

Control Cabinet

NO OpCom

503 642-102
2001-05-17

S4Cplus

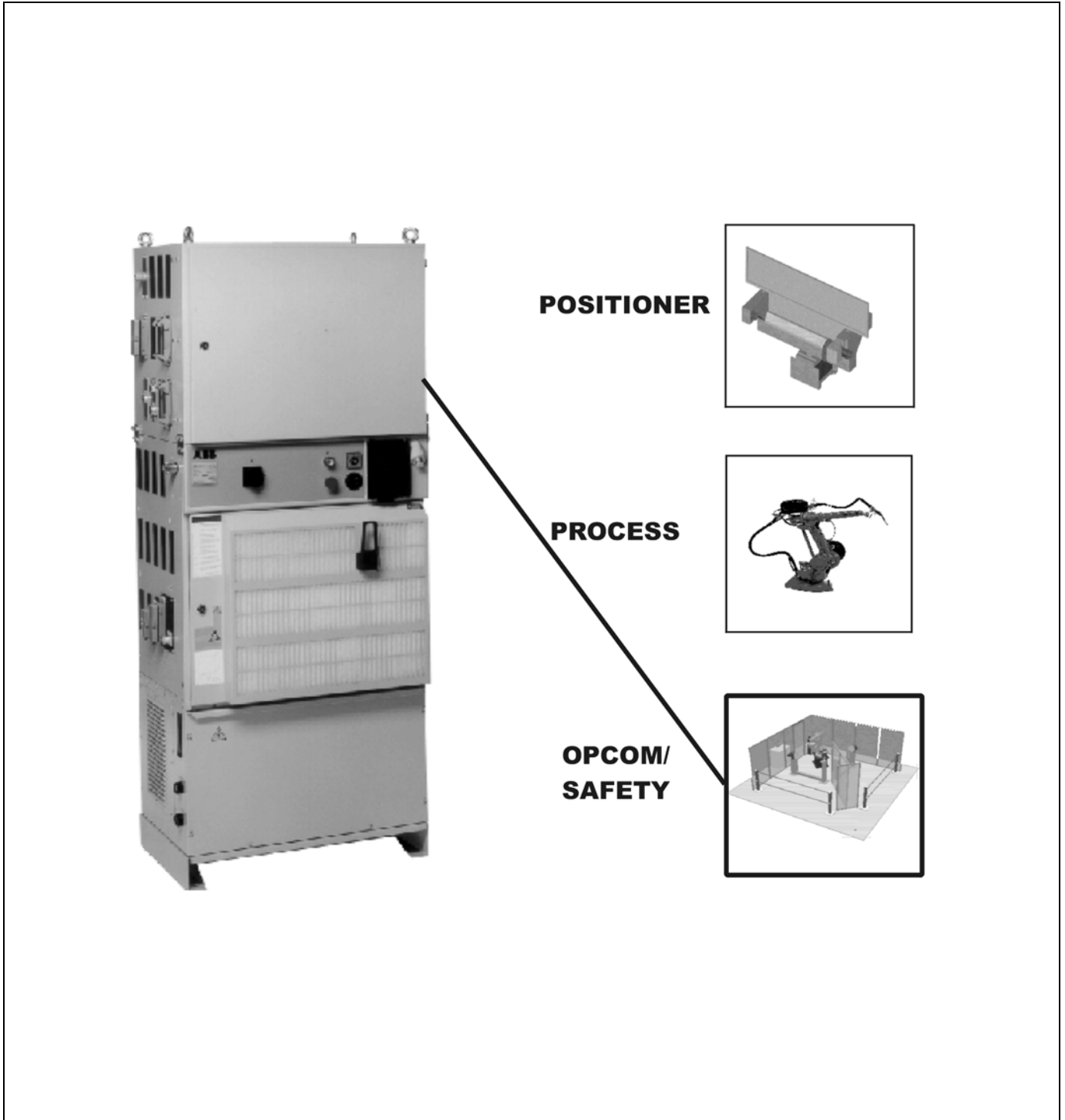


ABB Flexible Automation AB
Welding Systems



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1 Interface for operator communications and safety

1.1 General

There is complete equipment available for operator communications and safety supervision adapted to the system for station solutions where the layout follows standard layout principles.

Through the addition of different accessories for this equipment, handling can be adapted to meet special requirements.

Operator communication

Communication between the operator and the control system takes place via a panel with push-buttons and status lamps.

Operations and acknowledgements are converted to digital input and output signals.

