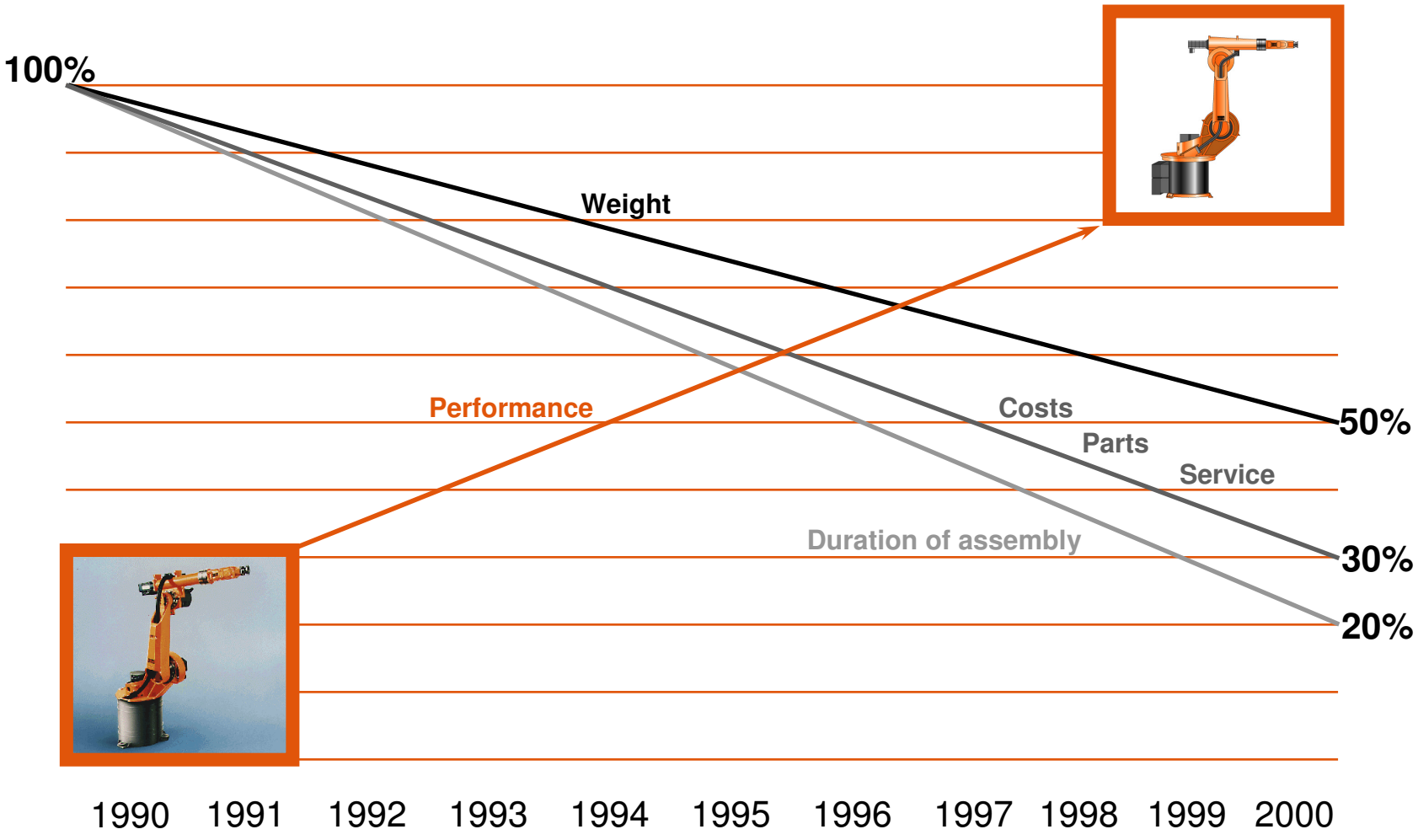
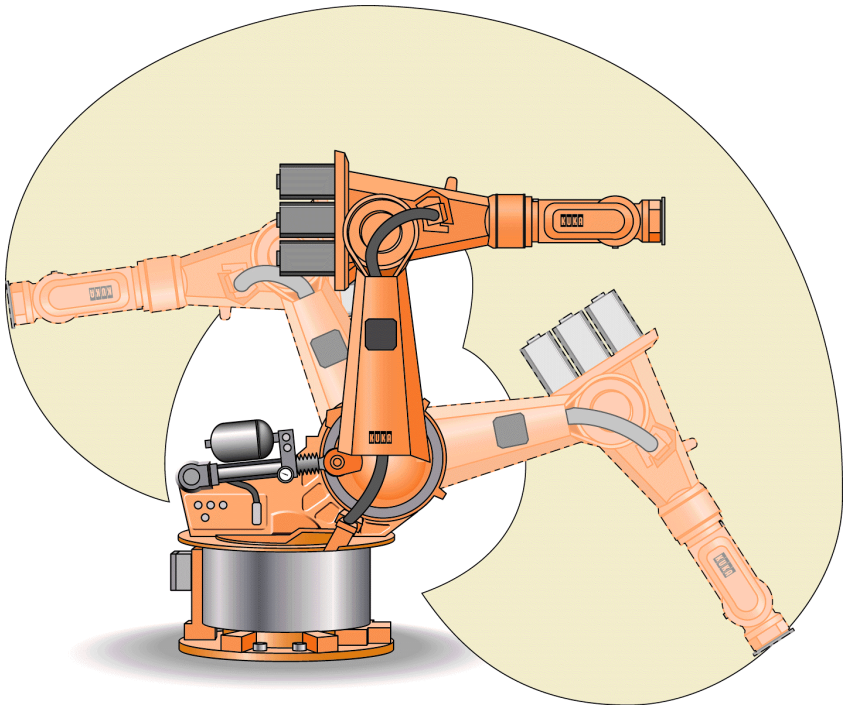
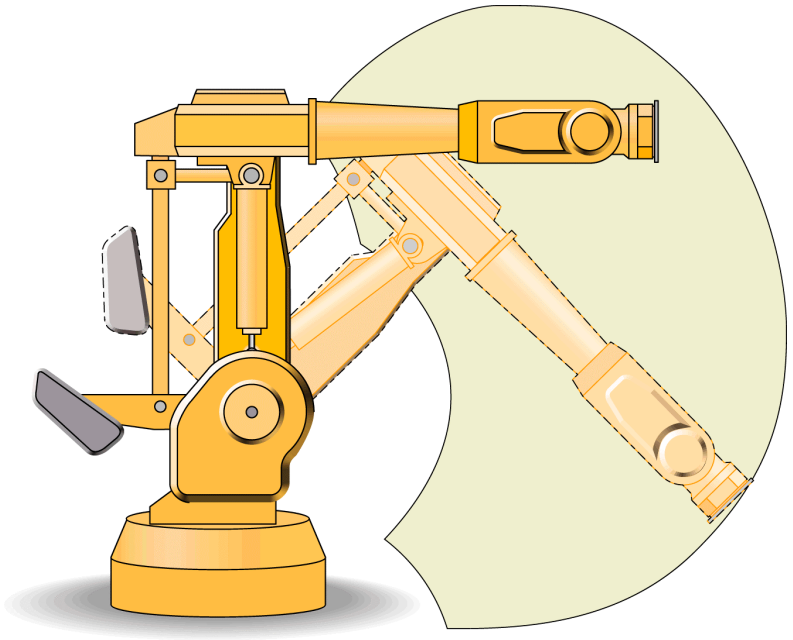
Only the performance increases



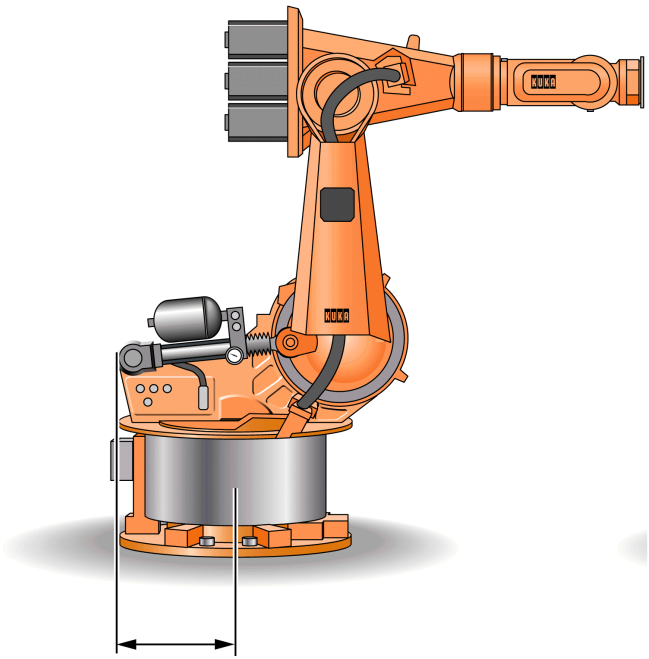
- Overhead motion possible
- Bigger work space



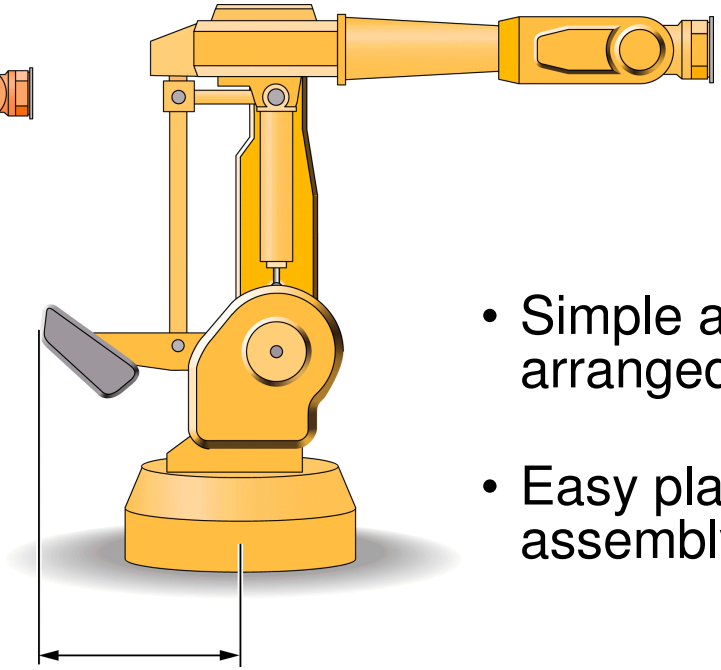


Comparison of jamming edges

KUKA Robot



Parallelogram Robot



- Simple and clearly arranged configuration
- Easy planning of robot assembly lines and cells

KUKA robot classes

Lower Payload	Medium Payload	High Payload	Heavy Payload	Special Series
(V)KR 6/2 (V)KR 15/2	(V)KR 30/2 (V)KR 30 L15/2 (V)KR 45/2	(V)KR 125/2 (V)KR 150/2 (V)KR 200/2	(V)KR 350/2 (V)KR 350L280/2 (V)KR 350L240/2	(V)KR 60P/1 (V)KR 100P/1 (V)KR 100PA/1 (V)KR 160PA/1

Heavy duty robot (V)KR 350/2

Press to Press Linker: (V)KR 60 P/2, (V)KR 100 P/2

Palettizier KR 180 PA

Console robot (V)KR 125 K/1, (V)KR 150 K/1

The new console robot KR 30 K

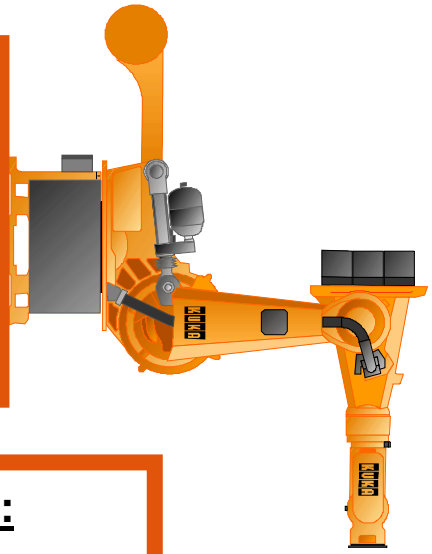
Wall mounted robot (V)KR 125 W/2

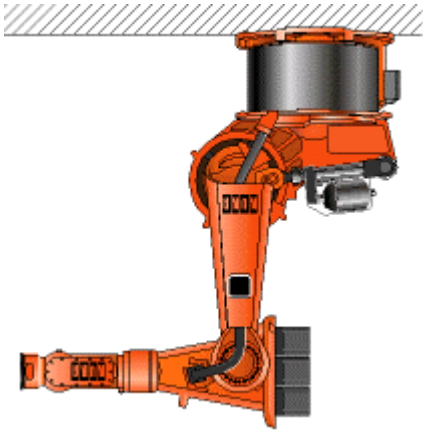
The new mini robot KR 3

For all situations: flexible mounting positions

Wall mounting:

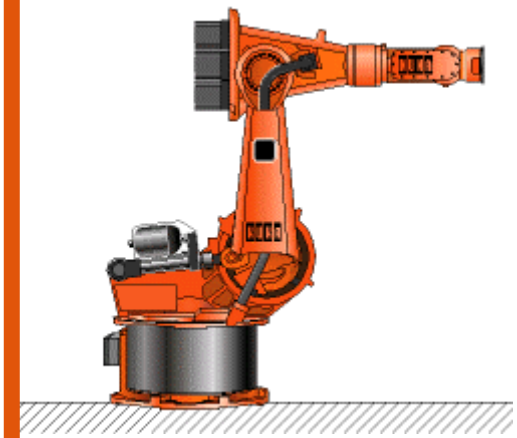
- (V)KR 6/2
- (V)KR 15/2
- (V)KR 30/2
- (V)KR 30L15/2
- (V)KR 125 W/2





Floor mounting:

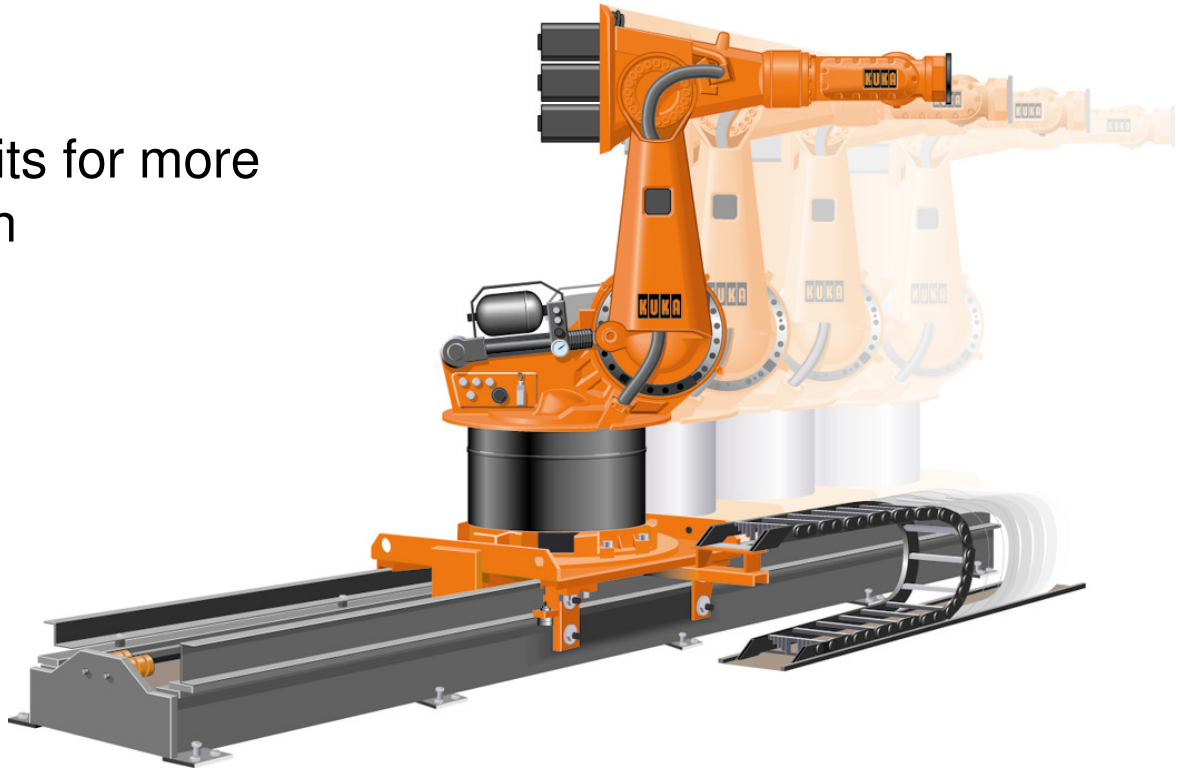
- (V)KR 6/2
- (V)KR 15/2
- (V)KR 15 L2/2
- (V)KR 30/2
- (V)KR 30 L15/2
- (V)KR 45/2
- (V)KR 125/2
- (V)KR 150/2, 200/2
- (V)KR 350/2
- KL 250, KL 1500



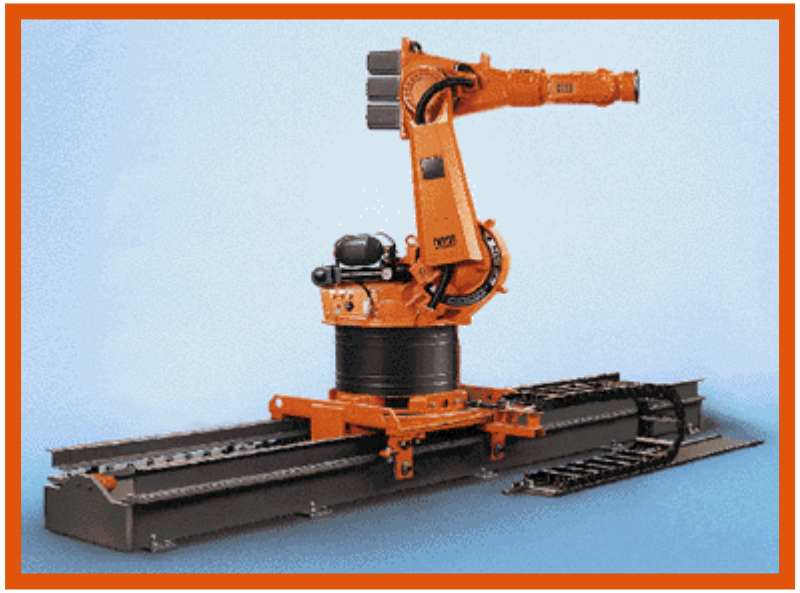
Ceiling mounting:

