rigid cable: maximum 2.5 $mm^2$<br>Flexible cable: minimum 0.2 $mm^2$<br>Flexible cable: maximum 2.5 $mm^2$<br>AWG: minimum 24<br>AWG: maximum 14 |
| Stripped length of wire | 8 mm |