Safety functions

Emergency stop loop

All emergency stop buttons included in the station are usually connected to the control system's emergency stop loop. If one of these push-buttons is activated all dangerous machine movement is stopped immediately and the system is set in "Motors off" mode.

Operating stop loop

Connected safety supervision equipment normally works with the control system's operating stop loop. If something unpermitted occurs either the general stop or auto stop is tripped depending on the incident.

This results in dangerous machine movement being stopped immediately and the system being set in "Motors off" mode.

For further information about the design of the safety system refer to the robot's "User Guide".

Note! Connected safety functions must not be overridden under any circumstances. This can result in serious personal injury or death.

Read the instructions in chapter 1 before the station is commissioned.

Accessories

The system is prepared for the connection of different accessories in order to optimise handling as required, these are:

Operator panel

Light barriers

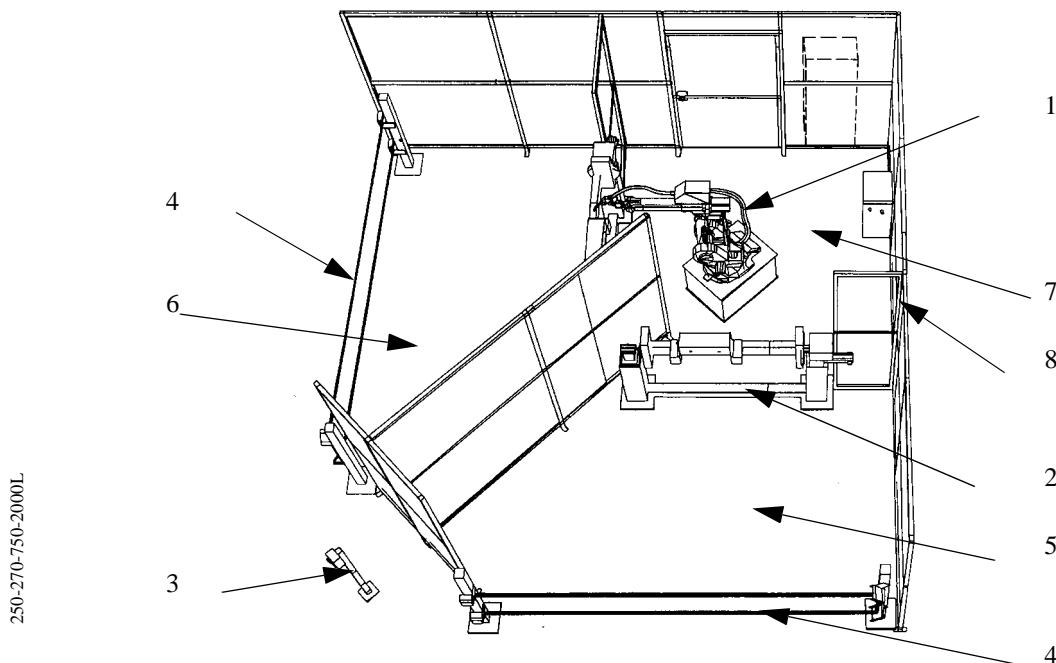
Gate supervision

Timer resetting

Home position

Activation from extended programming area

Roll-up door (FlexArc)

1.2 System solutions**Traditional welding robot station**

250-270-750-2000L

1. Robot
2. positioner
3. Operator panel
4. Light beams
5. Supervised area stn1
6. Supervised area stn2
7. Supervised programming area
8. Barrier

Continuous status supervision of safety components, operator communications and moving machine parts is required in order to prevent personal danger when entering supervised areas.

This is provided by a circuit board for safety supervision, which includes functions to immediately cut the control system's operating loop when a course of events occur that can result in personal danger.

Examples of events are component faults in the safety equipment, incorrect handling, carelessness and machine faults.