- (V)KR 6/2
- (V)KR 15/2
- (V)KR 15 L2/2
- (V)KR 30/2
- (V)KR 30 L15/2
- (V)KR 45/2
- (V)KR 125/2
- (V)KR 150/2, 200/2
- (V)KR 350/2
- KL 250, KL 1500

KUKA liner units for more liberty of action

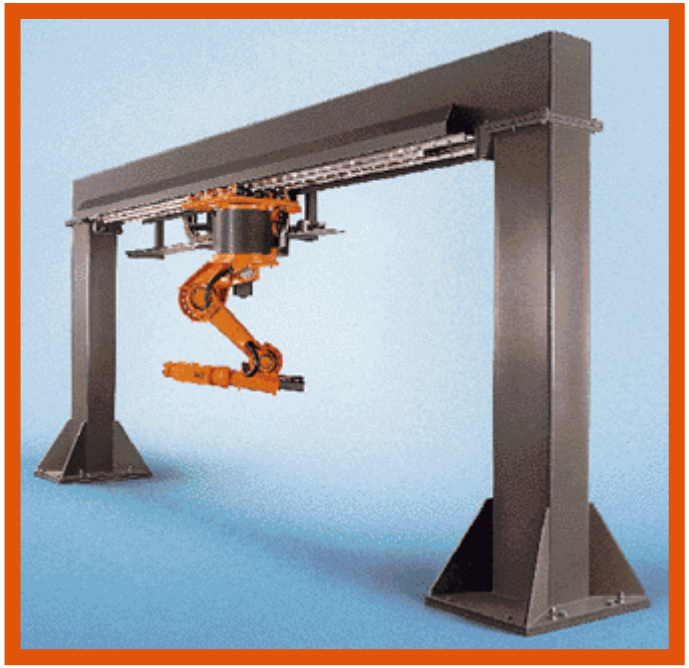


KL 250 (max. weight 250kg) for KR 15 and smaller
KL 1500 (max. weight 1500kg) for KR 30 and higher



Floor mounting

Ceiling mounting

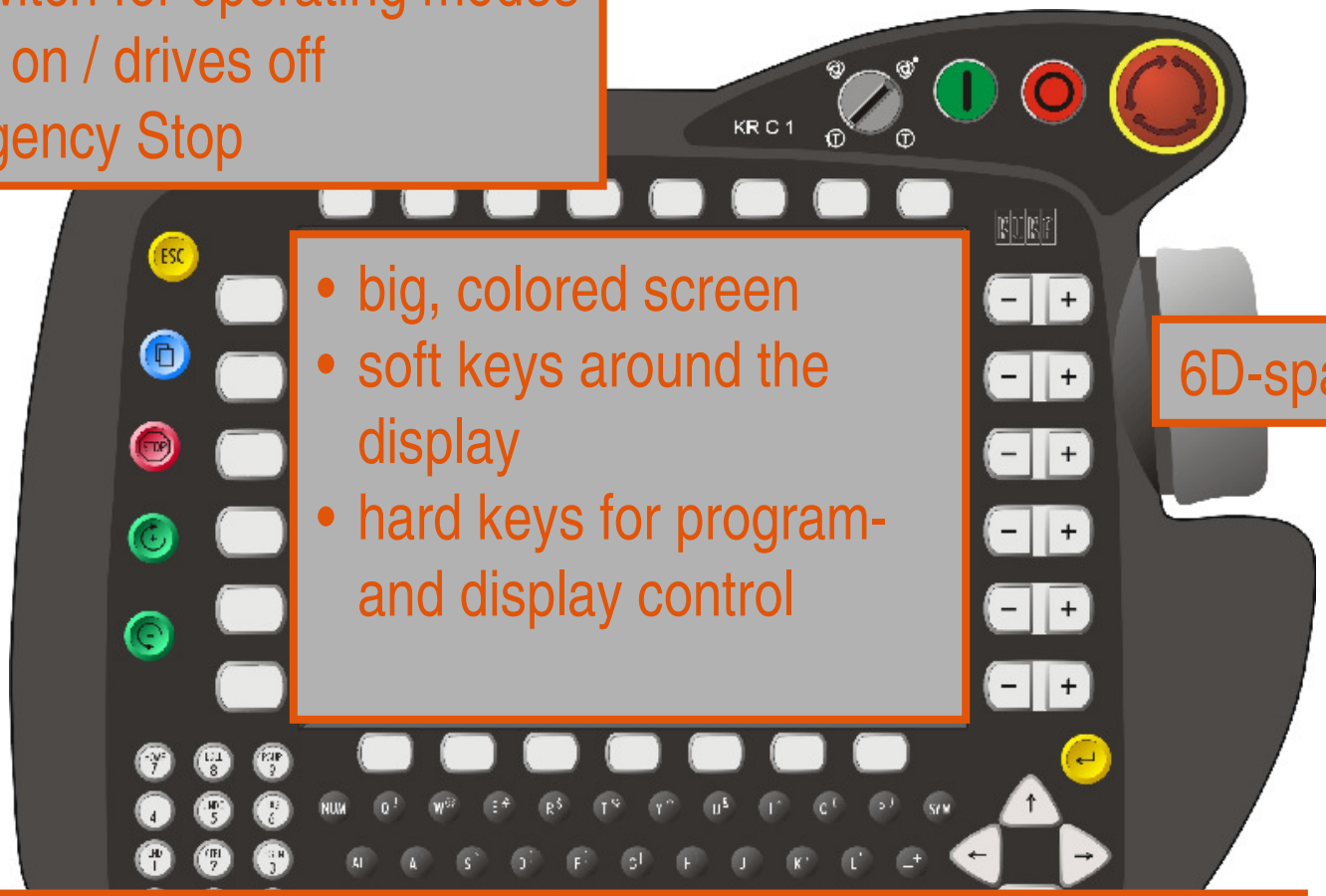


KUKA Robot
(e.g. KR 200/2)

Robot Controller
(e.g. KR C1)

KUKA Control Panel
(KCP)

key switch for operating modes
drives on / drives off
Emergency Stop



- big, colored screen
- soft keys around the display
- hard keys for program- and display control

6D-spacemouse

numeric block, ASCII block, curser block with Enter key

Robot controller KR C1 and KR C1A

KR C1

KR C1A

The type code of the KUKA-Industrial robots refers to the payload.

The KUKA type code:

1 kg = 2.2 lbs

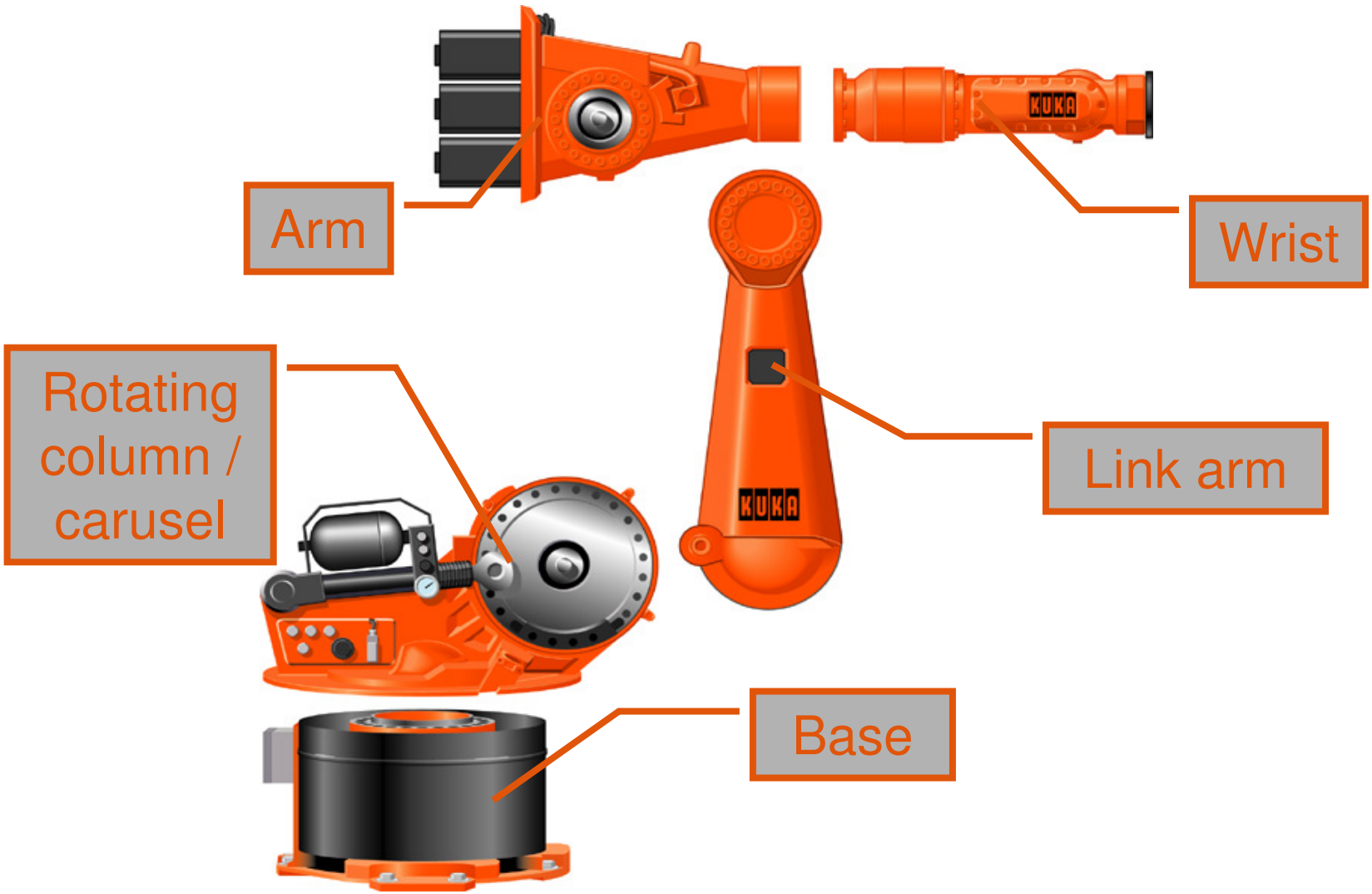
KR 150 / 2

KUKA Industrial **R**obot

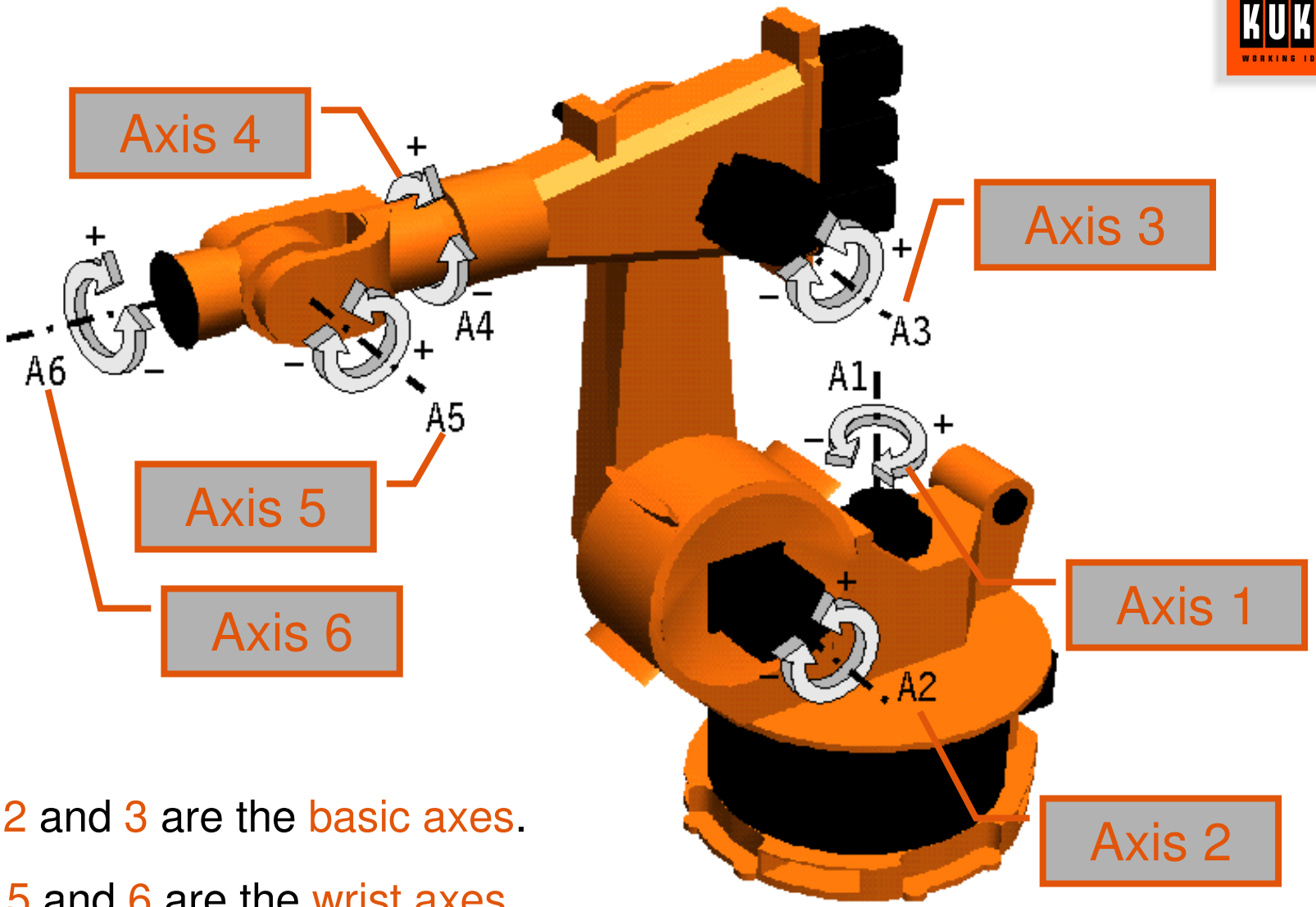
with **150** kg payload

2. Generation

Mechanical construction of a KUKA robot



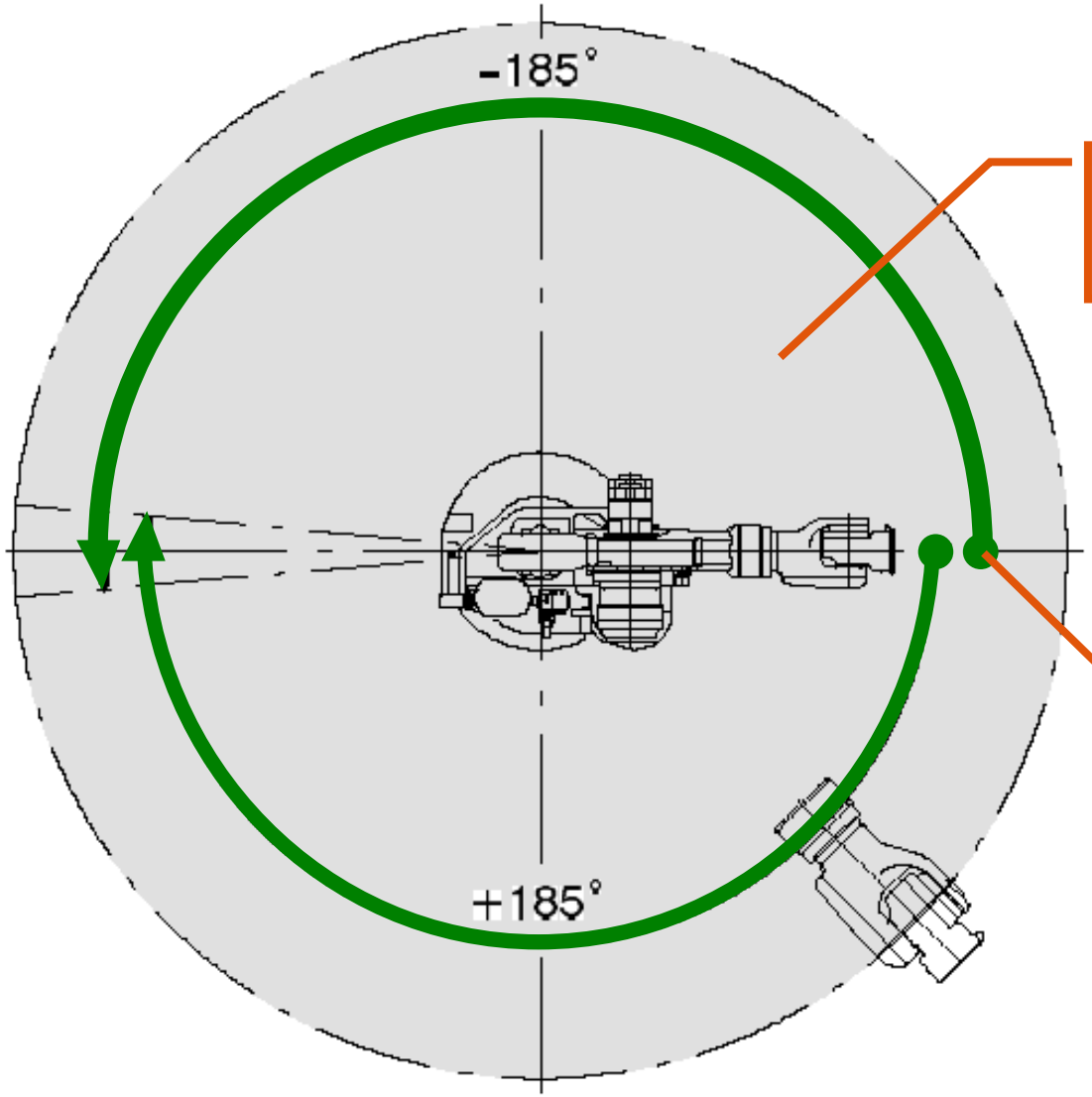
Axes of a KUKA robot



Axes 1,2 and 3 are the basic axes.

Axes 4,5 and 6 are the wrist axes.

