

## MTC200 Fast NC Inputs/Outputs 19VRS

Functional Description

SYSTEM200

<b>Title</b>	MTC200 Fast NC Inputs/Outputs 19VRS
<b>Type of Documentation</b>	Functional Description
<b>Document Typecode</b>	DOK-MTC200-FAST*IO*V19-FK01-EN-P
<b>Internal File Reference</b>	Document Number 120-1700-B372-01/EN
<b>Purpose of Documentation</b>	This documentation describes the function "Fast NC Inputs/Outputs", which is valid from version 19V02 onwards.

**Record of Revisions**

Description	Release Date	Notes
120-1700-B372-01/EN	04/02	First Issue

**Copyright** © 2002 Rexroth Indramat GmbH  
Copying this document, giving it to others and the use or communication of the contents thereof without express authority, are forbidden. Offenders are liable for the payment of damages. All rights are reserved in the event of the grant of a patent or the registration of a utility model or design (DIN 34-1).

**Validity** The specified data is for product description purposes only and may not be deemed to be guaranteed unless expressly confirmed in the contract. All rights are reserved with respect to the content of this documentation and the availability of the product.

**Published by** Rexroth Indramat GmbH  
Bgm.-Dr.-Nebel-Str. 2 • D-97816 Lohr a. Main  
Telephone +49 (0)93 52/40-0 • Tx 68 94 21 • Fax +49 (0)93 52/40-48 85  
<http://www.boschrexroth.de/>  
Dept. BRC/ESM1 (DS)  
Dept. BRC/ESM6 (DH)

**Note** This document has been printed on chlorine-free bleached paper.

# Contents

<b>1</b>	<b>Overview</b>	<b>1-1</b>
1.1	Availability .....	1-1
1.2	Function.....	1-1
1.3	Access.....	1-1
<b>2</b>	<b>Fast NC Inputs/Outputs</b>	<b>2-1</b>
<b>3</b>	<b>Peripheral Events</b>	<b>3-1</b>
<b>4</b>	<b>Reading and Writing of Peripheral Events</b>	<b>4-1</b>
4.1	Reading P-Event(s) to a Variable .....	4-1
4.2	Writing P Event(s) .....	4-1
<b>5</b>	<b>Transmission Times for Peripheral Events</b>	<b>5-1</b>
5.1	Influencing Variables.....	5-1
	PLC Cycle Time .....	5-1
	Processing in the PLC Program .....	5-1
	PLC I/O Peripheral Access .....	5-1
	NC Record Cycle Time .....	5-1
<b>6</b>	<b>List of Figures</b>	<b>6-1</b>
<b>7</b>	<b>Service &amp; Support</b>	<b>7-1</b>
7.1	Helpdesk .....	7-1
7.2	Service-Hotline .....	7-1
7.3	Internet .....	7-1
7.4	Vor der Kontaktaufnahme... - Before contacting us.....	7-1
7.5	Kundenbetreuungsstellen - Sales & Service Facilities .....	7-2



# 1 Overview

## 1.1 Availability

The “Fast NC inputs/outputs” function is available with version 19V02 and higher.

## 1.2 Function

The “Fast NC inputs/outputs” function permits direct and quick activation of the PLC I/O level from the NC program.

## 1.3 Access

The PLC I/O level is accessed via the “peripheral events” (P-events). Altogether, 32 outputs and 32 inputs are available.



## 2 Fast NC Inputs/Outputs

Using the “Fast NC inputs/outputs” function, the PLC I/O level can be addressed directly from the NC program. 32 outputs (4 bytes) and 32 inputs (4 bytes) are available, which are set and read by means of peripheral events (P-events).

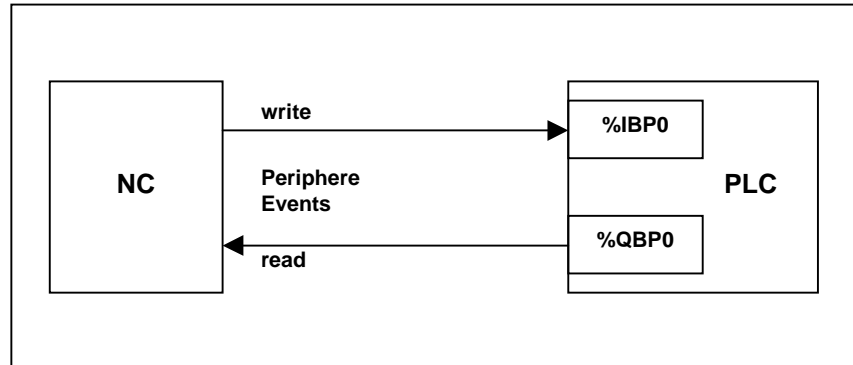


Fig. 2-1: Transmission of peripheral events from the NC to the PLC



### 3 Peripheral Events

**P-events** The peripheral events provide 32 outputs and 32 inputs, which are exchanged with the PLC at 2-ms intervals. These events are mapped to a physical input and output range of the PLC. The peripheral inputs %IBP0 of the PLC are set by the writing event functions. The peripheral outputs %QBP0 of the PLC are evaluated by the reading event functions.