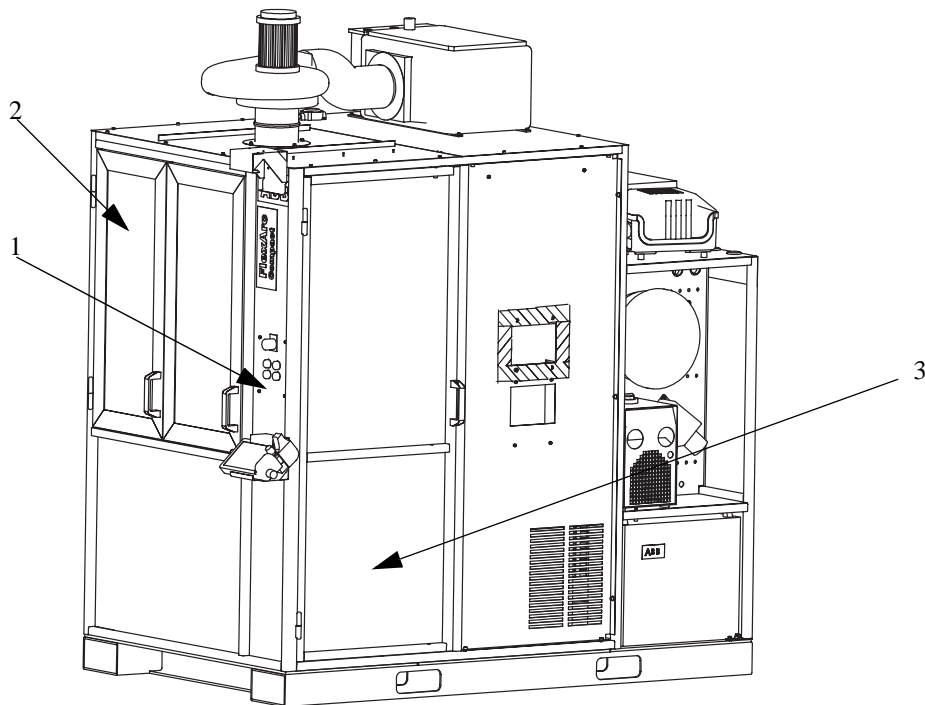
Safety equipment is designed according to category 4 described in EN 954-1, doubled and self-supervision.

Interface for operator communications and safety

The equipment can be adapted for optimal handling in each individual case by connecting different accessories to the circuit board.

Concept FlexArc Compact

This equipment consists of a compact robot welding station offering advantages such as: minimal space requirements, flexible set-up, easy connection, quick start-up.



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1. Operator panel
2. Charger hatch
3. Service door

The basic, standard station solution in combination with CMS software for operator communications allows the connection of safety components directly to the control system's operating loop, without any further functions for safety supervision.

FlexArc

FlexArc is a complete robot welding station built on a bottom plate and surrounded by walls. The overall solution makes the connection easy and the putting into service fast. The FlexArc safety system always contains light beams or roll-up doors.

