

**Controller Option**

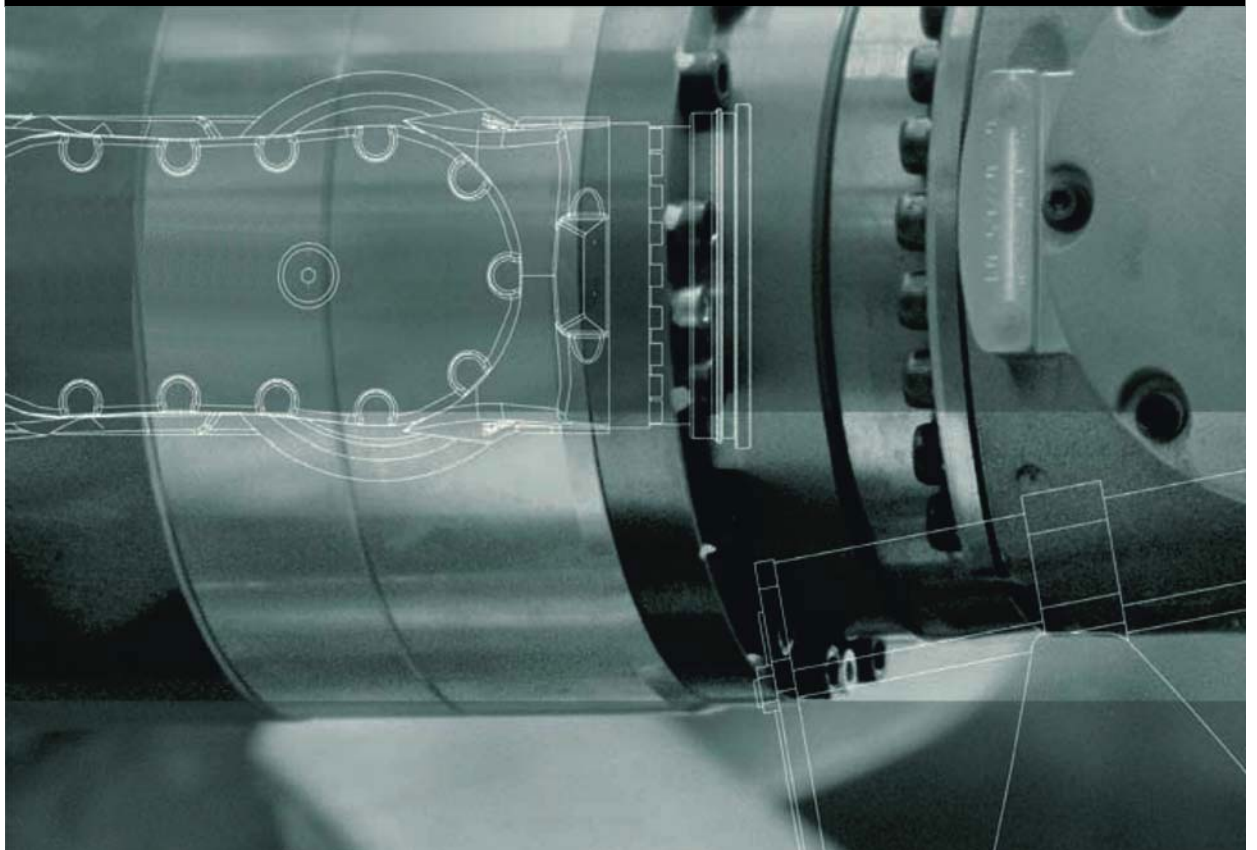
KUKA Roboter GmbH

## **Isolating Transformer Installation Kit**

**For KR C4 extended, KR C4 extended CK**

**For KR C4 extended NA, KR C4 extended CK NA**

**Assembly and Operating Instructions**



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Other functions not described in this documentation may be operable in the controller. The user has no claims to these functions, however, in the case of a replacement or service work.

We have checked the content of this documentation for conformity with the hardware and software described. Nevertheless, discrepancies cannot be precluded, for which reason we are not able to guarantee total conformity. The information in this documentation is checked on a regular basis, however, and necessary corrections will be incorporated in the subsequent edition.