---

**Note:** Please note that the peripheral events are mapped to a separate input and output range. This means that any set output P-event cannot be read back automatically as an input P-event. Hence, the behavior of the P-events is different from that of the normal process events.

---

**Writing functions** The writing functions are as follows:

SE P:<Ev.-No.>, RE P:<Ev.-No.>, EVENT(P,<Ev.-No.>)=...

The follow table shows how the events to be written are assigned to the inputs in the PLC:

Address	Event number
%IBP0.1457.0 ... %IBP0.1457.7	0, 1, 2, 3, 4, 5, 6, 7
%IBP0.1456.0 ... %IBP0.1456.7	8, 9, 10, 11, 12, 13, 14, 15
%IBP0.1455.0 ... %IBP0.1455.7	16, 17, 18, 19, 20, 21, 22, 23
%IBP0.1454.0 ... %IBP0.1454.7	24, 25, 26, 27, 28, 29, 30, 31

Fig. 3-1: PLC input addresses of the events to be set

**Reading functions** The reading functions are as follows:

WES P:<Ev.-No.>, WER P:<Ev.-No.>

BES .LABEL P:<Ev.-No.>, BER .LABEL P:<Ev.-No.>

The following table shows how the PLC outputs are assigned to the events to be read:

Address	Event number
%QBP0.1447.0 ... %QBP0.1447.7	0, 1, 2, 3, 4, 5, 6, 7
%QBP0.1446.0 ... %QBP0.1446.7	8, 9, 10, 11, 12, 13, 14, 15
%QBP0.1445.0 ... %QBP0.1445.7	16, 17, 18, 19, 20, 21, 22, 23
%QBP0.1444.0 ... %QBP0.1444.7	24, 25, 26, 27, 28, 29, 30, 31

Fig. 3-2: PLC output addresses of the events to be read



## 4 Reading and Writing of Peripheral Events

### 4.1 Reading P-Event(s) to a Variable

The NC command <Variable\_EVENT(P,<event number>) can be used to read an event (or all of the events) to a variable. The function delivers 1.0 for a set event and 0.0 for a cleared event. If all events are addressed with \*, the function delivers the binary value across all set events (  $event_0 * 2^0 + \dots + event_{31} * 2^{31}$  ). The result of this function must be filed in a variable and may not be linked to any operations.

**Syntax** @<Variable>=EVENT(P,<event no.0..31>|\*|expression)

- @2=EVENT(P,\*) ; @2=5.0 (event 0 and 2), if the peripheral  
; outputs %QBP0.1447.0 and % QBP0.1447.2  
; are set.

### 4.2 Writing P Event(s)

Using the NC command EVENT(P,<event number>)=expression, one event or all events can be written. Only the whole-number or rounded contents of the expression (examples: 5.54 is rounded off to 6; 3.14 is rounded off to 3) are taken into consideration. The function sets an event if the expression is unequal to 0, and it clears an event if the expression is equal to 0. If all events are addressed with \*, the function writes the whole-number content of the expression as binary value (32-bit) to the appropriate events (  $event_0 * 2^0 + \dots + event_{31} * 2^{31}$  ).

**Syntax** @<Variable>=EVENT(P,<event no.0..31>|\*|expression)

- EVENT(P,\*)=@2 ; @2=5 (event 0 and 2) sets the peripheral  
; inputs %IBP0.1457.0 and % IBP0.1457.2

---

**Note:** Please refer to the NC Programming Instruction for more detailed information on the events.

---



## 5 Transmission Times for Peripheral Events

### 5.1 Influencing Variables

The transmission time of an I/O signal from the NC to the PLC and back (= running time of peripheral events) depends on various influencing variables:

#### PLC Cycle Time

Essentially, the transmission time of I/O signals are determined by the PLC cycle time. The shorter the PLC cycle time, the faster the transmission of the peripheral events. As compared with the standard PLC implementation (typical PLC cycle times are between 20 and 100 msec), the transmission can be significantly accelerated by using the fast PLC implementation (constantly 2 msec).