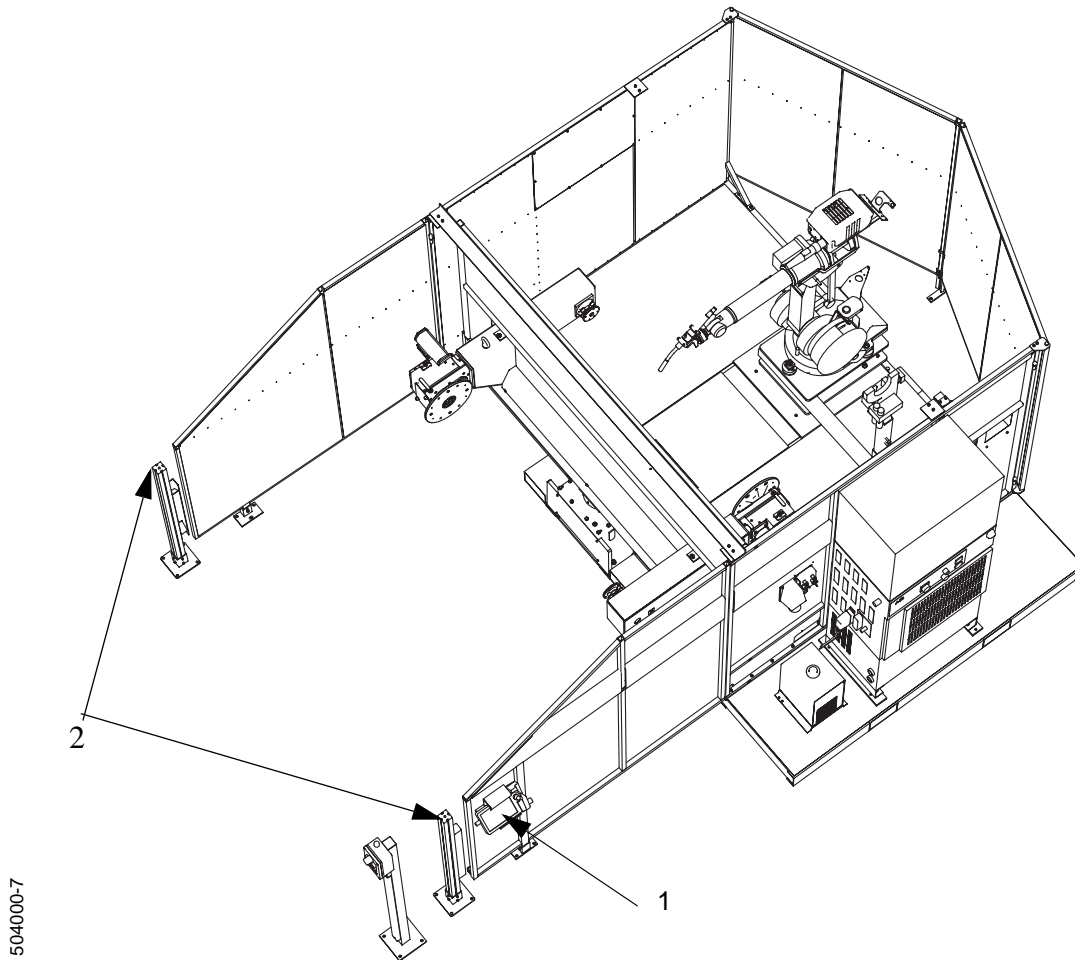


Figure 1 FlexArc 250R with light beams

- 1. Operator panel
- 2. Light beams

1.3 Connections

The cable harness to external equipment is connected to the output on the left-hand side of the cabinet or to jackable terminals mounted internally by the separable cable gland.

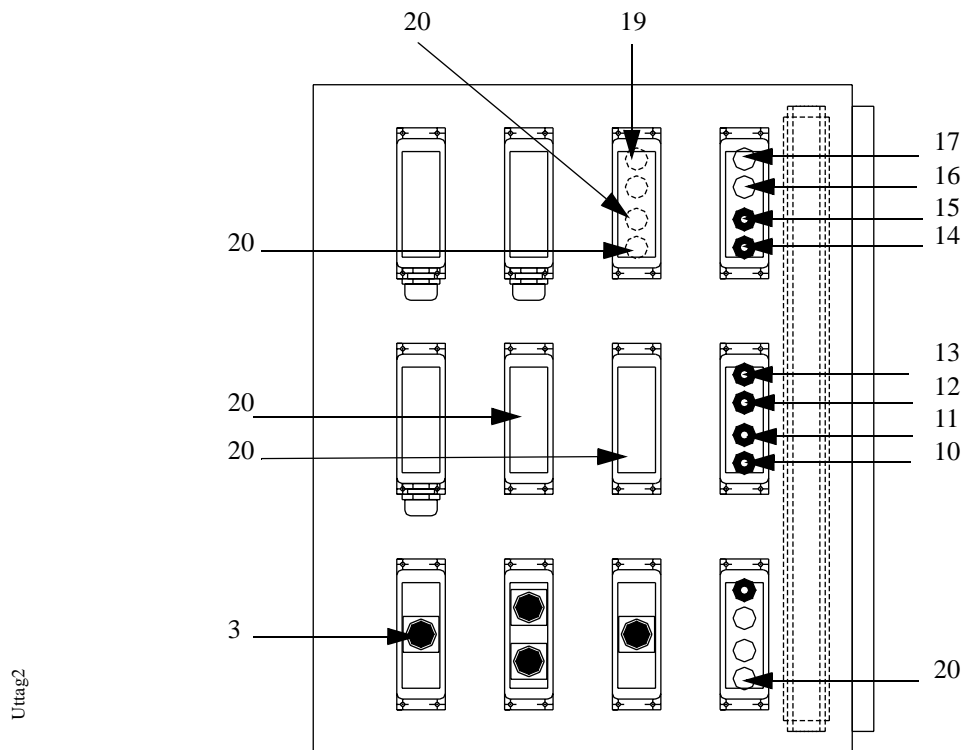


Figure 2 Common connections

- 3. Operator panel
- 10. Pre reset stn 2
- 11. Pre reset stn 1
- 12. Light beam 2
- 13. Light beam 1
- 14. Gate switch
- 15. Gate reset
- 16. Activation unit work area 1
- 17. Activation unit work area 2 / Home sensor
- 19. Position indicator for travel track
- 20. Spare