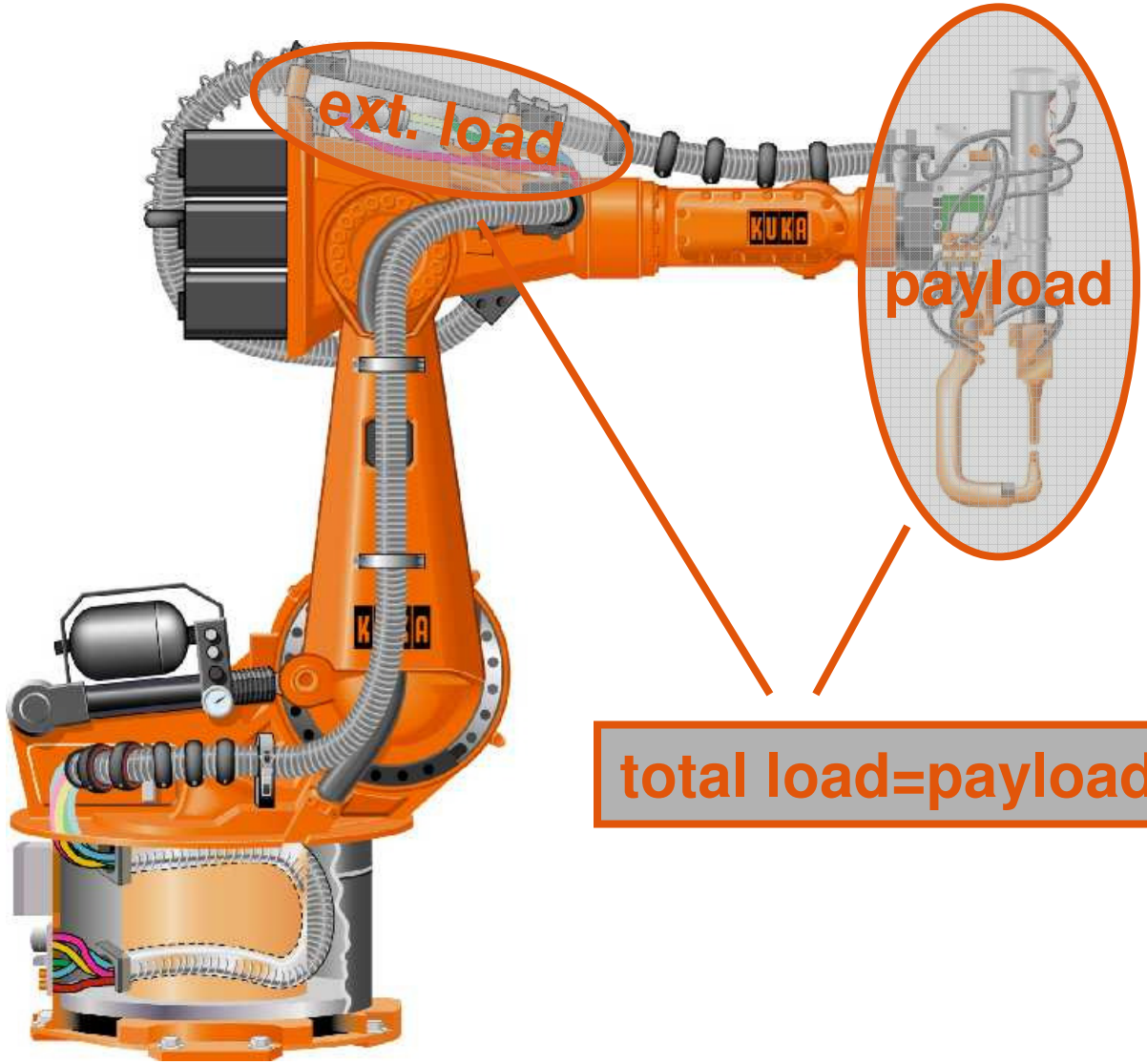
The working space of a KUKA robot (overview)



overview:
working space

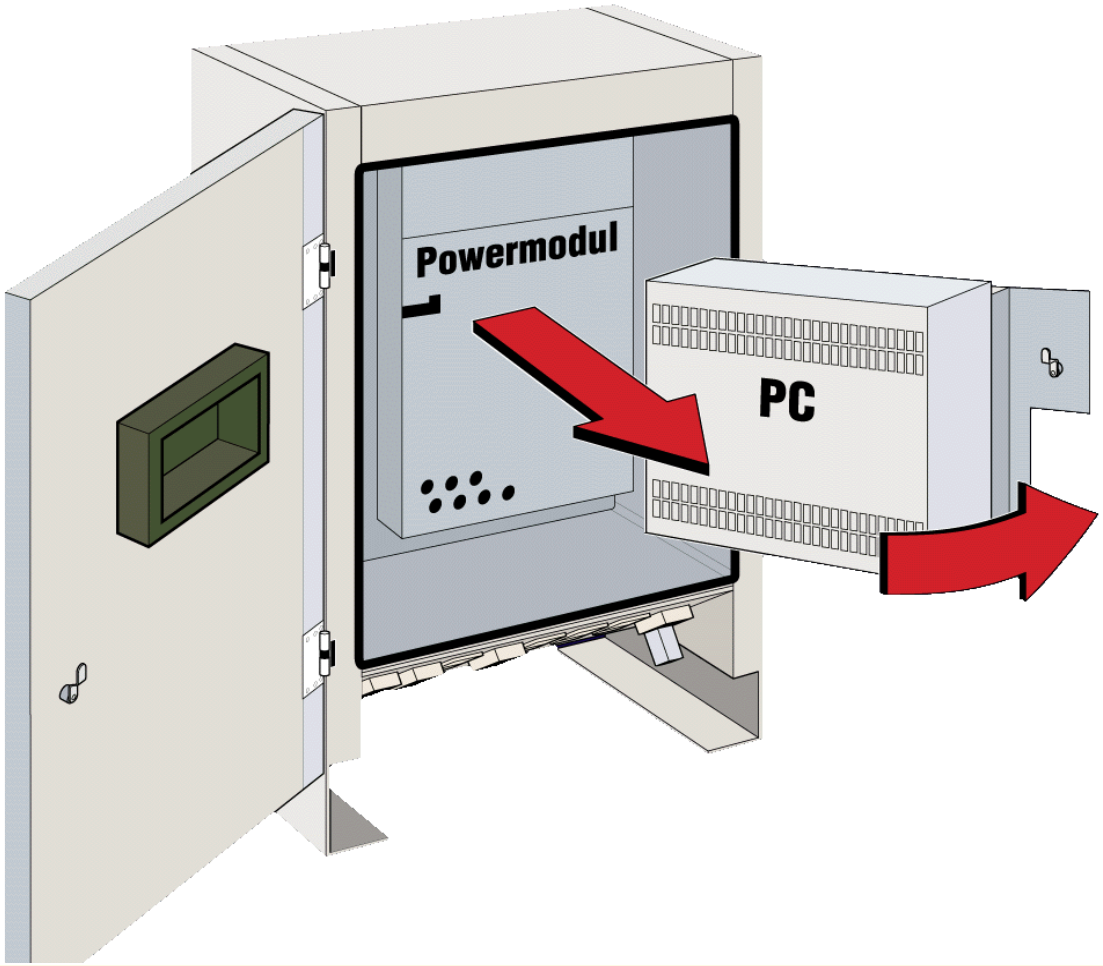
angle axis 1:
>360°

Payload spreading of a KUKA robot

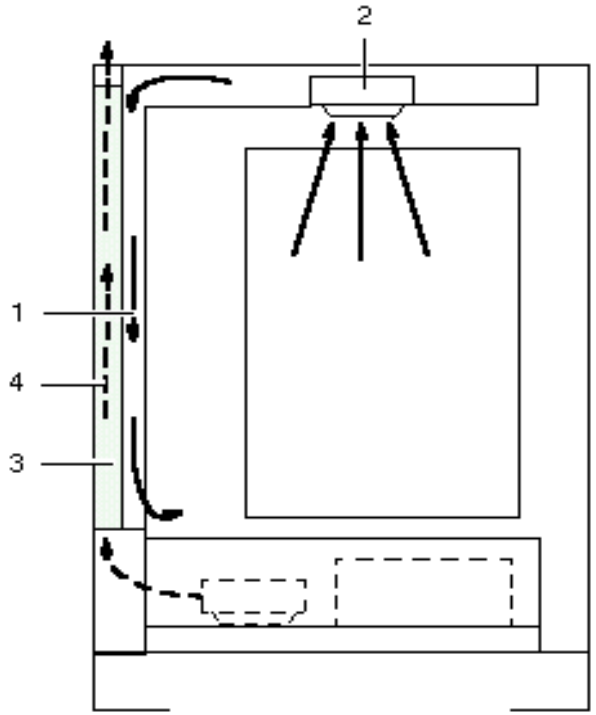


total load=payload+extended load

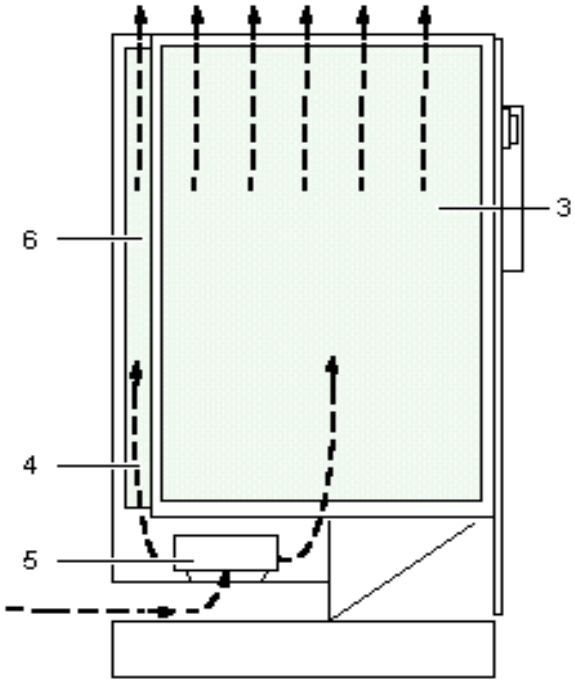
Construction of the controll cabinet



Cooling of the control cabinet KR C1



Front view of the inner and outer Cooling circuit



Side view of the outer Cooling circuit

1 Inner Cooling circuit

2 Fan Inner cooling circuit

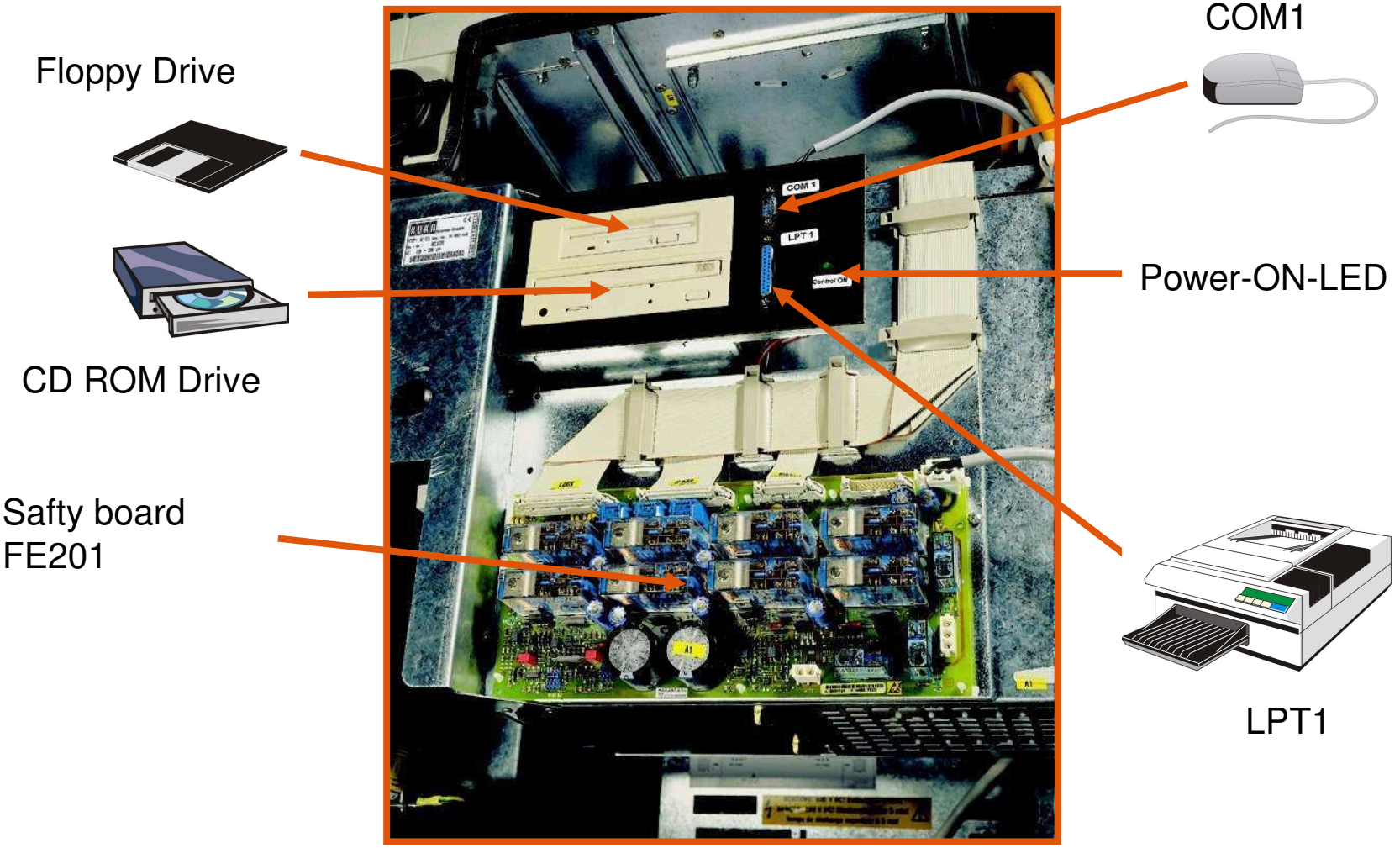
3 Head converter

4 Outer Cooling circuit

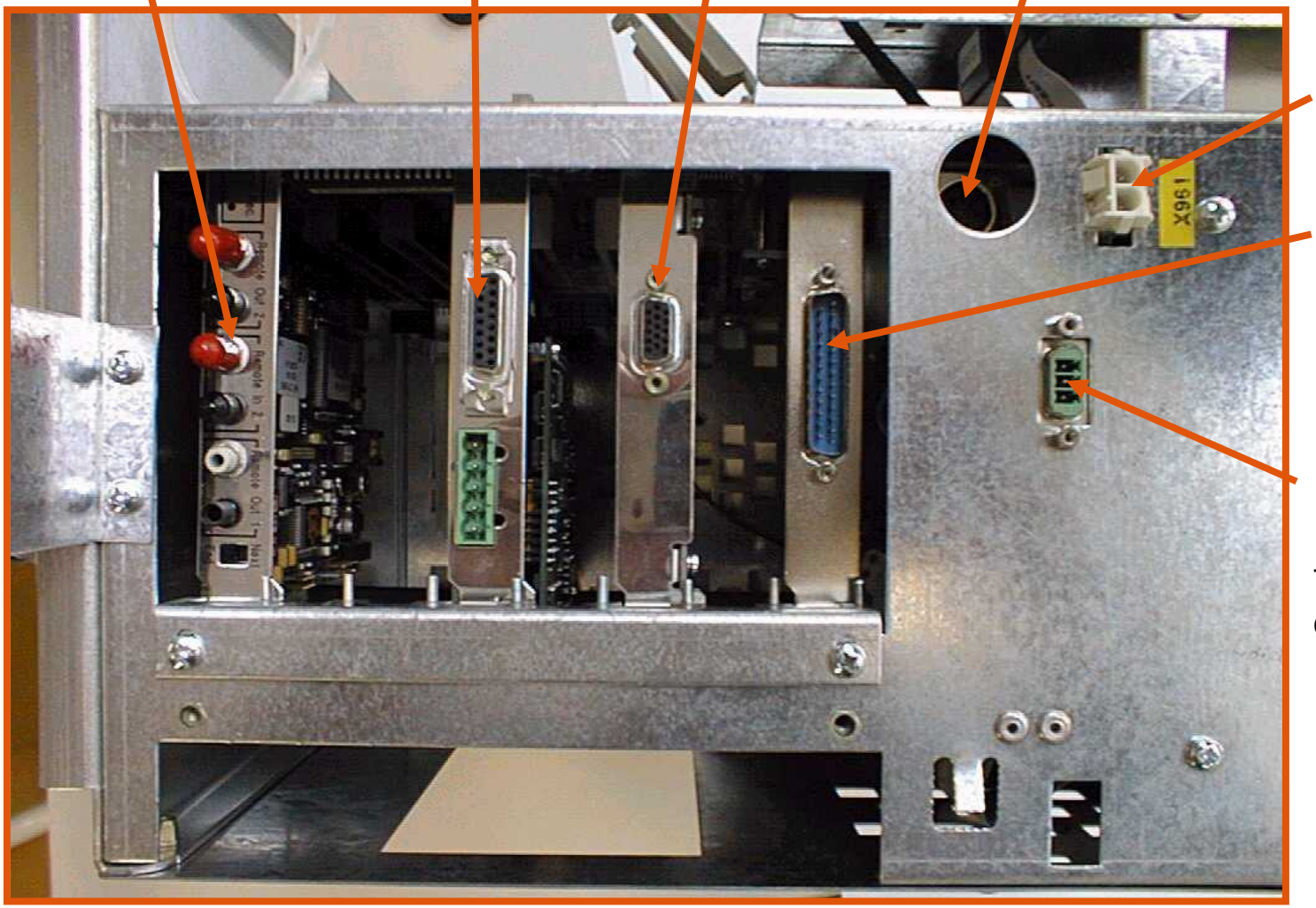
5 Fan Inner cooling circuit

6 Head converter

Front view of the PC unit

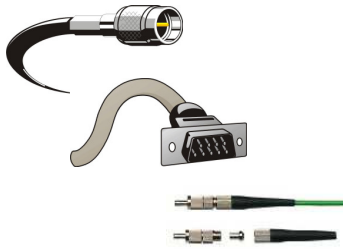


Overview of the PC unit

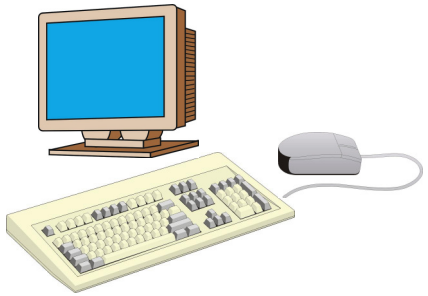


User groups

- Configuration of the robot system (External axes, Technology)
- Configuration of the robot system (Fieldbus, Vision-system etc.)
- Own Technology commands via UserTECH