Subject to technical alterations without an effect on the function.

Translation of the original documentation

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# 1 Introduction

## 1.1 Industrial robot documentation

The industrial robot documentation consists of the following parts:


- Documentation for the manipulator
- Documentation for the robot controller
- Operating and programming instructions for the KUKA System Software
- Documentation relating to options and accessories
- Parts catalog on storage medium


Each of these sets of instructions is a separate document.


## 1.2 Representation of warnings and notes


### Safety


These warnings are relevant to safety and **must** be observed.

 **DANGER** These warnings mean that it is certain or highly probable that death or severe injuries **will** occur, if no precautions are taken.


 **WARNING** These warnings mean that death or severe injuries **may** occur, if no precautions are taken.

 **CAUTION** These warnings mean that minor injuries **may** occur, if no precautions are taken.

 **NOTICE** These warnings mean that damage to property **may** occur, if no precautions are taken.


 These warnings contain references to safety-relevant information or general safety measures.  
These warnings do not refer to individual hazards or individual precautionary measures.

This warning draws attention to procedures which serve to prevent or remedy emergencies or malfunctions:

 **SAFETY INSTRUCTIONS** Procedures marked with this warning **must** be followed exactly.

### Notes

These hints serve to make your work easier or contain references to further information.

 Tip to make your work easier or reference to further information.



## 2 Purpose

### 2.1 Target group

This documentation is aimed at users with the following knowledge and skills:

- Advanced knowledge of electrical and electronic systems
- Advanced knowledge of the robot controller



For optimal use of our products, we recommend that our customers take part in a course of training at KUKA College. Information about the training program can be found at [www.kuka.com](http://www.kuka.com) or can be obtained directly from our subsidiaries.

### 2.2 Intended use

#### Use

The isolating transformer installation kit is used as a power source for KR C4 extended robot controllers. For robot systems for which the “supply voltage without transformer” option is not available or for power supply systems without a grounded neutral, the voltages are as follows:

- 380 V
- 400 V
- 440 V
- 480 V
- 575 V

The transformer ensures the electrical isolation of the primary and secondary sides.

#### Misuse

Any use or application deviating from the intended use is deemed to be misuse; examples of such misuse include:

- Operation outside the permissible operating parameters
- Use in potentially explosive environments
- Underground operation





## 3 Product description

### 3.1 Overview of the industrial robot

The industrial robot consists of the following components:

- Manipulator
- Robot controller
- Isolating transformer installation kit
- Teach pendant
- Connecting cables
- Software
- Options, accessories

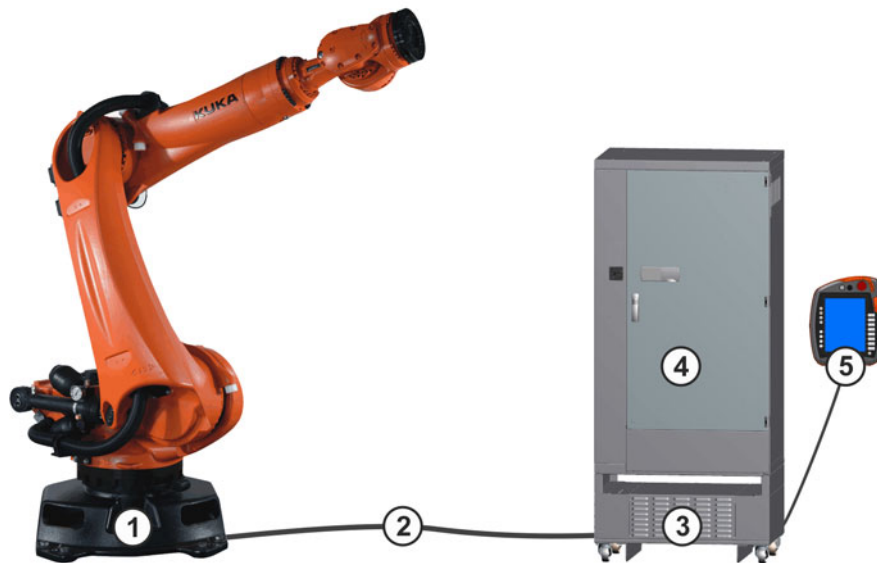


Fig. 3-1: Overview of the industrial robot

- |  |                    |
|--|--------------------|
| 1 Manipulator                            | 4 Robot controller |
| 2 Connecting cables                      | 5 Teach pendant    |
| 3 Isolating transformer installation kit |                    |