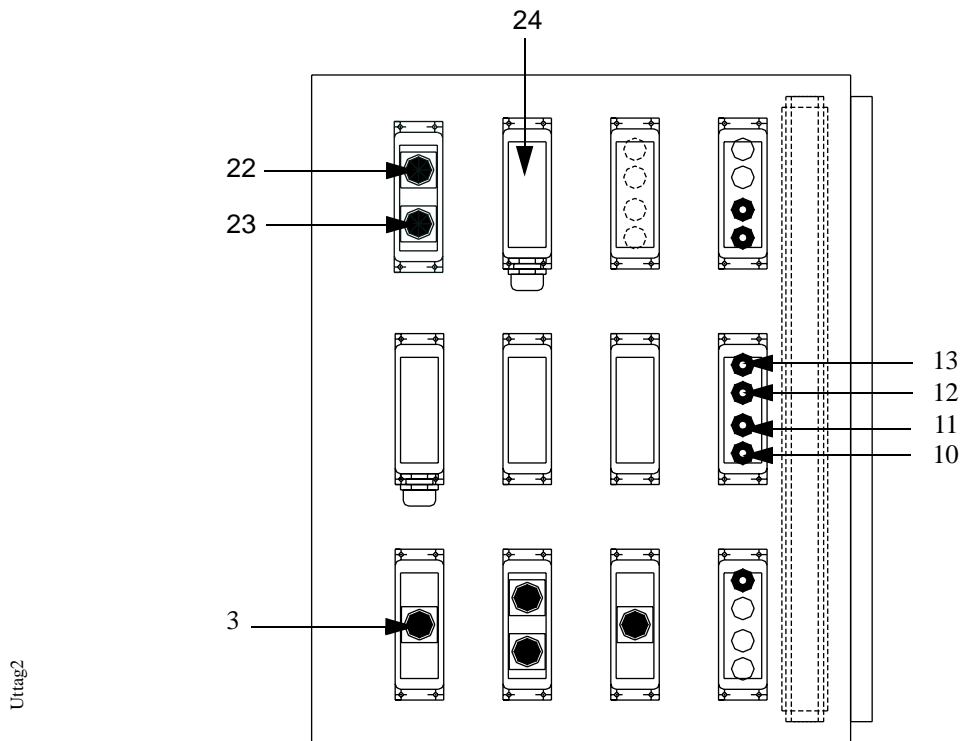


Figure 3 Connections FlexArc Compact

3. Operator panel

10. Loading door sensor 1 (250S/L/T) / Table interlocking (100C)

11. Loading door sensor 2 (250S/L/T) / Position indication station 1 (100C)

12. Gate switch (250S/L/T) / Position indication station 2 (100C)

13. Gate switch (100C)

22. Current supply, power source RPA

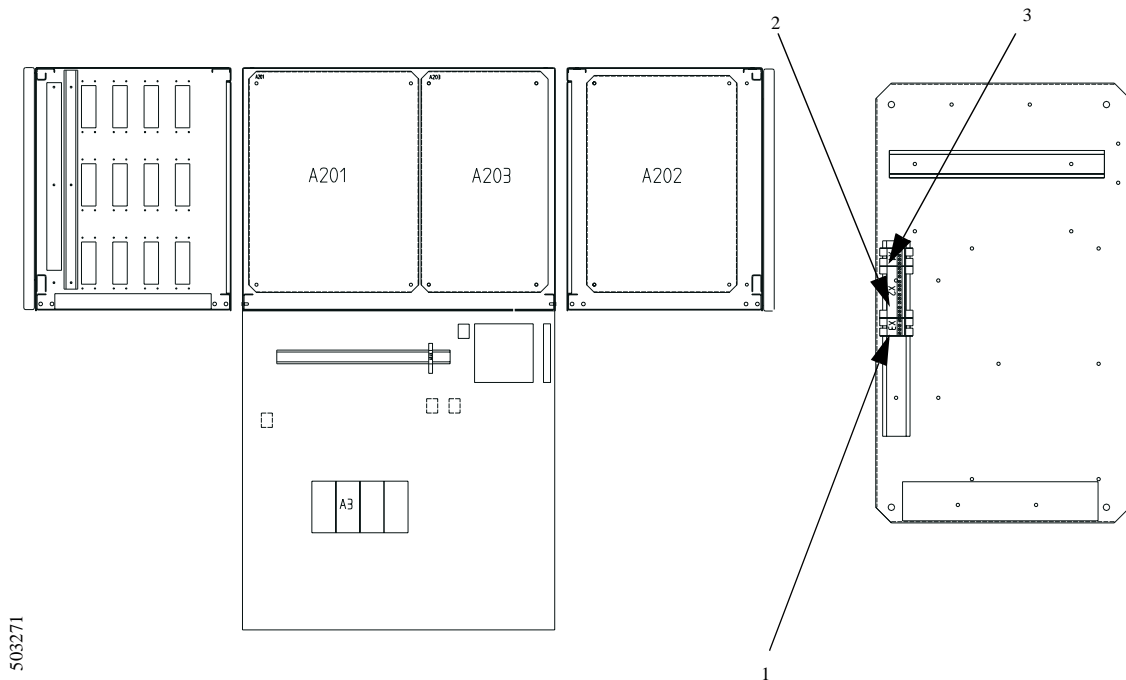
23. Current supply, lightning

24. Current supply, fume extraction device

1.3.1 NO OpCom

This interface is replaced by an assembly plate on installations without equipment for operator communications. This includes requisite strapping, etc. for internal wiring inside the cabinet.