#### Processing in the PLC Program

It makes a difference, whether the peripheral event is processed only logically in the PLC program or whether, for instance, peripheral PLC inputs/outputs are activated via the Interbus. Of course, the activation of physically available inputs/outputs via a field bus takes markedly longer than when the P-events are merely logically processed in the PLC program.

#### PLC I/O Peripheral Access

Another factor having an essential influence on the transmission time is the type of PLC I/O peripheral access used. Use of the direct I/O peripheral access (%IBP, %QBP) takes markedly less time than the standard I/O peripheral access (%IB, %QB) via the PLC core image storage.

#### NC Record Cycle Time

The NC record cycle time also affects the transmission speed of the peripheral events. Depending on how the NC records for writing and reading the peripheral events are programmed, processing on the part of the NC takes at least 4 msec or, as a maximum, twice the NC record cycle time.

---

**Note:** If the standard I/O peripheral access (%IB, %QB) via PLC core image storage is used, the transmission time is always directly proportional to the PLC cycle time. In other words, if the PLC cycle time is increasing, the transmission time for the peripheral events is also increasing.

Please refer to the PLC Programming Instruction for more detailed instruction on direct peripheral access.

---

**Note:** The fastest transmission, which is independent of the PLC cycle time, can be achieved if the fast 2-msec implementation in the PLC is used in connection with the direct I/O peripheral access (%IBP, %QBP).

Please note that the use of the fast implementation results in a longer cycle time of the standard PLC program. Please refer to the PLC Programming Instruction for more detailed information on this subject.

---



## 6 List of Figures

Fig. 2-1: Transmission of peripheral events from the NC to the PLC 2-1

Fig. 3-1: PLC input addresses of the events to be set 3-1

Fig. 3-2: PLC output addresses of the events to be read 3-1



## 7 Service & Support

### 7.1 Helpdesk

Unser Kundendienst-Helpdesk im Hauptwerk Lohr am Main steht Ihnen mit Rat und Tat zur Seite. Sie erreichen uns

- telefonisch: **+49 (0) 9352 40 50 60**  
über Service Call Entry Center Mo-Fr 07:00-18:00
- per Fax: **+49 (0) 9352 40 49 41**
- per e-Mail: **[service@indramat.de](mailto:service@indramat.de)**

Our service helpdesk at our headquarters in Lohr am Main, Germany can assist you in all kinds of inquiries. Contact us

- by phone: **+49 (0) 9352 40 50 60**  
via Service Call Entry Center Mo-Fr 7:00 am - 6:00 pm
- by fax: **+49 (0) 9352 40 49 41**
- by e-mail: **[service@indramat.de](mailto:service@indramat.de)**

### 7.2 Service-Hotline

Außerhalb der Helpdesk-Zeiten ist der Service direkt ansprechbar unter

oder **+49 (0) 171 333 88 26**  
**+49 (0) 172 660 04 06**

After helpdesk hours, contact our service department directly at

or **+49 (0) 171 333 88 26**  
**+49 (0) 172 660 04 06**

### 7.3 Internet

Unter **[www.indramat.de](http://www.indramat.de)** finden Sie ergänzende Hinweise zu Service, Reparatur und Training sowie die **aktuellen** Adressen \*) unserer auf den folgenden Seiten aufgeführten Vertriebs- und Servicebüros.

- Verkaufsniederlassungen
- Niederlassungen mit Kundendienst

Außerhalb Deutschlands nehmen Sie bitte zuerst Kontakt mit unserem für Sie nächstgelegenen Ansprechpartner auf.

\*) <http://www.indramat.de/de/kontakt/adressen>  
Die Angaben in der vorliegenden Dokumentation können seit Drucklegung überholt sein.

At **[www.indramat.de](http://www.indramat.de)** you may find additional notes about service, repairs and training in the Internet, as well as the **actual** addresses \*) of our sales- and service facilities figuring on the following pages.

- sales agencies
- offices providing service

Please contact our sales / service office in your area first.

\*) <http://www.indramat.de/en/kontakt/adressen>  
Data in the present documentation may have become obsolete since printing.

### 7.4 Vor der Kontaktaufnahme... - Before contacting us...

Wir können Ihnen schnell und effizient helfen wenn Sie folgende Informationen bereithalten:

1. detaillierte Beschreibung der Störung und der Umstände.
2. Angaben auf dem Typenschild der betreffenden Produkte, insbesondere Typenschlüssel und Seriennummern.
3. Tel./Faxnummern und e-Mail-Adresse, unter denen Sie für Rückfragen zu erreichen sind.

For quick and efficient help, please have the following information ready:

1. Detailed description of the failure and circumstances.
2. Information on the type plate of the affected products, especially type codes and serial numbers.
3. Your phone/fax numbers and e-mail address, so we can contact you in case of questions.