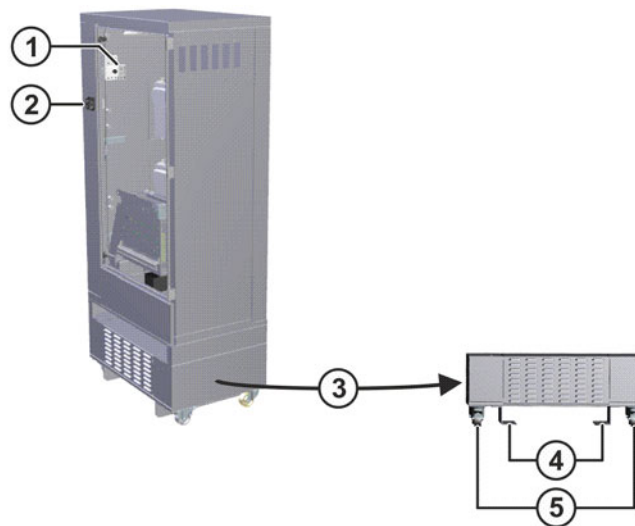
### 3.2 Overview of the isolating transformer installation kit

#### Description

The transformer is installed in a separate housing under the robot controller. The transformer contains a temperature switch which signals to the robot controller if the winding temperature exceeds the permitted limit.

The isolating transformer installation kit consists of the following components:

- Transformer
- Transformer housing with terminal box/terminal strip XT2
- Power circuit-breaker Q7 with terminal strip XT1
- Fork lift brackets
- Set of rollers



**Fig. 3-2: Overview of transformer installation kit**

- 1 Power circuit-breaker Q7 with terminal strip XT1
- 2 KR C4 main switch
- 3 Transformer housing
- 4 Fork lift brackets
- 5 Set of rollers

### 3.3 Protective circuit

#### Description

In compliance with the EMC Directive, all cables with their ground conductors and shields are connected to the ground of the robot controller. Ground terminals are provided in the robot controller and in the transformer housing. Ground conductor terminals are available on all terminal strips.

The transformer housing and the terminal box are connected to the protective circuit by means of ground terminals.



The connections of the ground terminals and/or ground conductor terminals must not be loosened or removed. Check them regularly to ensure that they are securely fastened.

## 4 Technical data

### 4.1 Basic data

Article number	00-111-255
Rated power	11.0/13 kVA+0.5 kVA 70% D.C. (0.5 kVA with D.C. 50%)
Input voltage	380 V AC (for optional transformer 13 kVA 380 V; Article number 00-220-590) 400 V AC (for optional transformer 13 kVA 400 V; Article number 00-220-591)
Output voltage	SEC1: 3AC 400 V SEC2: 1AC 230 V
Vector group	Yyn0v
Ambient temperature	55 °C
Insulation class	H
Specifications	EN61558
Miscellaneous	Temperature switch 180 °C (break contact)
Primary fusing EU (Q7)	3RV2021-4DA10 (external) Set value 24 A
Primary fusing NA (Q1)	140U-H2C3-C20 (external) Set value 20 A
Secondary fusing (SEC1) (Q3)	3RV2021-4DA10 (external) Set value 24 A