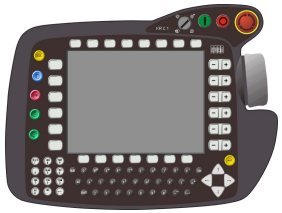
Administrator



Expert

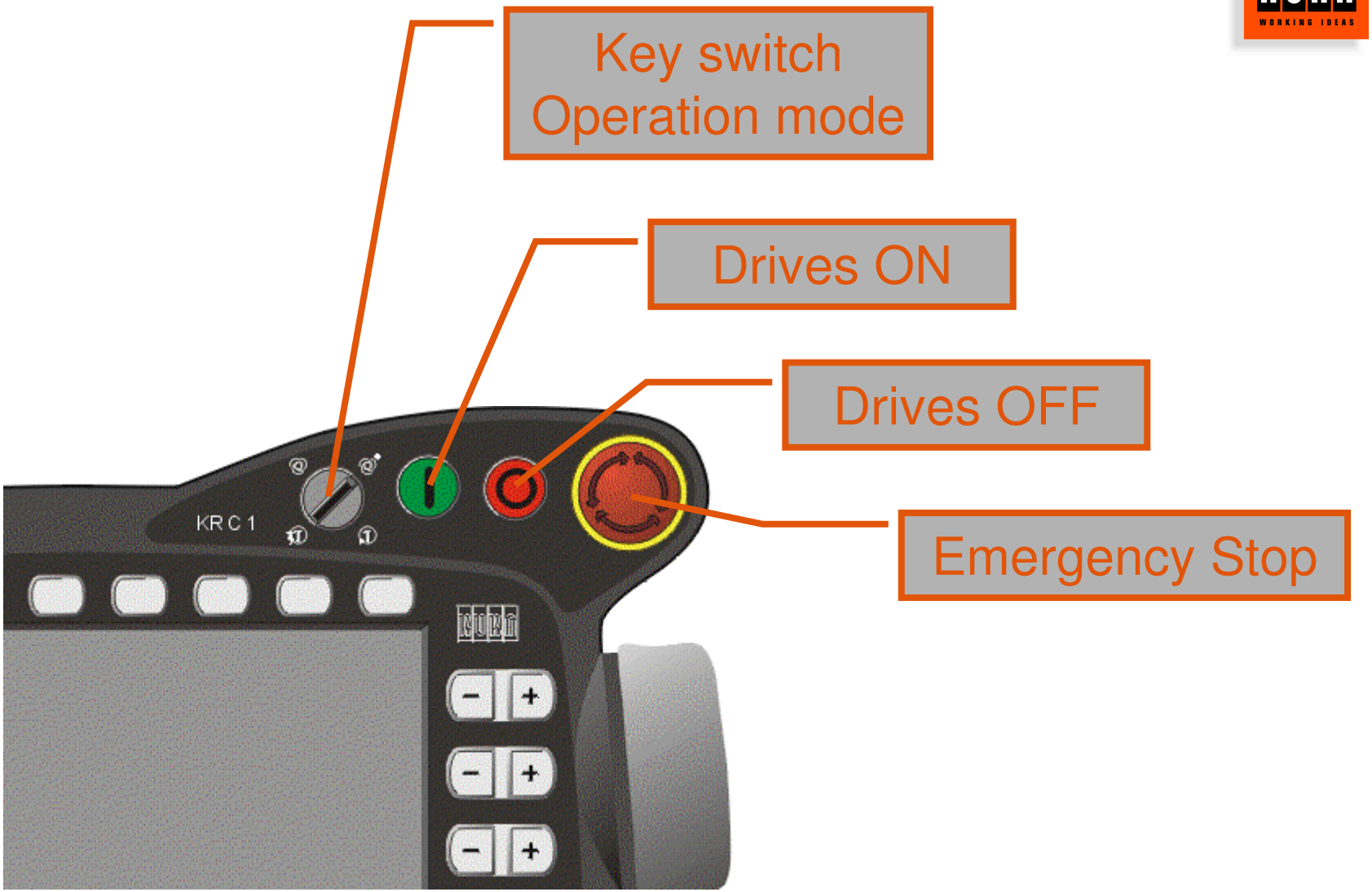
- Advanced programming with program language KRL
- Complex robot programs (Subprograms, Interrupt programming, Loops, Program junction)
- Numeric Motion commands

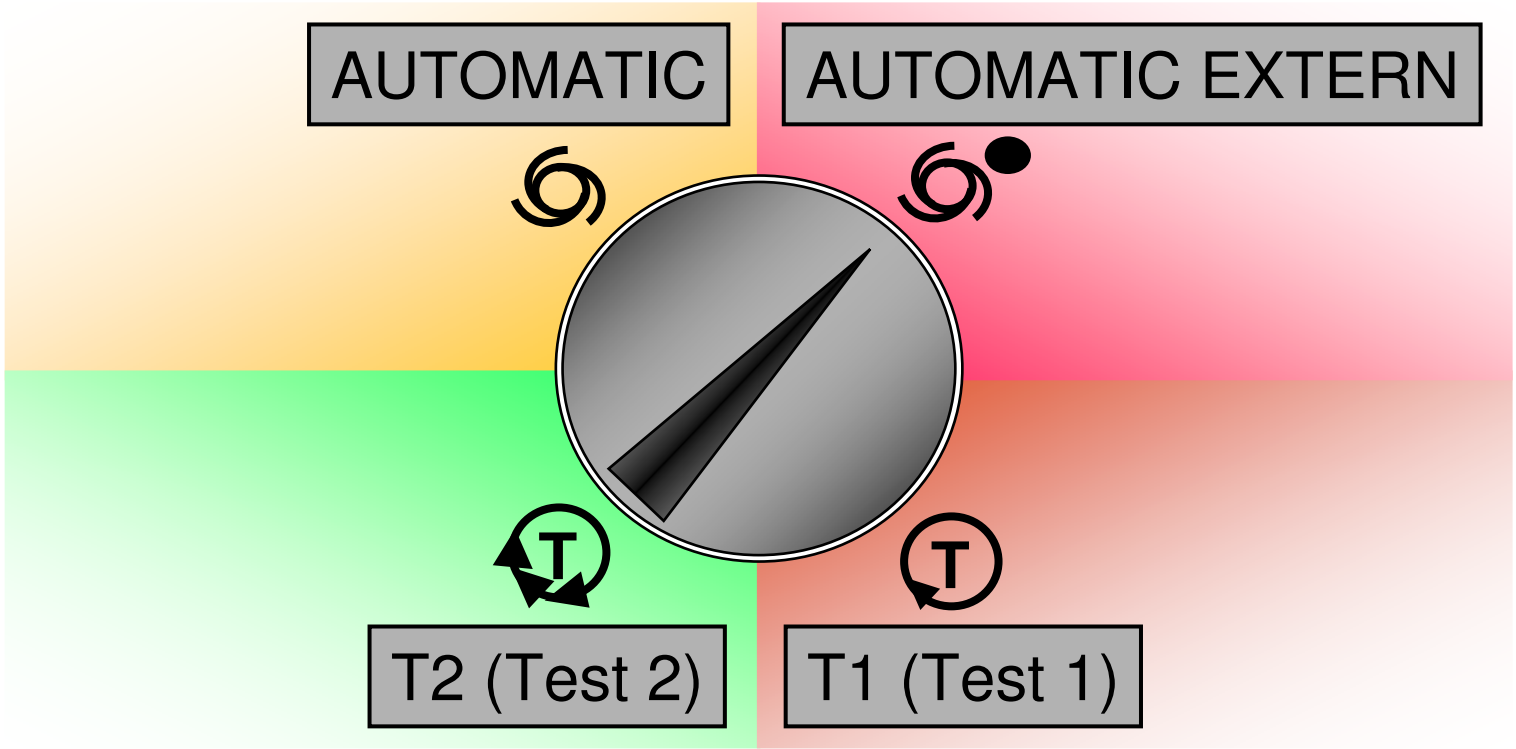
- Start up (Mastering, Tool measuring)
- Simple robot programs (Programming with Inline forms, Motion commands, Technology commands, limit monitoring, no Syntax errors)



User

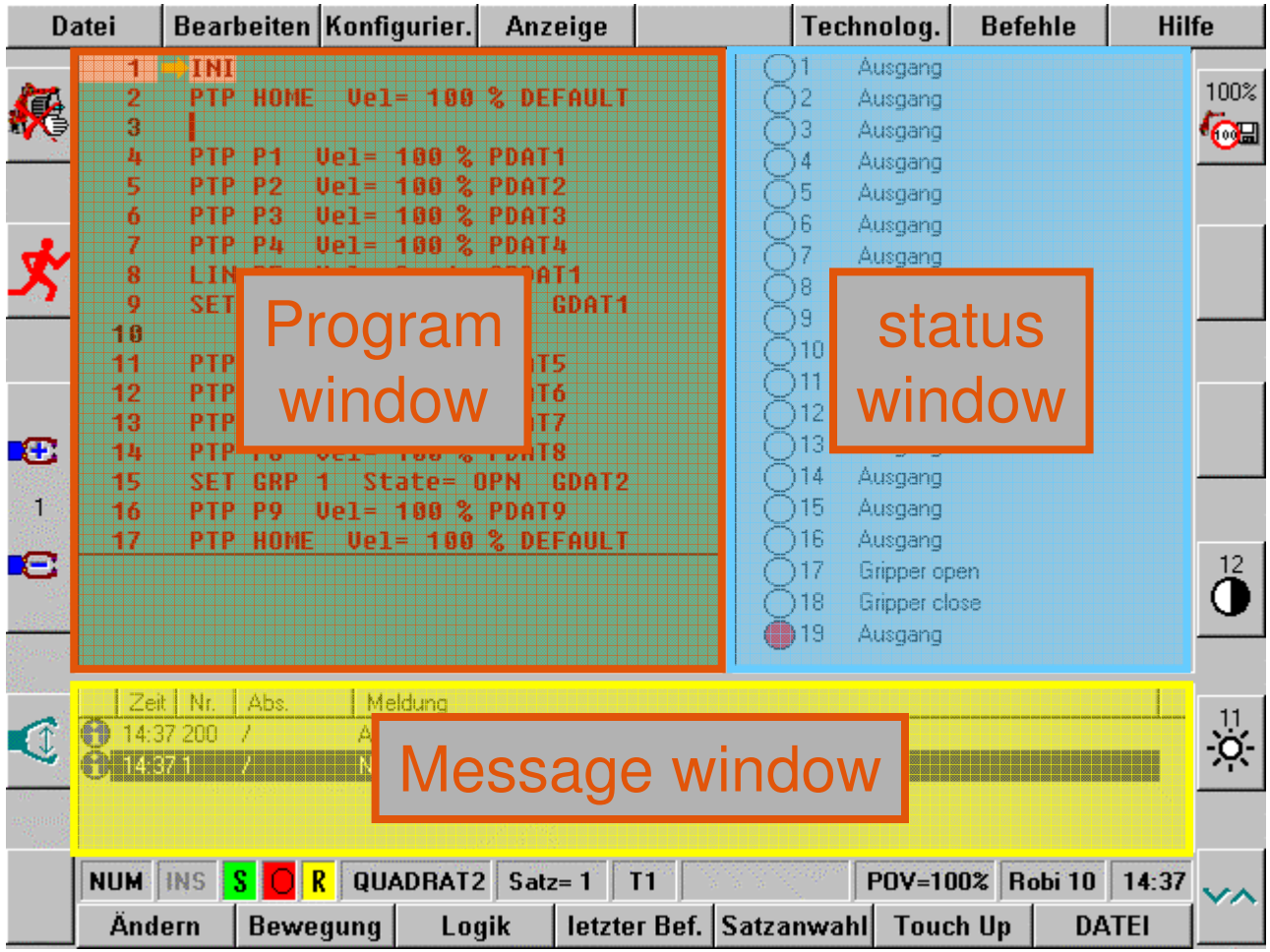
KUKA Control Panel (KCP)


Key switch
Operation mode
Drives ON
Drives OFF
Emergency Stop
KR C 1

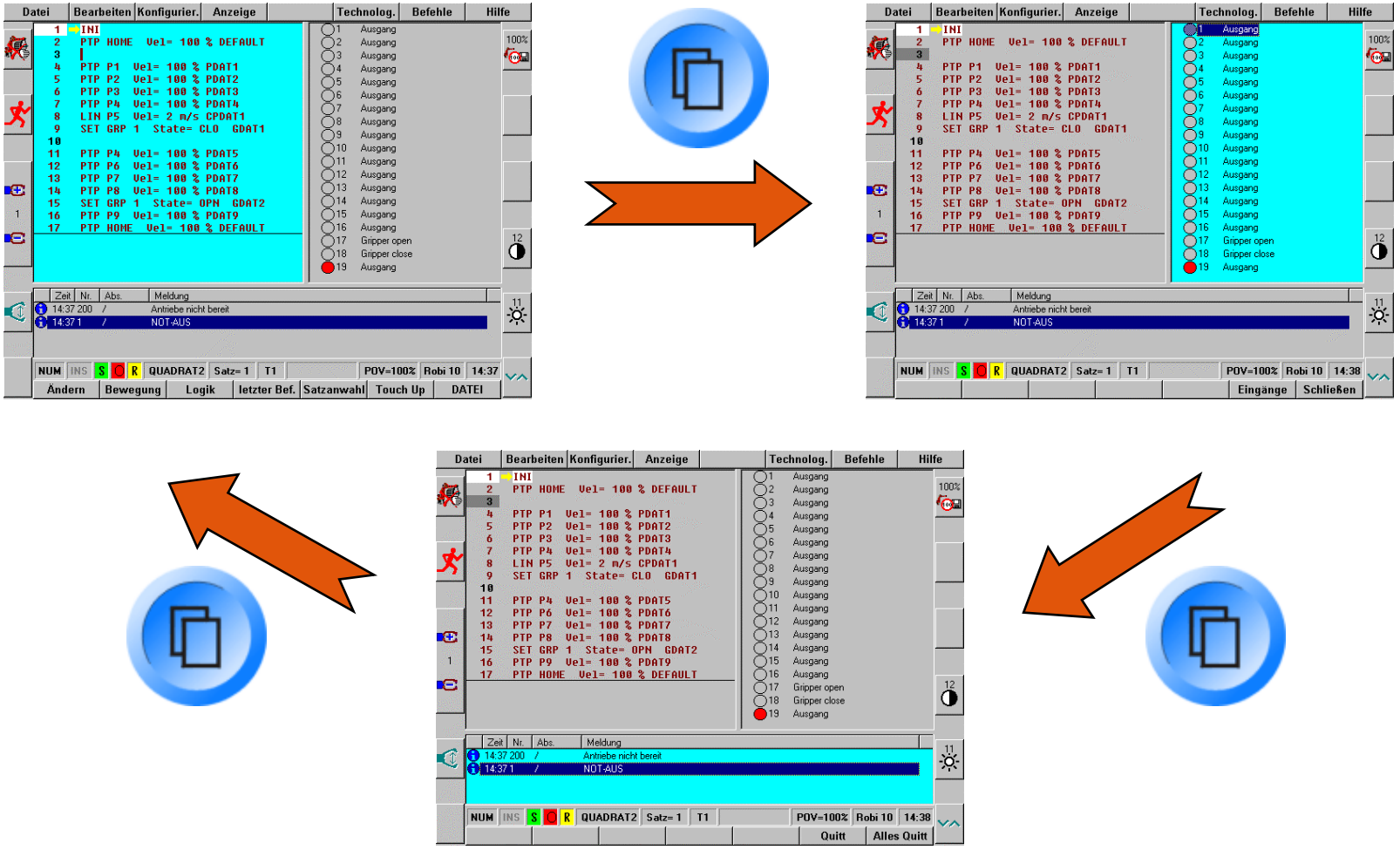

AUTOMATIC
AUTOMATIC EXTERN
T2 (Test 2)
T1 (Test 1)