The assembly plate is fitted on the right-hand side of the cabinet's rear panel and can be used as extra space for other customer specific equipment.



1. Power supply (A203-X3)
2. Strapping unit emergency stop (A203-X2)
3. Strapping unit run chain (A203-X1)

Power supply

The following voltages are available on the jackable terminal A203-X3:

- 24V DC (24V I/O)

Control

Interlocks

The following run chain signals are available on the jackable terminal A203-X2:

- Auto stop
- General stop
- External motors on
- External motors on contactor control

The following emergency stop signals are available on the jackable terminal A203-X1:

- External push button

2 Reservdelsförteckning/Spare Parts List

Reservdelar beställs genom ABB Flexible Automation AB. Vid beställning var vänlig uppge typ och tillverkningsnummer samt benämningar och beställningsnummer enligt reservdelsförteckningen.

Rätt till ändring av specifikationer utan avisering förbehålles.

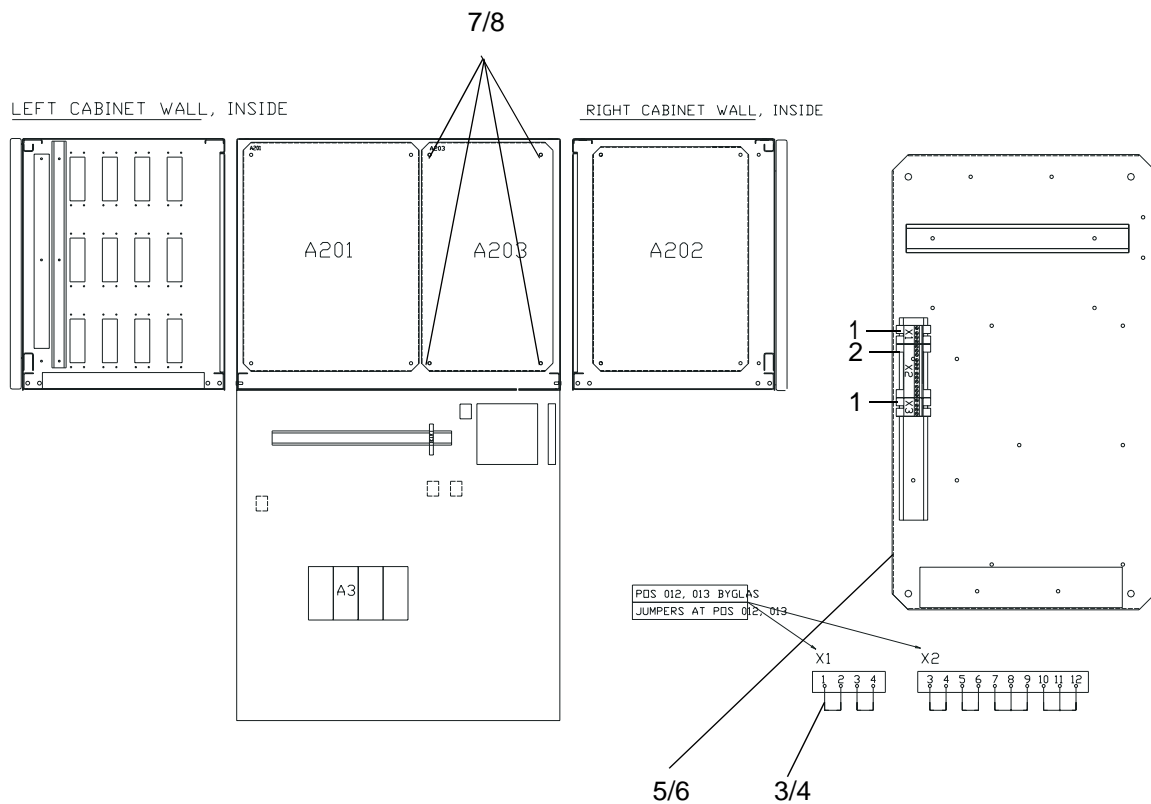
Spare parts are to be ordered from ABB Flexible Automation AB. Kindly indicate type of unit, serial number, denominations and ordering number according to the spare parts list.