Article number	00-111-257
Rated power	11.0/13 kVA+0.5 kVA 70% D.C. (0.5 kVA with D.C. 50%)
Input voltage	440 V AC (for optional transformer 13 kVA 440 V; Article number 00-220-592) 480 V AC (for optional transformer 13 kVA 480 V; Article number 00-220-593) 575 V AC (for optional transformer 13 kVA 575 V; Article number 00-220-594)
Output voltage	SEC1: 3AC 400 V SEC2: 1AC 110 V
Vector group	Yyn0v
Ambient temperature	55 °C
Insulation class	H
Specifications	EN61558
Miscellaneous	Temperature switch 180 °C (break contact)
Primary fusing EU (Q7)	3RV2021-4DA10 (external) Set value 24 A

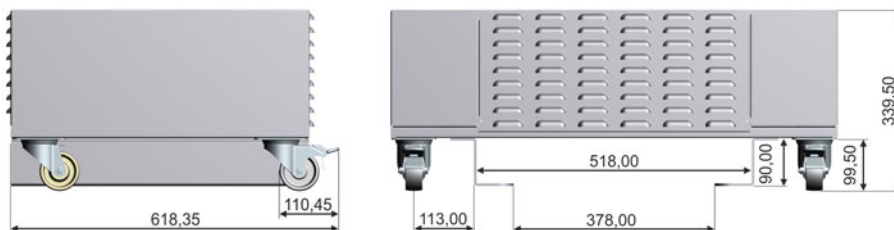
Primary fusing NA (Q1)	140U-H2C3-C20 (external) Set value 20 A
Secondary fusing (SEC1) (Q3)	3RV2021-4DA10 (external) Set value 24 A

Weight	65 kg
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**Vibration resistance**

Type of loading	During transportation	During continuous operation
r.m.s. acceleration (sustained oscillation)	0.37 g	0.1 g
Frequency range (sustained oscillation)	4 ... 120 Hz	
Acceleration (shock in X/Y/Z direction)	10 g	2.5 g
Waveform/duration (shock in X/Y/Z direction)	Half-sine/11 ms	

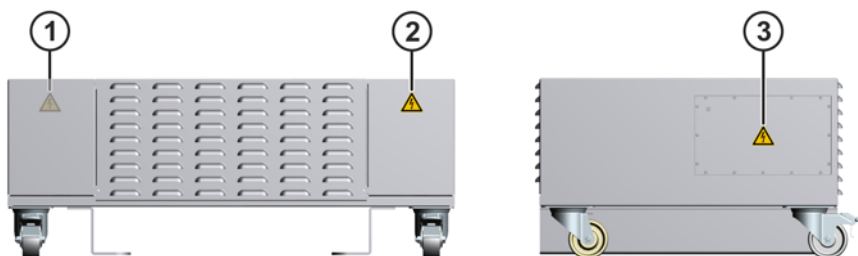
**4.2 Dimensions of transformer housing**



**Fig. 4-1: Dimensions [mm]**

**4.3 Plates and labels**

The following plates and labels are attached to the isolating transformer housing:




**Fig. 4-2: Hazardous voltage warning sign**

- 1 Rear view
- 2 Front view
- 3 Terminal box cover

## 5 Safety

This documentation contains safety instructions which refer specifically to the product described here. The fundamental safety information for the industrial robot can be found in the “Safety” chapter of the operating or assembly instructions for the robot controller.

 **WARNING** The “Safety” chapter in the operating instructions or assembly instructions of the robot controller must be observed. Death to persons, severe injuries or considerable damage to property may otherwise result.



## 6 KUKA Service

### 6.1 Requesting support

**Introduction** The KUKA Roboter GmbH documentation offers information on operation and provides assistance with troubleshooting. For further assistance, please contact your local KUKA subsidiary.

**Information** The following information is required for processing a support request:

- Model and serial number of the robot
- Model and serial number of the controller
- Model and serial number of the linear unit (if applicable)
- Model and serial number of the energy supply system (if applicable)
- Version of the KUKA System Software
- Optional software or modifications
- Archive of the software
  - For KUKA System Software V8: instead of a conventional archive, generate the special data package for fault analysis (via **KrcDiag**).
- Application used
- Any external axes used
- Description of the problem, duration and frequency of the fault

### 6.2 KUKA Customer Support

**Availability** KUKA Customer Support is available in many countries. Please do not hesitate to contact us if you have any questions.

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