Operation mode elements with CAN-Bus

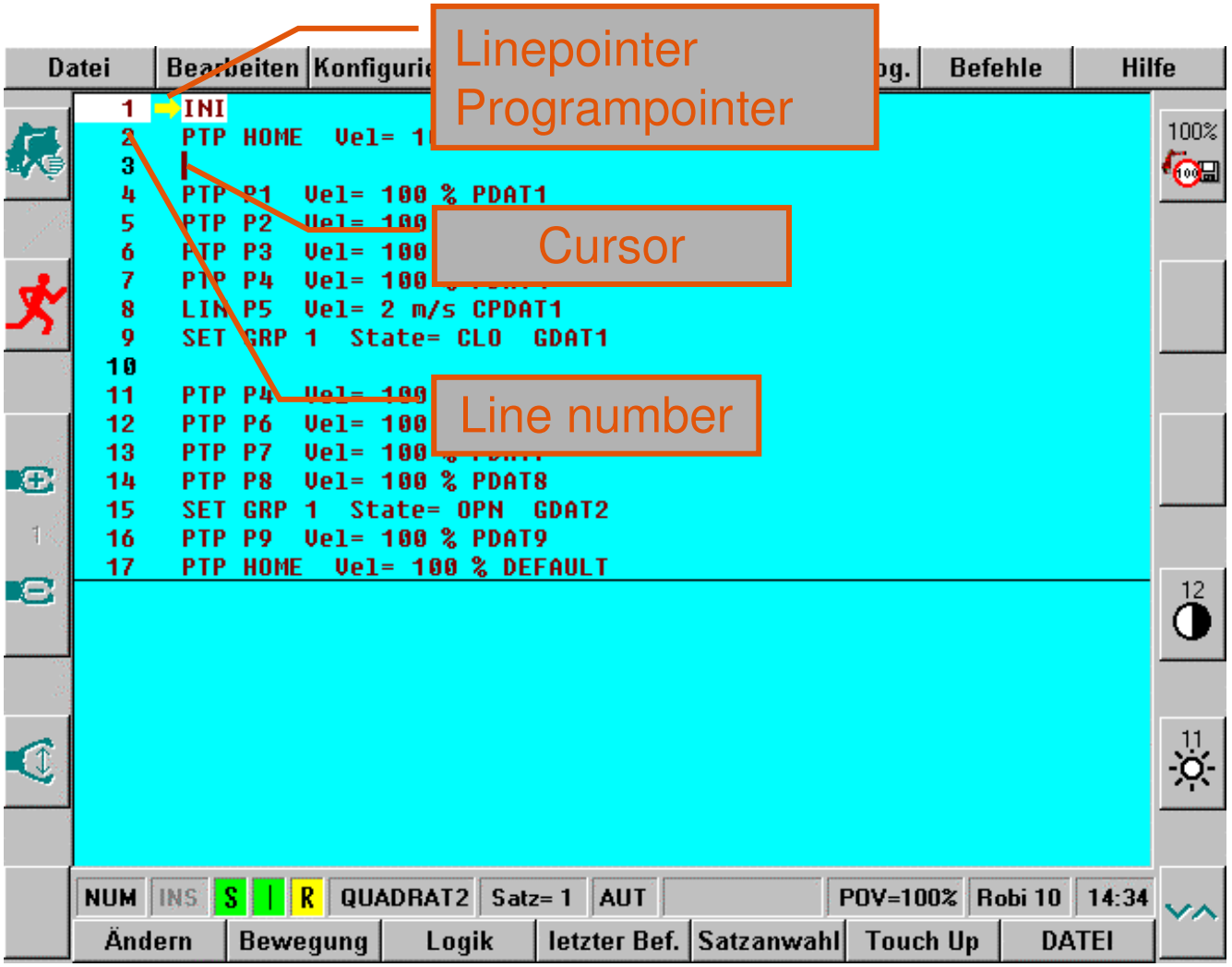
Display windows



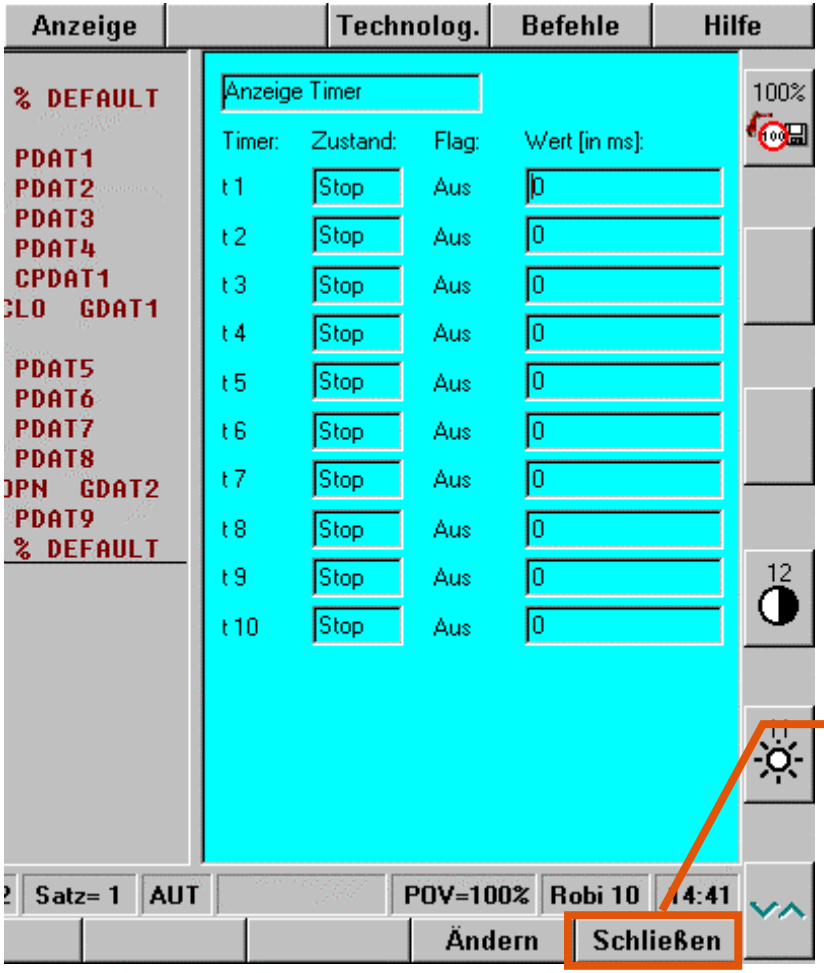
Window selection key



Program window



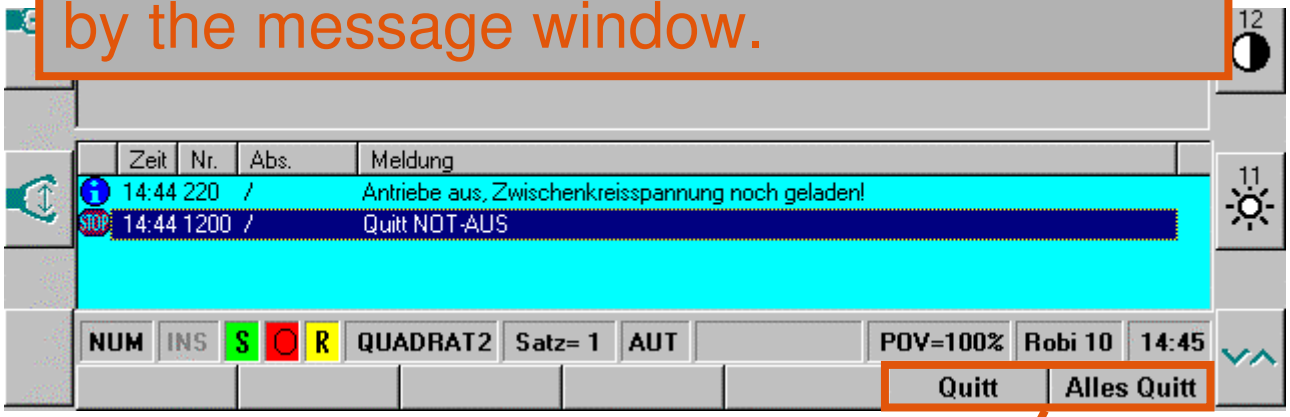
Status window



The status window can be opened on demand.

The status window can be closed every time.

The system communicates with the user by the message window.