Rights to reserved to alter specifications without notice.

Reservdelsförteckning/Spare Parts List

| Positions- nummer Position number | Antal Quantity | Beställningsnummer Ordering number | Benämning | Denomination | Anmärkingar Remarks |
|--|---------------------------|---|------------------------------|--------------------------------|--------------------------------|
| | | 503 271-880 | NO OPCOM IF | NO OPCOM IF | |
| 1 | | 489 947-443 | COMBICON 4pol M.1-4 stift | COMBICON 4p M.1-4 pin stift | |
| 2 | | 489 947-451 | COMBICON 12pol 1-12 stift | COMBICON 12p 1-12 pin stift | |
| 3 | | 193 817-003 | Ändhylsa 1.0 (mm2) | End bracket 1.0 (mm2) | |
| 4 | | 193 817-053 | Ändhylsa dubbel 1mm2 | Double end bracket 1mm2 | |
| 5 | | 418 883-007 | Kabelkanal BE | Cable trunking BE | |
| 6 | | 489 327-025 | Skruv MRT-TT M5X8 | Screw MRT-TT M5X8 | |
| 7 | | 212 601-109 | Mutter 6K stål 8.8 M8 | Nut 6K steel 8.8 M8 | |
| 8 | | 219 501-311 | Bricka lås AZ | Washer AZ | |

Reservdelsförteckning/Spare Parts List



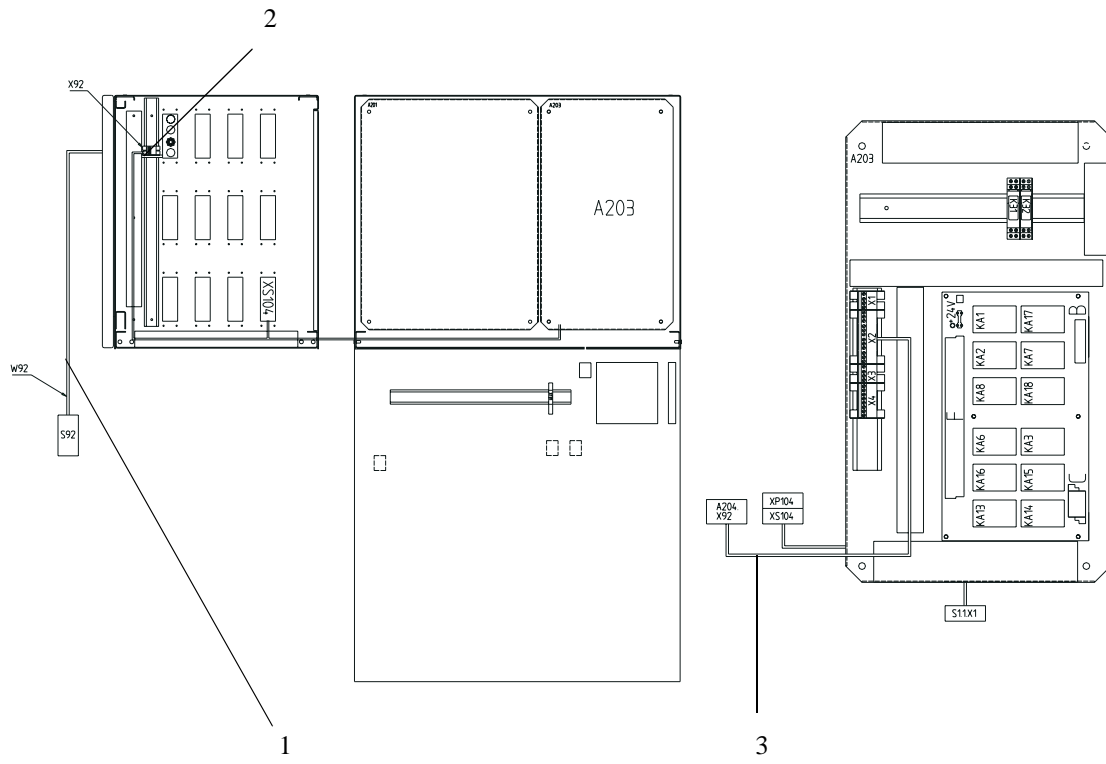
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Reservdelsförteckning/Spare Parts List

| Positions- nummer Position number | Antal Quantity | Beställningsnummer Ordering number | Benämning | Denomination | Anmärkingar Remarks |
|--|---------------------------|---|---------------------------|------------------------------|--------------------------------|
| | | 503 180-880 | OPTION GATE SWITCH | OPTION GATE SWITCH | |
| 1 | | 503 176-880 | Dörrbrytare komplett W92 | Gate switch complete W92 | |
| 2 | | 436 829-009 | Jordklämma EK4/35PA | Clamp EK4/35PA | |
| 3 | | 502 903-880 | Kabelstam gate switch | Cable harness gate switch | |