Softkeys to acknow-ledge the messages

Hint - e.g. „Startkey requiered“

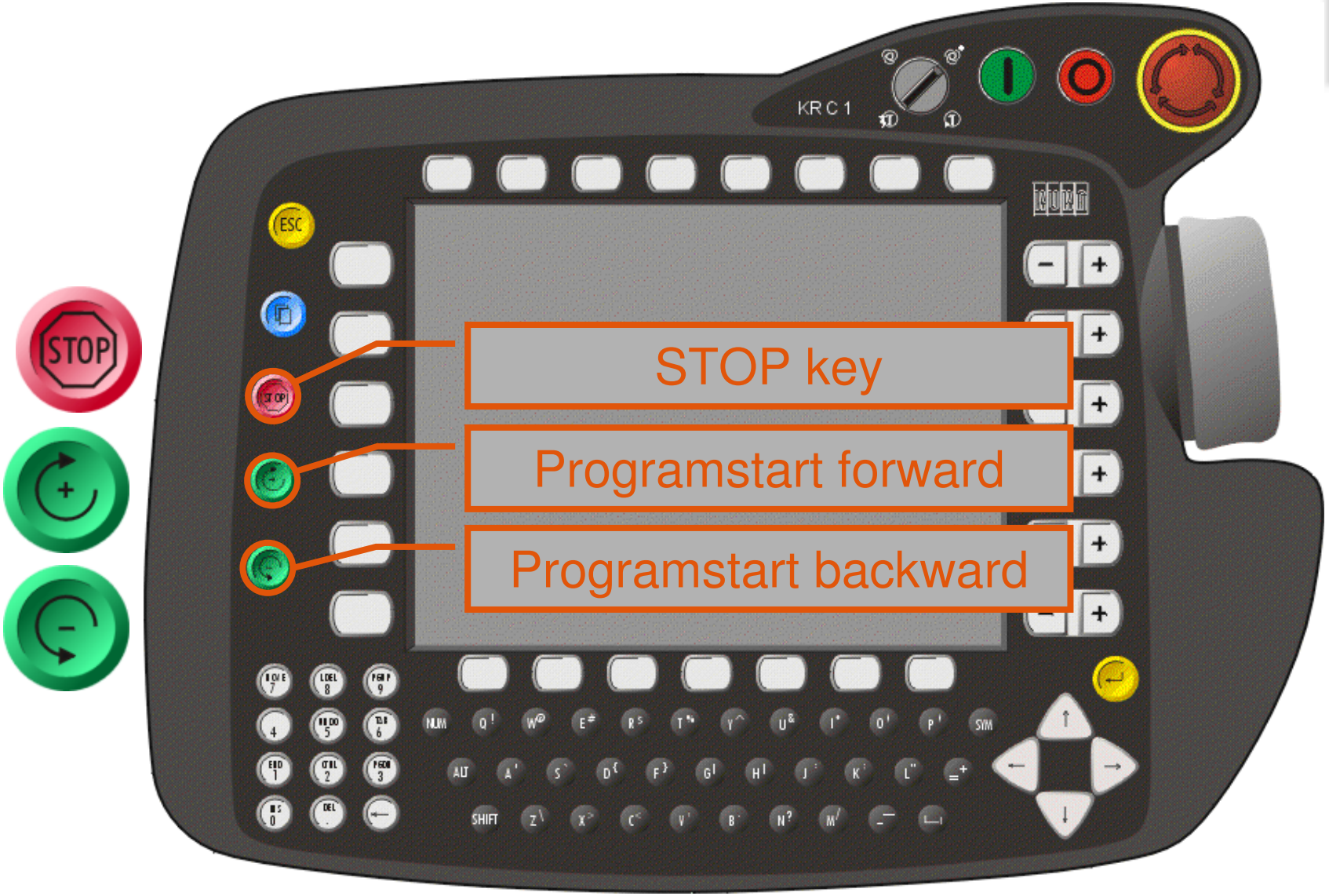
State - e.g. „Emergency Stop“

acknowledge - e.g. „acknowledge E.-Stop“

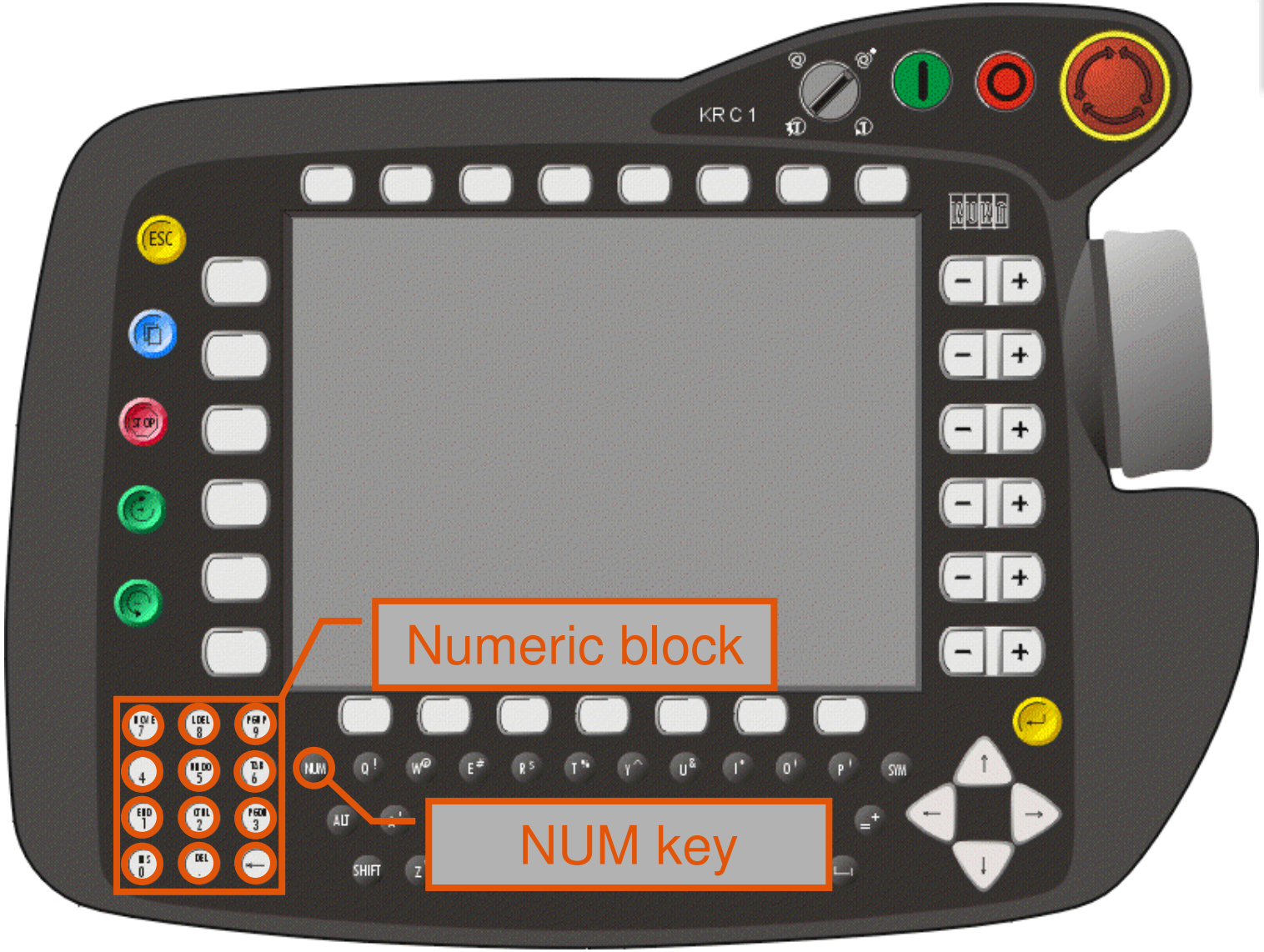
Wait - e.g. „Wait for $IN[1]==True “

Dialog - e.g. „Would you teach the point ?“

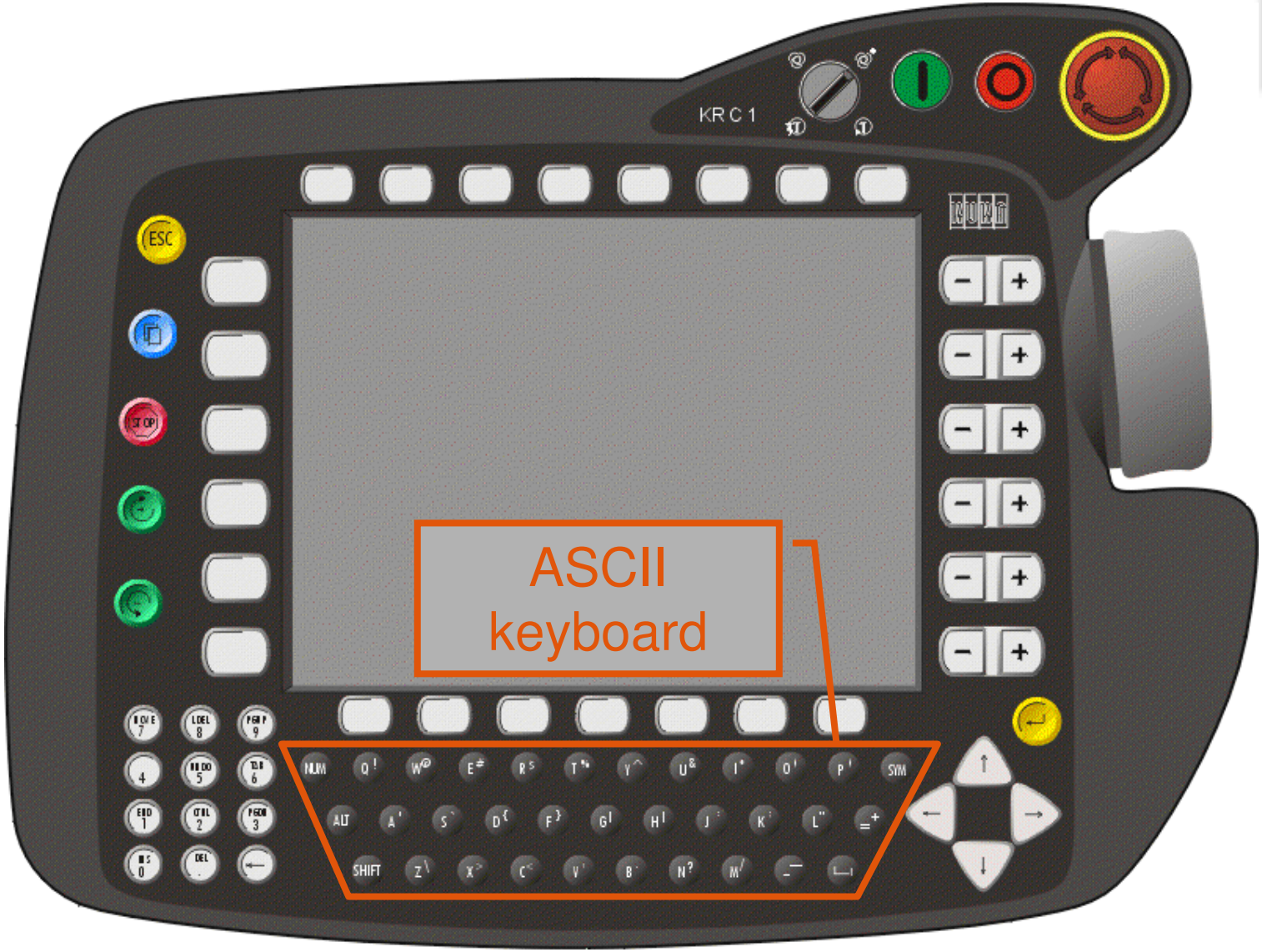
Operation elements with CAN-Bus



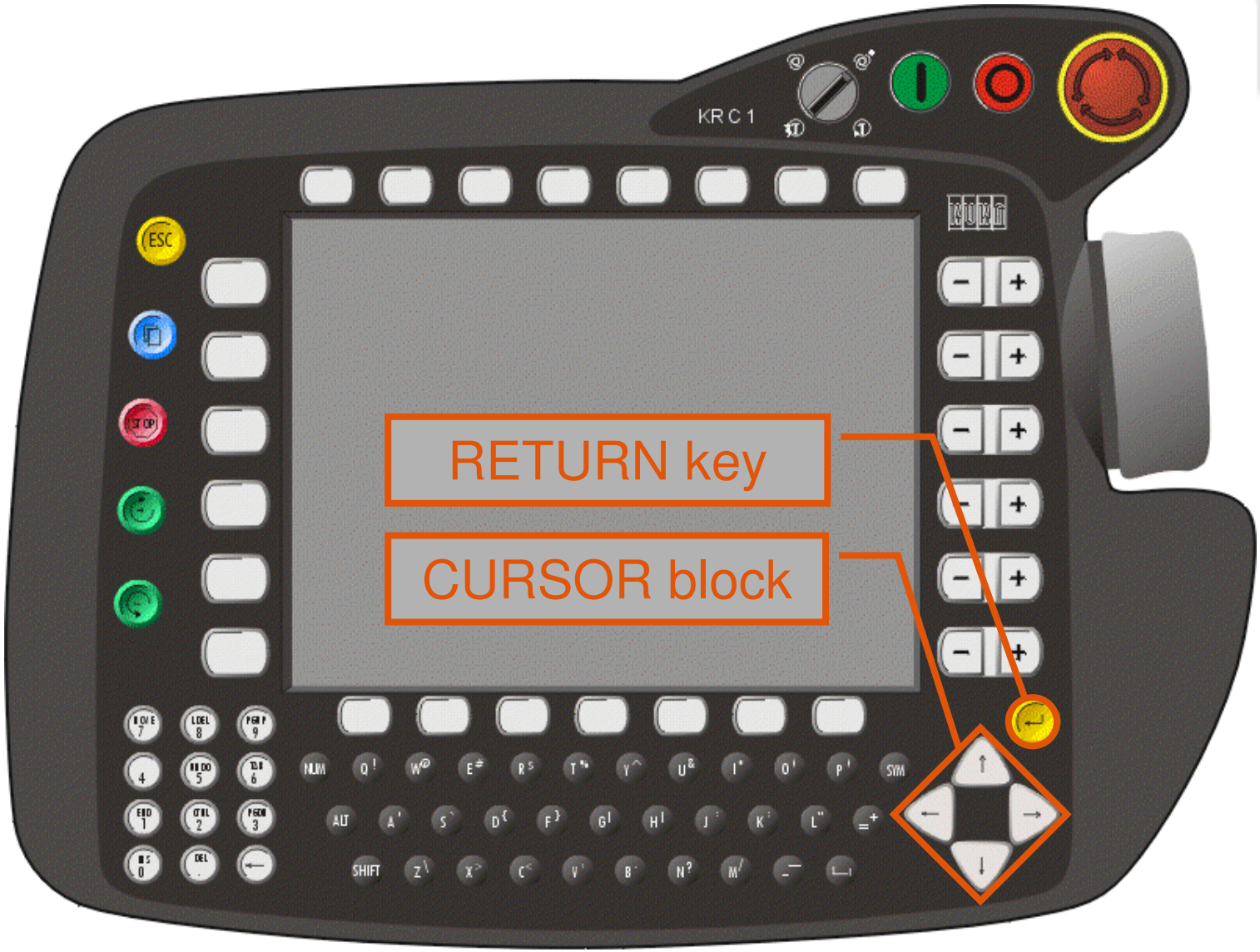
Operation elements with CAN-Bus



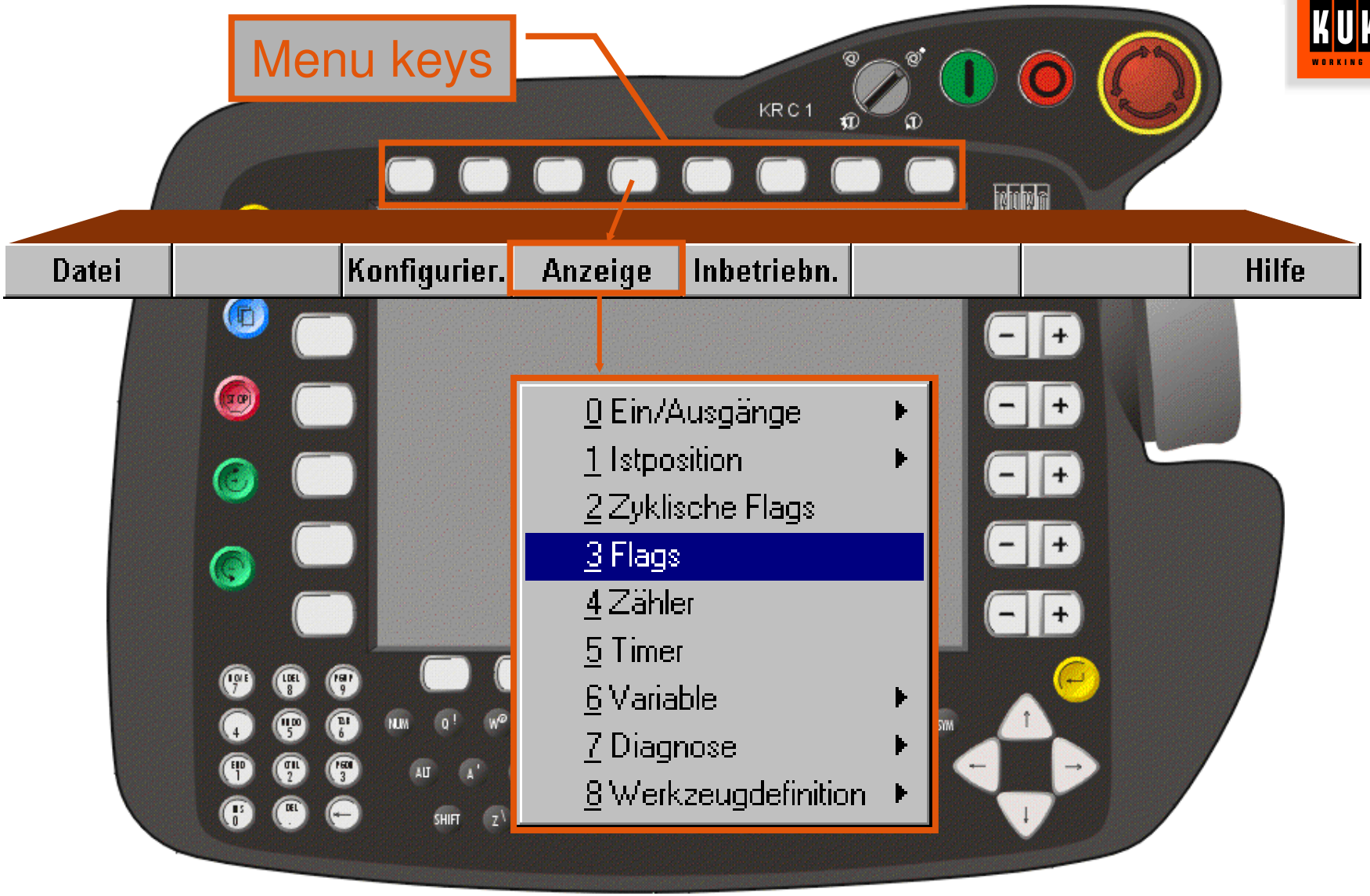
Operation elements with CAN-Bus



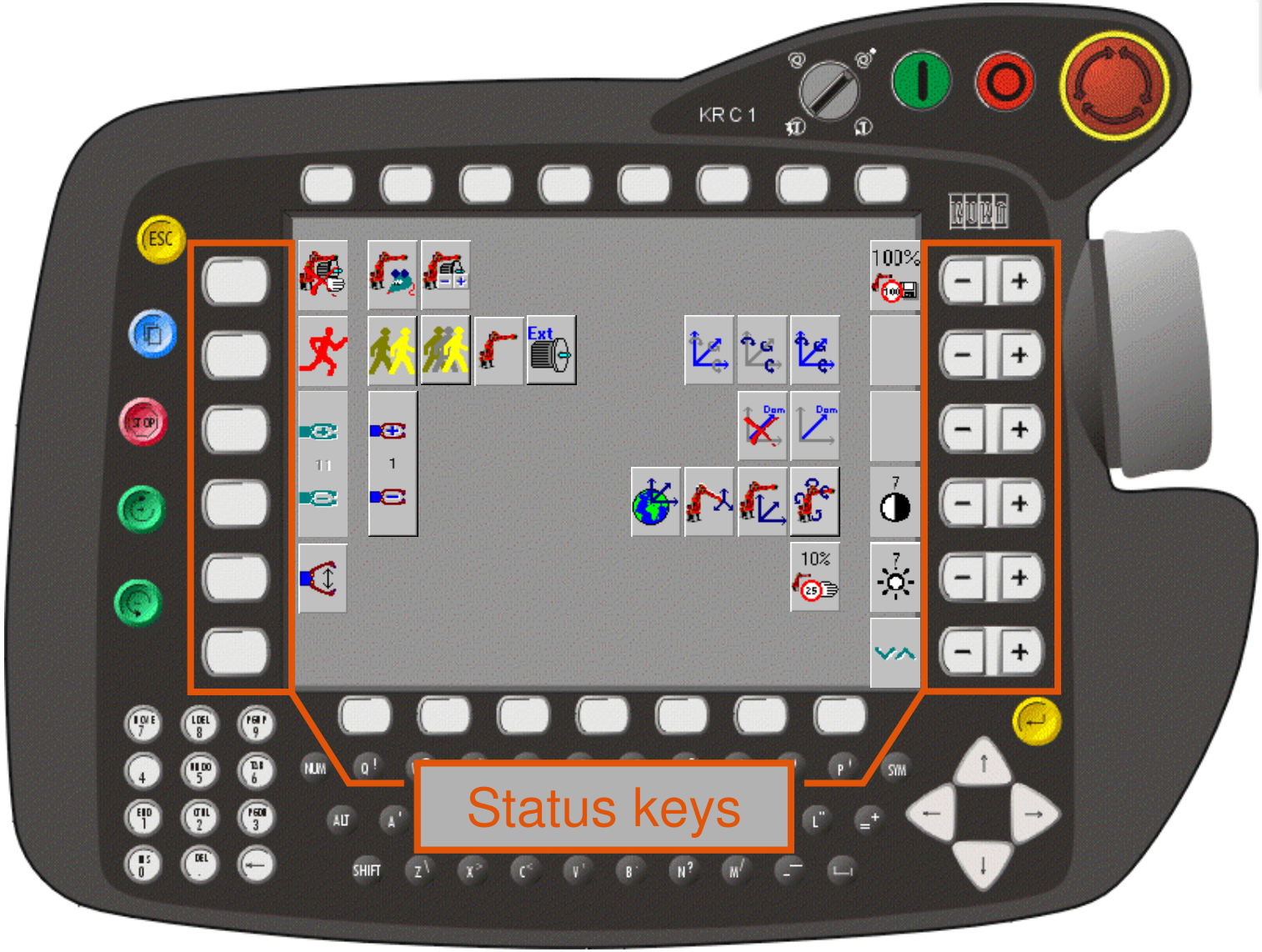
Operation elements with CAN-Bus



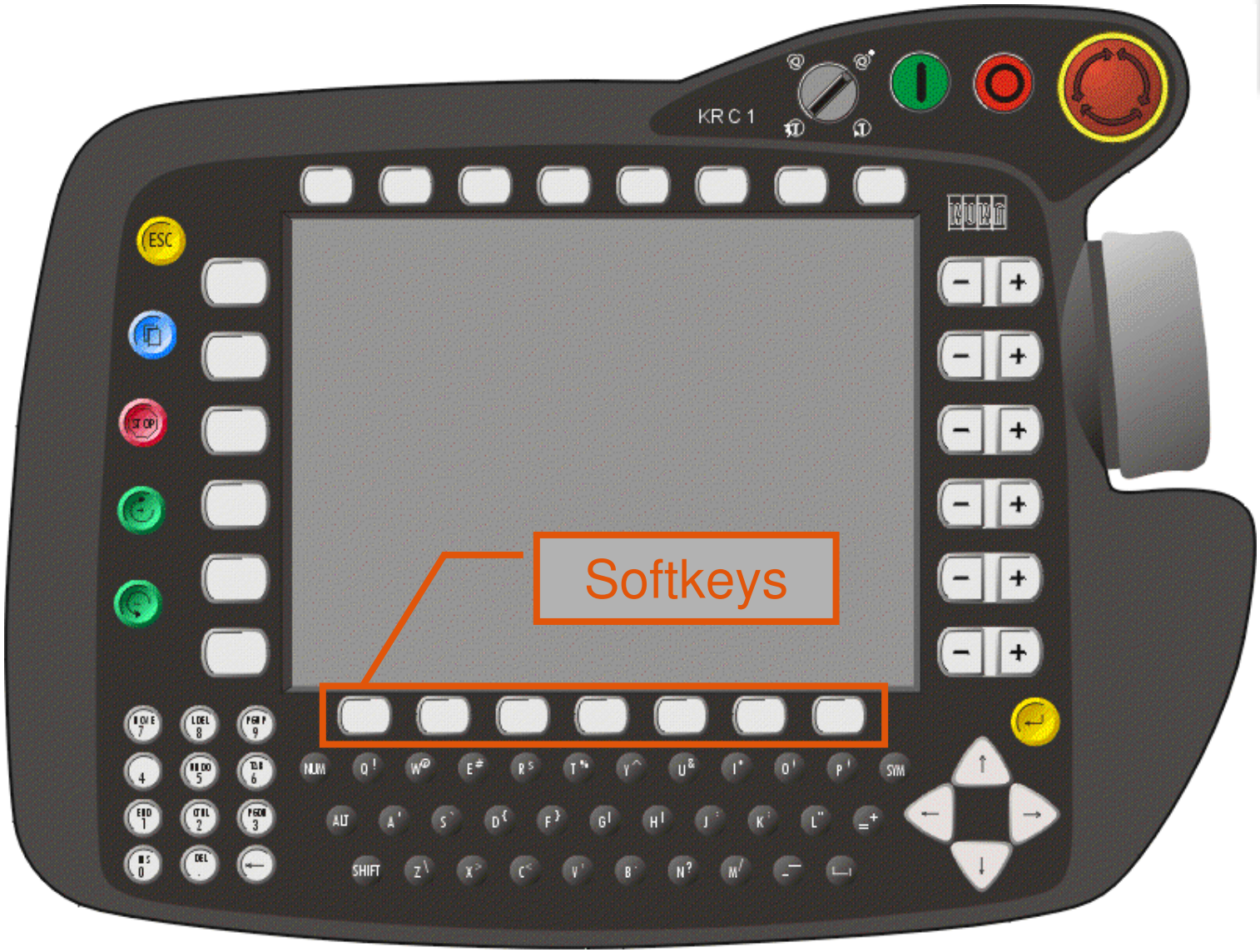
Menu keys


Menu keys
KR C 1
Datei
Konfigurier.
Anzeige
Inbetriebn.
Hilfe
0 Ein/Ausgänge
1 Istposition
2 Zyklische Flags
3 Flags
4 Zähler
5 Timer
6 Variable
7 Diagnose
8 Werkzeugdefinition

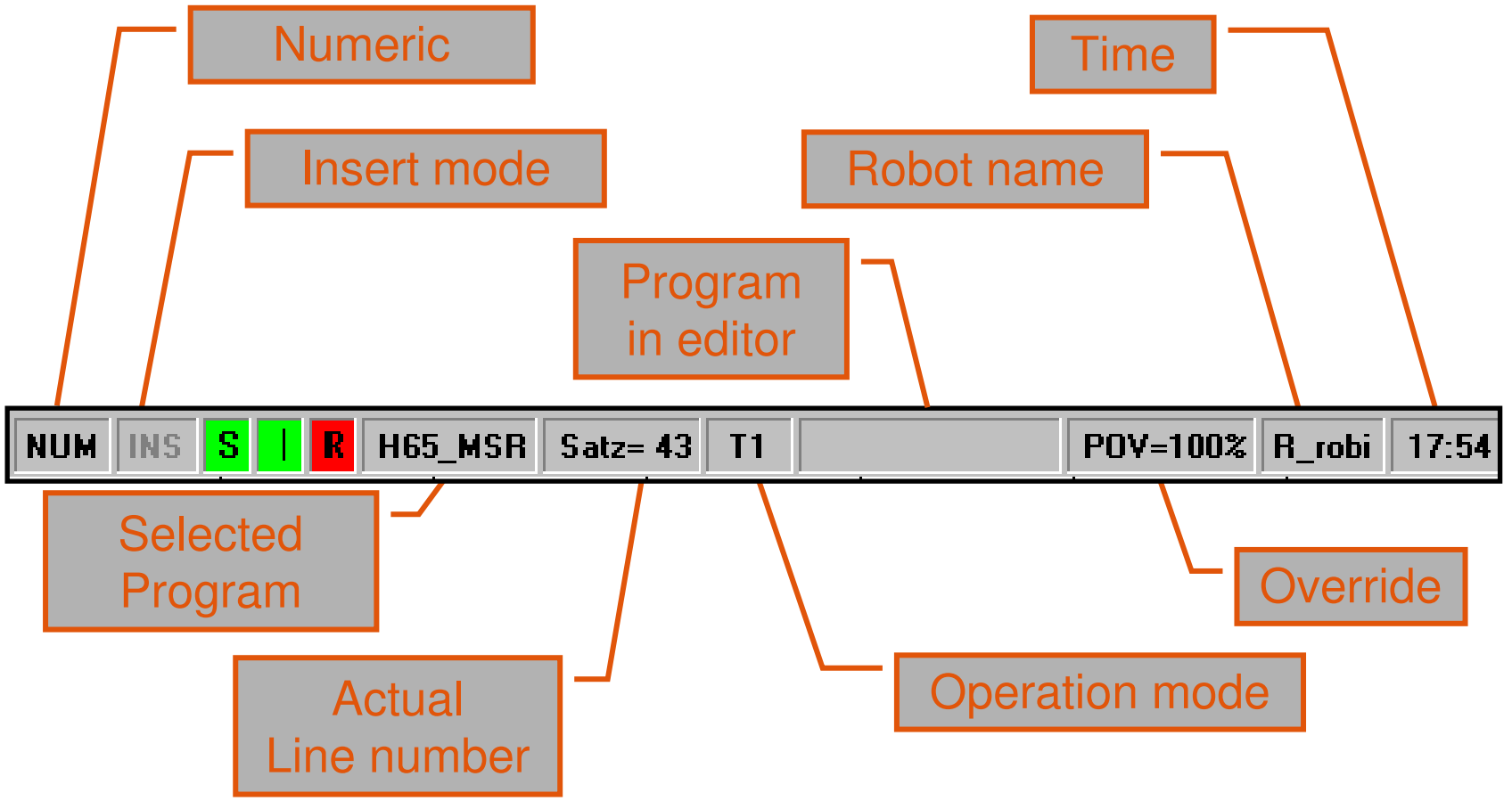
Status keys

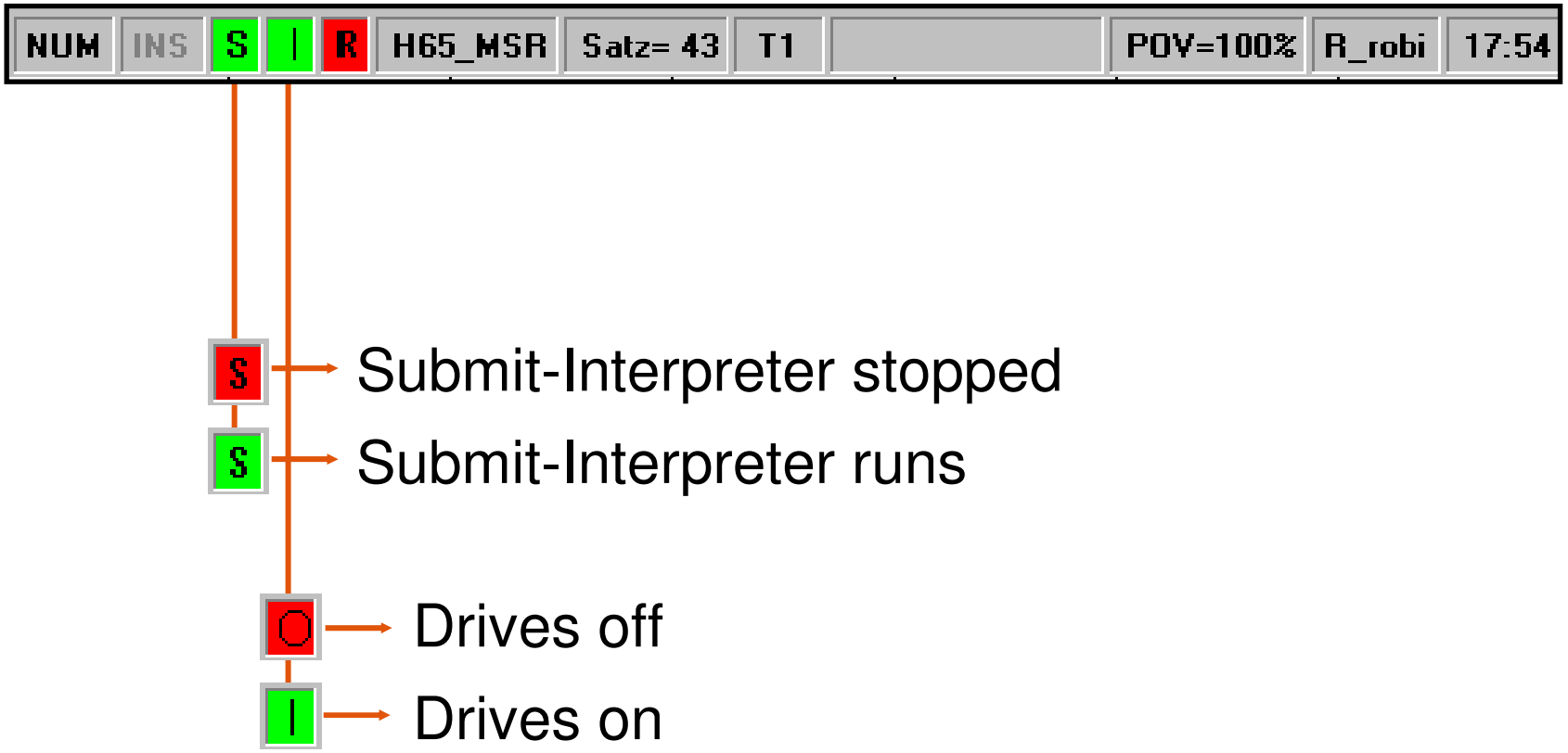


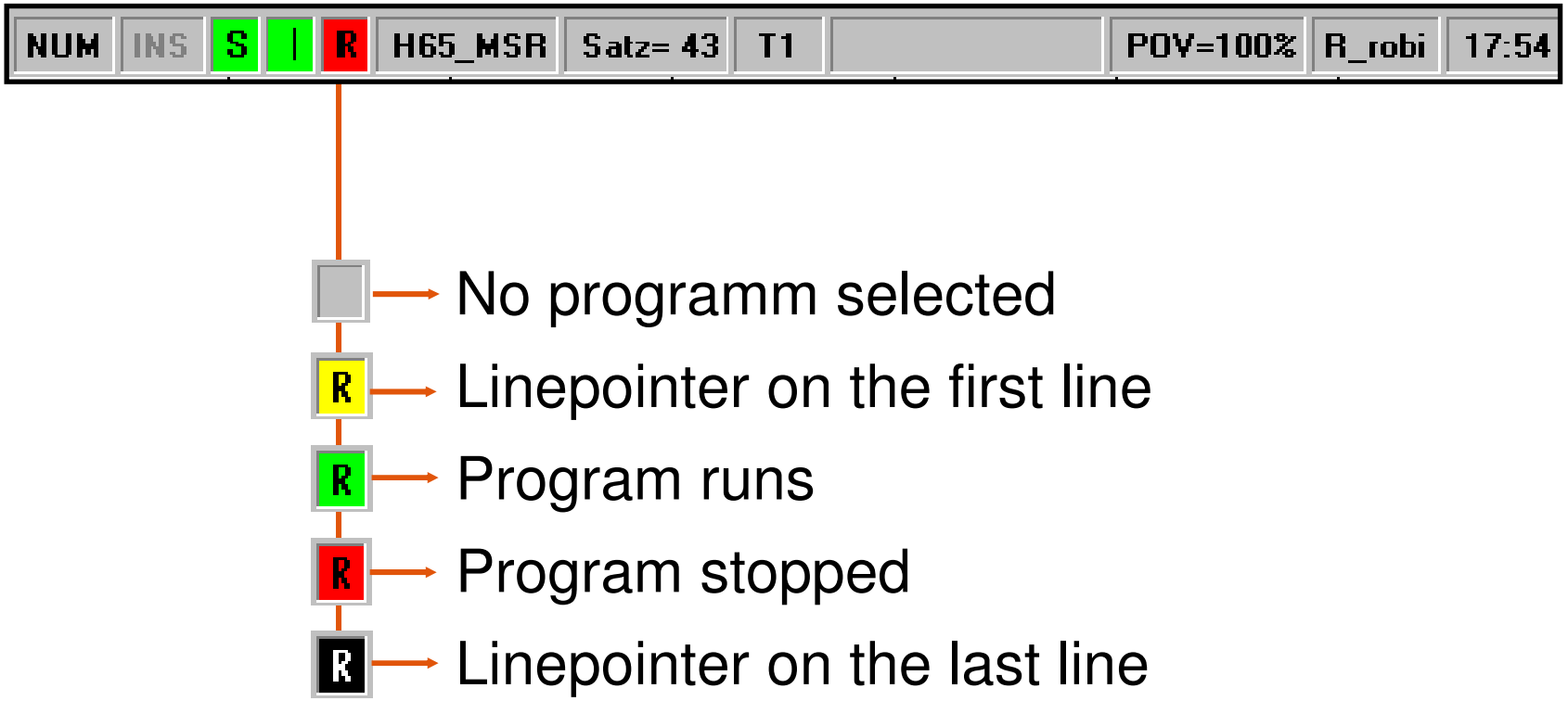
Softkeys



Status line

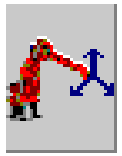

Numeric
Time
Insert mode
Robot name
Program
in editor
NUM
INS
S
|
R
H65_MSR
Satz= 43
T1
POV=100%
R_robi
17:54
Selected
Program
Override
Actual
Line number
Operation mode


NUM
INS
S
I
R
H65_MSR
Satz= 43
T1
POV=100%
R_robi
17:54
S
Submit-Interpreter stopped
S
Submit-Interpreter runs
O
Drives off
I
Drives on


NUM
INS
S
R
H65_MSR
Satz= 43
T1
POV=100%
R_robi
17:54
No programm selected
R
Linepointer on the first line
R
Program runs
R
Program stopped
R
Linepointer on the last line

- **Joint jogging**
  Every robot axis can be moved on it‘s own in positive and negative direction.

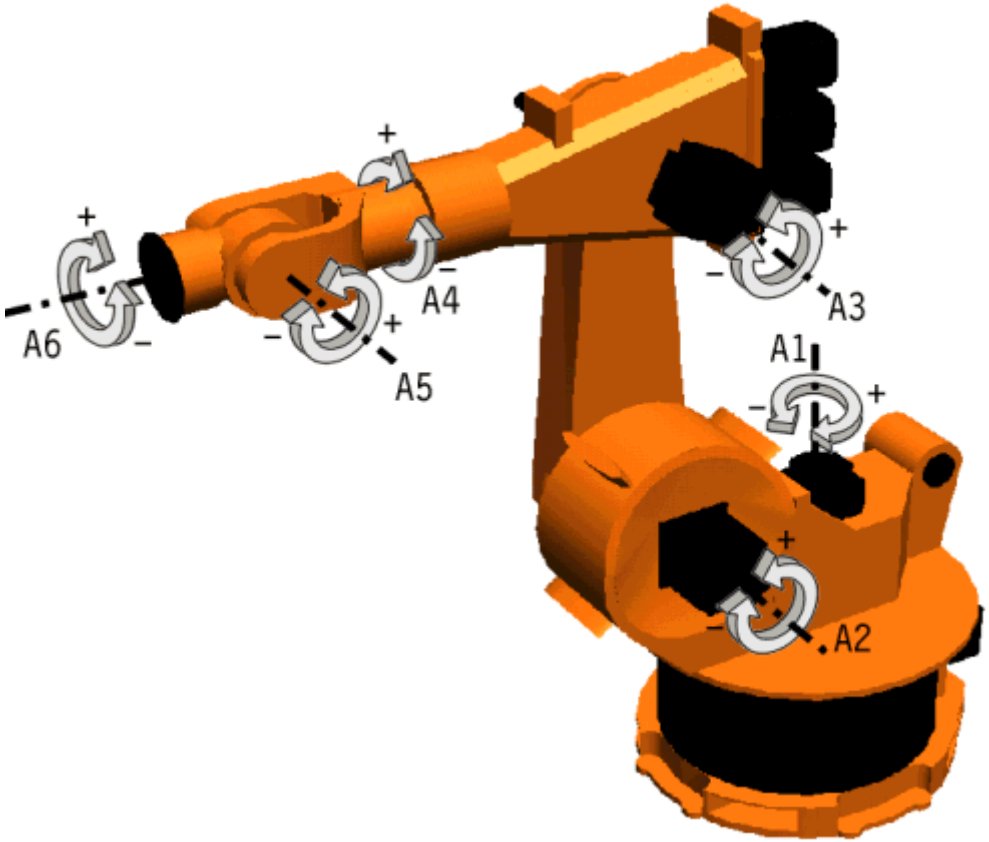
- **WORLD coordinate system**
  A stationary, rectangle coordinate system, with the origin in the robot basement.



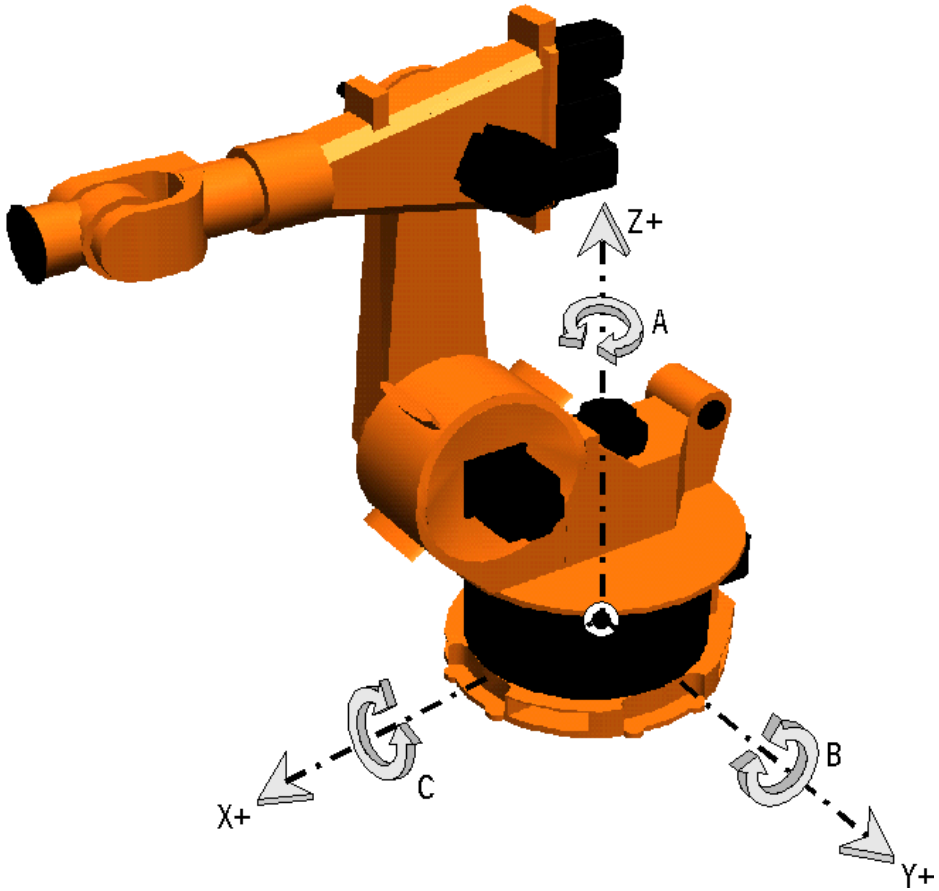
- **TOOL coordinate system**
  A stationary, rectangle coordinate system, with the origin in the robot basement.

- **BASE coordinate system**
  A rectangle coordinate system, with the origin at the workpiece.

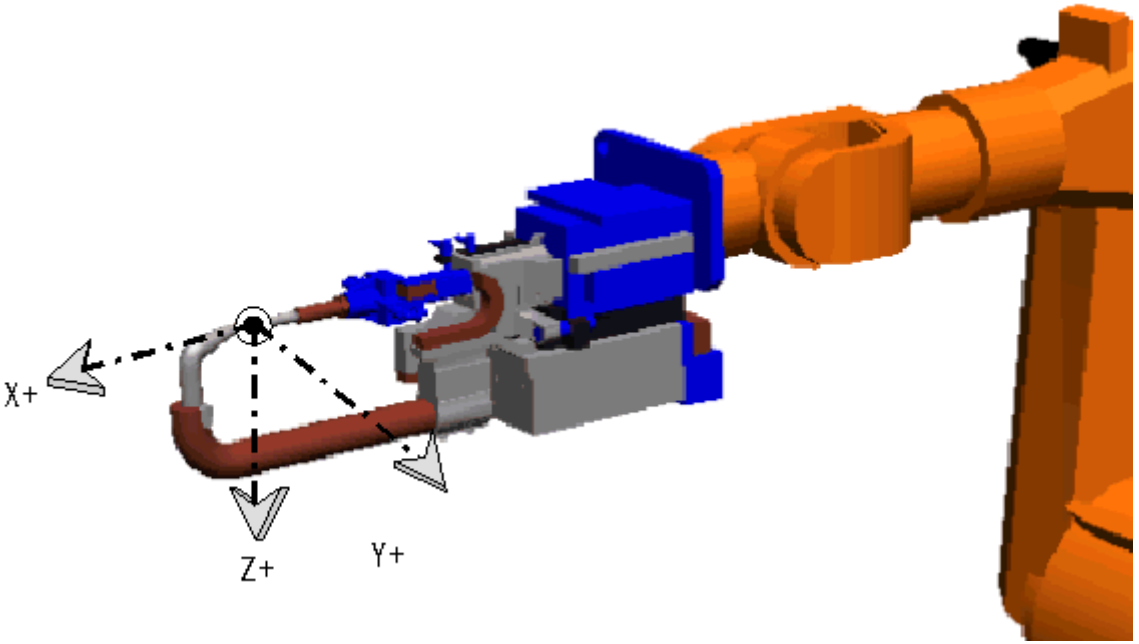
Every robot axis can be moved on it‘s own in positive and negative direction.



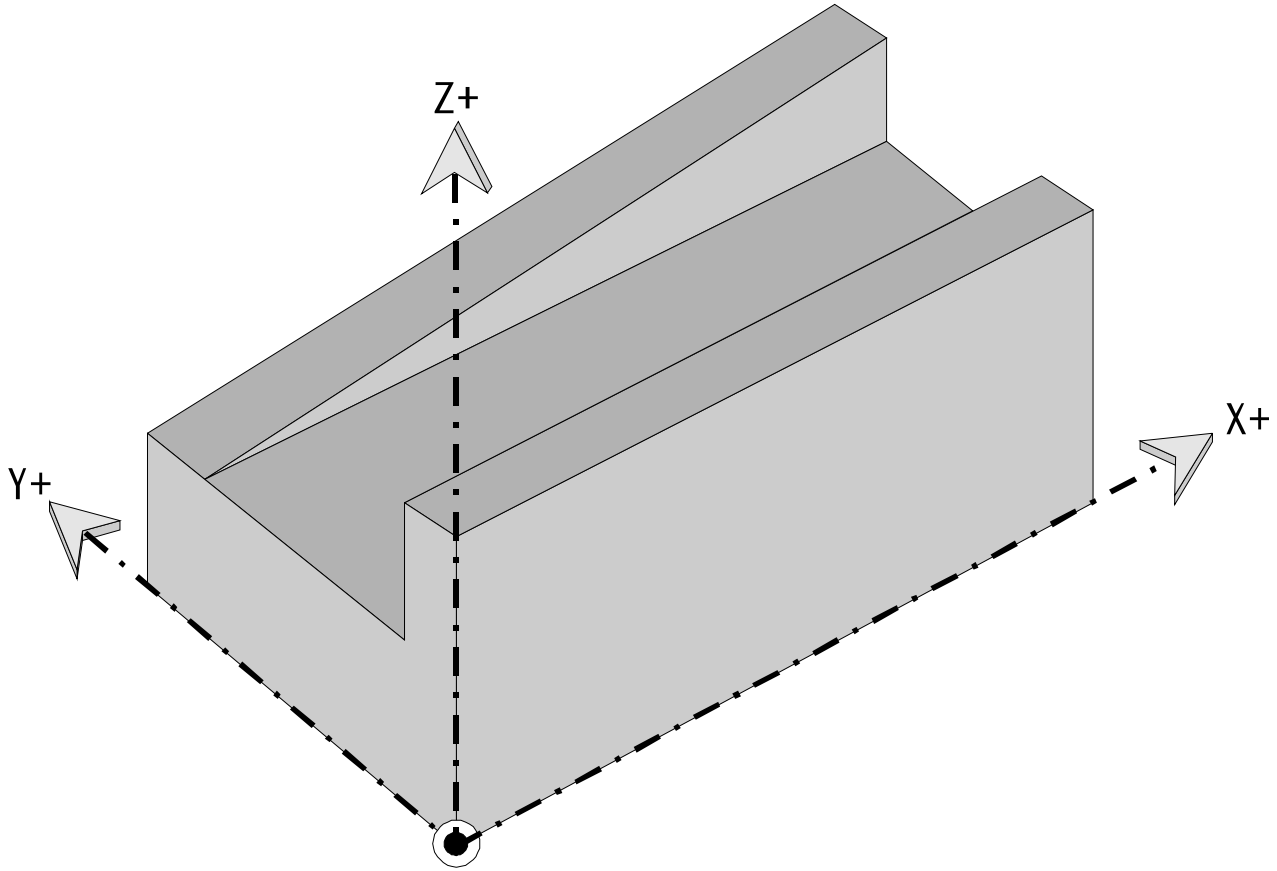
A stationary, rectangle coordinate system, with the origin in the robot basement.