Reservdelsförteckning/Spare Parts List

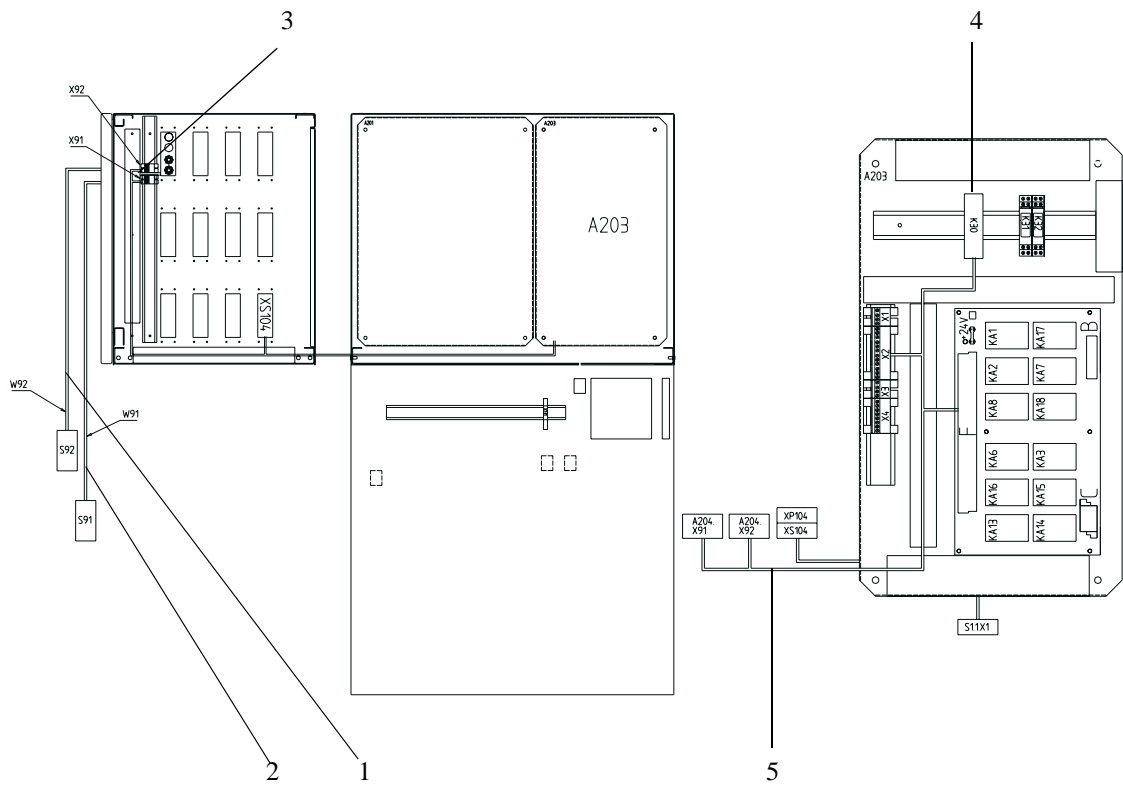
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Reservdelsförteckning/Spare Parts List

| Positions- nummer Position number | Antal Quantity | Beställningsnummer Ordering number | Benämning | Denomination | Anmärkingar Remarks |
|--|---------------------------|---|------------------------------|------------------------------|--------------------------------|
| | | 503 181-880 | OPTION EXT.RESET GATE SW. | OPTION EXT.RESET GATE SW. | |
| 1 | | 503 176-880 | Dörrbrytare komplett W92 | Gate switch complete W92 | |
| 2 | | 503 177-880 | Tryckknapp W91 | Push button W91 | |
| 3 | | 436 829-009 | Jordklämma EK4/35PA | Clamp EK4/35PA | |
| 4 | | 552 009-003 | Säkerhetsrelä JSB-RT8 24V | Safety relay JSB-RT8 24V | |
| 5 | | 502 906-880 | Kabelstam ext.reset | Cable harness ext.reset | |

Reservdelsförteckning/Spare Parts List



503181A01