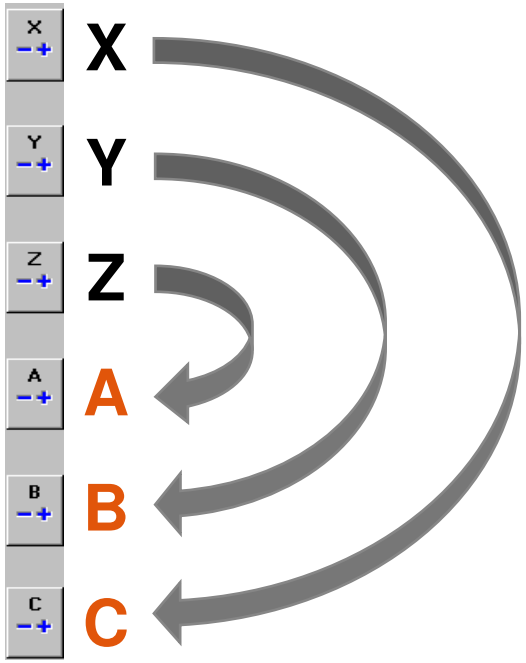
A stationary, rectangle coordinate system, with the origin in the robot basement.

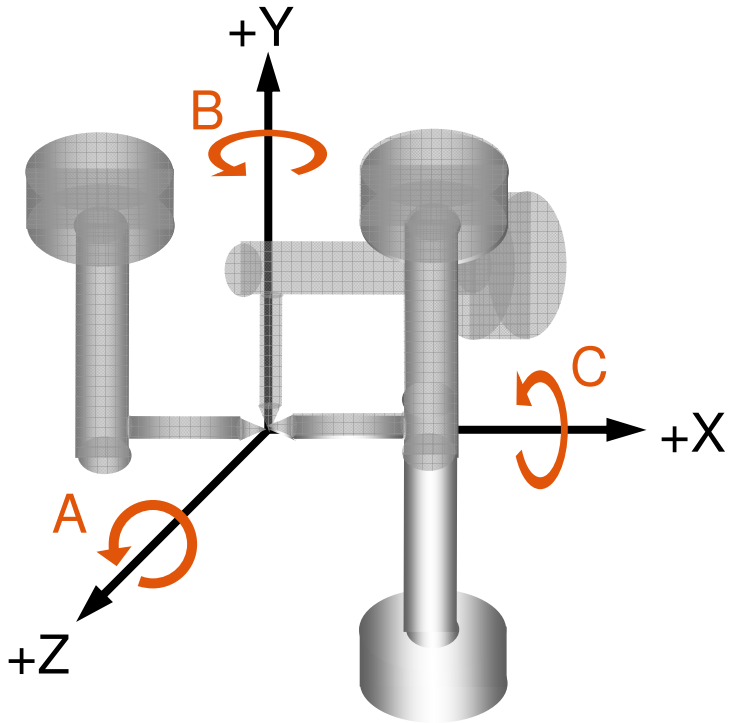


A rectangle coordinate system, with the origin at the workpiece.

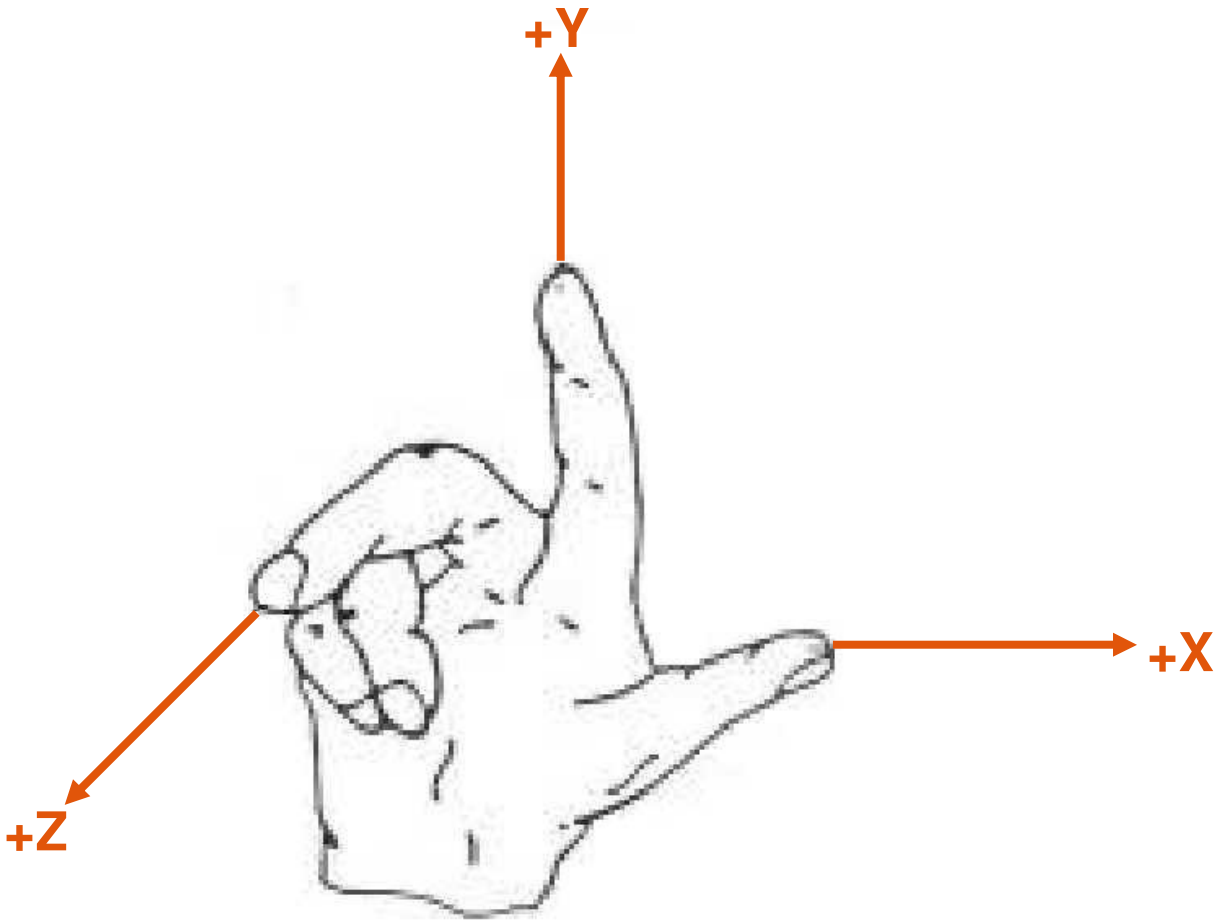


Angle **A** ⇨ Rotation around the **Z**-axis
Angle **B** ⇨ Rotation around the **Y**-axis
Angle **C** ⇨ Rotation around the **X**-axis

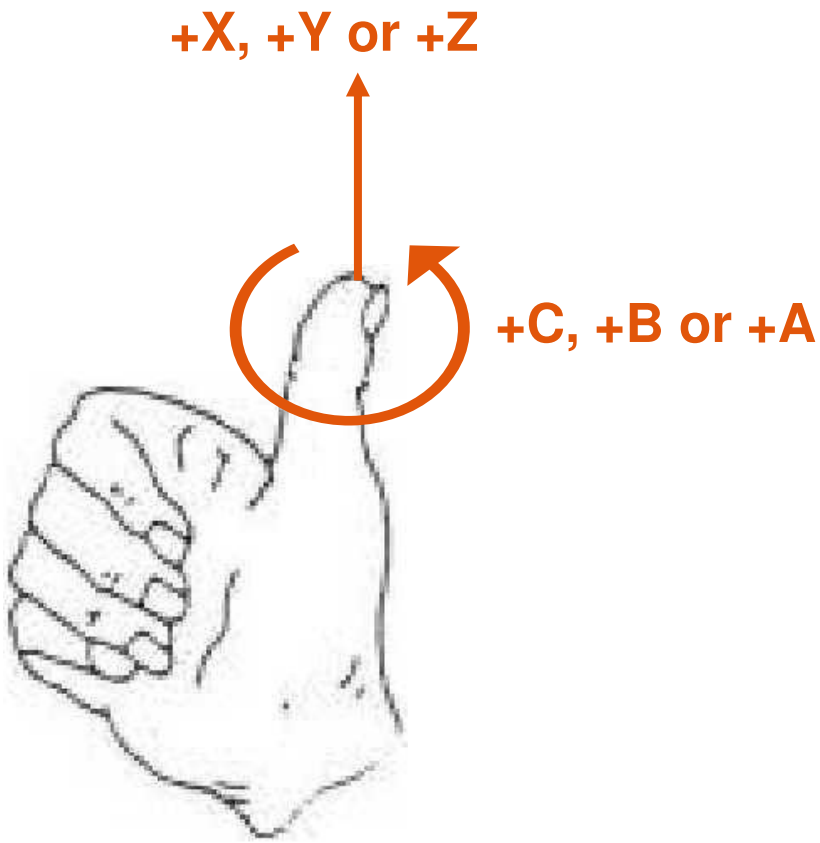




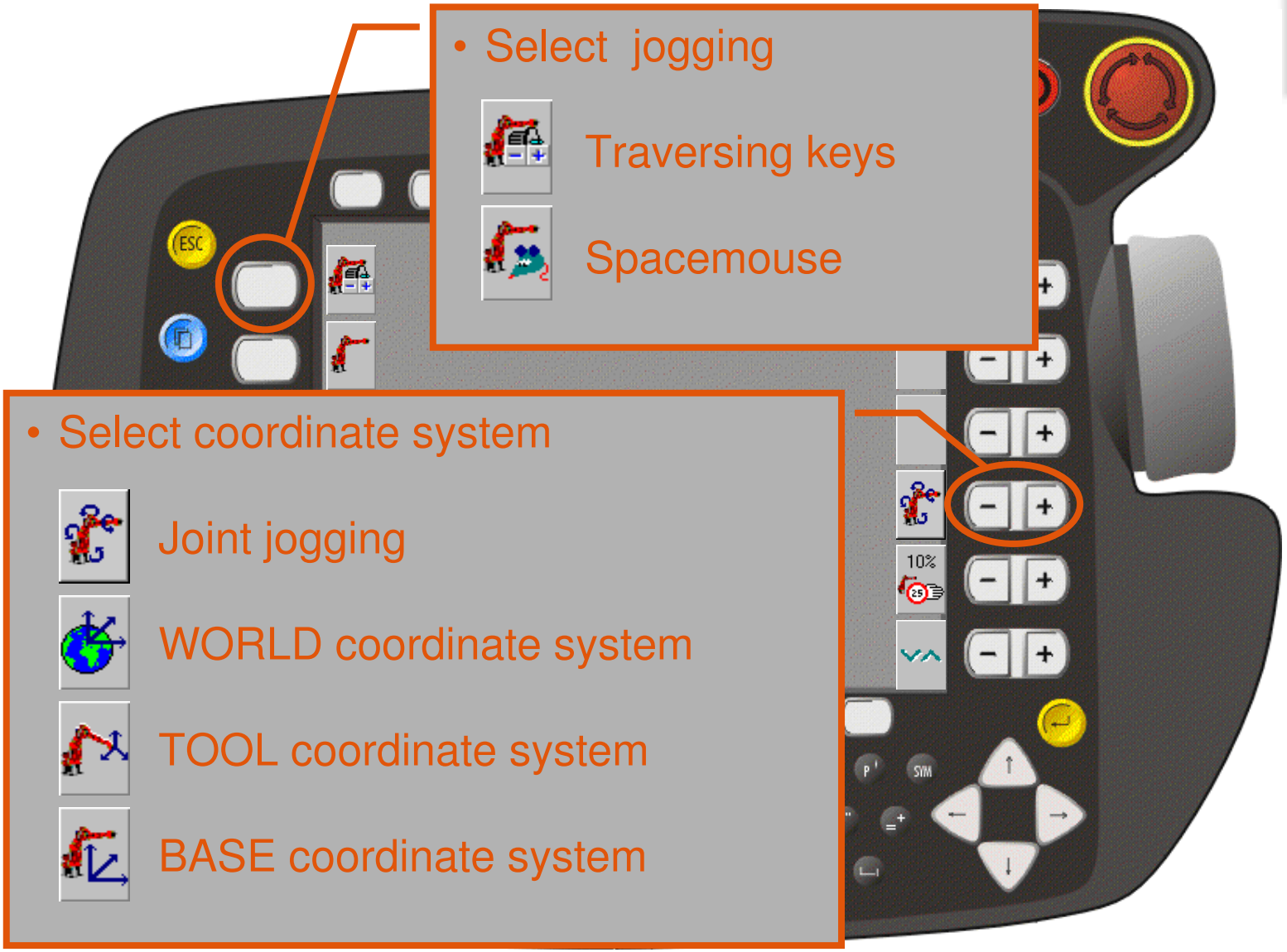
Right Hand Rule (Coordinate directions)



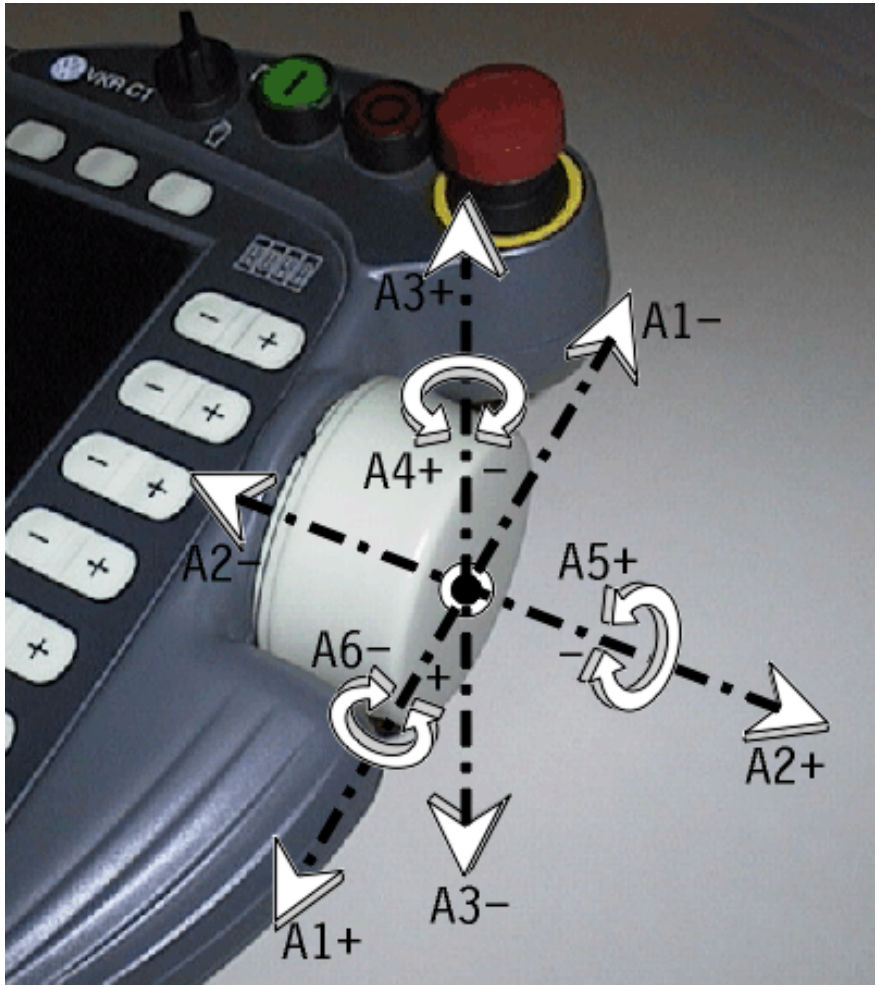
Right Hand Rule (Rotation direction)

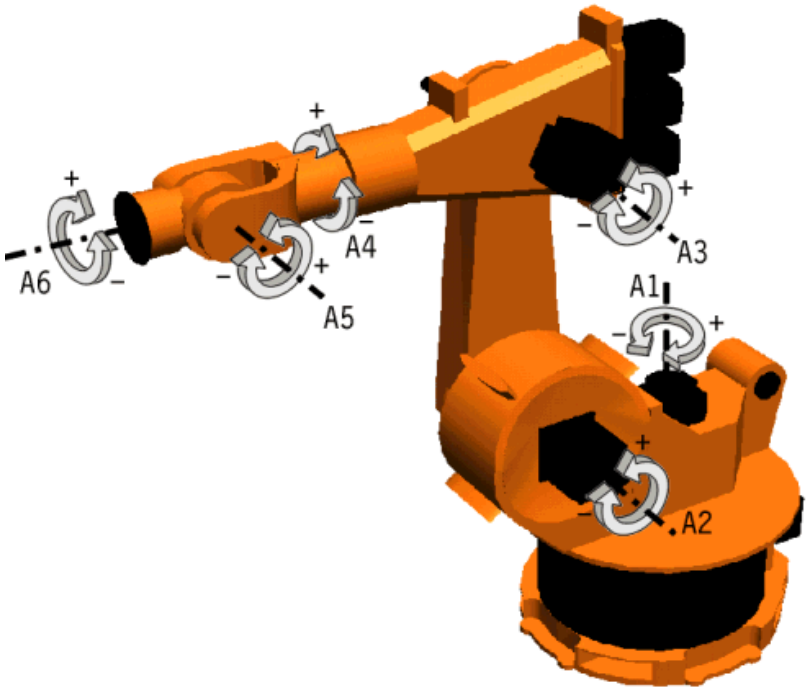


Select a coordinate system



Joint jogging with 6D mouse





Cartesian jogging with 6D mouse