## 7.5 Kundenbetreuungsstellen - Sales & Service Facilities

### Deutschland – Germany

**vom Ausland:** (0) nach Landeskennziffer weglassen!  
**from abroad:** don't dial (0) after country code!

Vertriebsgebiet Mitte Germany Centre  Rexroth Indramat GmbH Bgm.-Dr.-Nebel-Str. 2 / Postf. 1357 97816 Lohr am Main / 97803 Lohr  <b>Kompetenz-Zentrum Europa</b>  Tel.: +49 (0)9352 40-0 Fax: +49 (0)9352 40-4885	<b>SERVICE</b>  <b>CALL ENTRY CENTER</b> <b>MO – FR</b> <b>von 07:00 - 18:00 Uhr</b>  <b>from 7 am – 6 pm</b>  <b>Tel. +49 (0) 9352 40 50 60</b> <a href="mailto:service@indramat.de">service@indramat.de</a>	<b>SERVICE</b>  <b>HOTLINE</b> <b>MO – FR</b> <b>von 17:00 - 07:00 Uhr</b> <b>from 5 pm - 7 am</b> + SA / SO  <b>Tel.: +49 (0)172 660 04 06</b> <b>oder / or</b> <b>Tel.: +49 (0)171 333 88 26</b>	<b>SERVICE</b>  <b>ERSATZTEILE / SPARES</b> verlängerte Ansprechzeit - extended office time - ♦ nur an Werktagen - only on working days - ♦ von 07:00 - 18:00 Uhr - from 7 am - 6 pm -  <b>Tel. +49 (0) 9352 40 42 22</b>
Vertriebsgebiet Süd Germany South  Rexroth Indramat GmbH Landshuter Allee 8-10 80637 München  Tel.: +49 (0)89 127 14-0 Fax: +49 (0)89 127 14-490	Gebiet Südwest Germany South-West  Bosch Rexroth AG Vertrieb Deutschland – VD-BI Geschäftsbereich Rexroth Indramat Regionalzentrum Südwest Ringstrasse 70 / Postfach 1144 70736 Fellbach / 70701 Fellbach  Tel.: +49 (0)711 57 61-100 Fax: +49 (0)711 57 61-125	Vertriebsgebiet Ost Germany East  Bosch Rexroth AG Beckerstraße 31 09120 Chemnitz  Tel.: +49 (0)371 35 55-0 Fax: +49 (0)371 35 55-333	Vertriebsgebiet Ost Germany East  Bosch Rexroth AG Regionalzentrum Ost Walter-Köhn-Str. 4d 04356 Leipzig  Tel.: +49 (0)341 25 61-0 Fax: +49 (0)341 25 61-111
Vertriebsgebiet West Germany West  Bosch Rexroth AG Vertrieb Deutschland Regionalzentrum West Borsigstrasse 15 40880 Ratingen  Tel.: +49 (0)2102 409-0 Fax: +49 (0)2102 409-406	Vertriebsgebiet Mitte Germany Centre  Bosch Rexroth AG Regionalzentrum Mitte Waldecker Straße 13 64546 Mörfelden-Walldorf  Tel.: +49 (0) 61 05 702-3 Fax: +49 (0) 61 05 702-444	Vertriebsgebiet Nord Germany North  Bosch Rexroth AG Walsroder Str. 93 30853 Langenhagen  Tel.: +49 (0) 511 72 66 57-0 Service: +49 (0) 511 72 66 57-256 Fax: +49 (0) 511 72 66 57-93 Service: +49 (0) 511 72 66 57-95	Vertriebsgebiet Nord Germany North  Bosch Rexroth AG Kieler Straße 212 22525 Hamburg  Tel.: +49 (0) 40 81 955 966 Fax: +49 (0) 40 85 418 978

## Europa (West) - Europe (West)

**vom Ausland:** (0) nach Landeskennziffer weglassen, **Italien:** 0 nach Landeskennziffer mitwählen  
**from abroad:** don't dial (0) after country code, **Italy:** dial 0 after country code

<p>Austria - Österreich</p> <p>Bosch Rexroth GmbH Bereich Indramat Stachegasse 13 1120 Wien</p> <p>Tel.: +43 (0)1 985 25 40 Fax: +43 (0)1 985 25 40-93</p>	<p>Austria – Österreich</p> <p>Bosch Rexroth G.m.b.H. Gesch.ber. Rexroth Indramat Industriepark 18 4061 Pasching</p> <p>Tel.: +43 (0)7221 605-0 Fax: +43 (0)7221 605-21</p>	<p>Belgium - Belgien</p> <p>Bosch Rexroth AG Electric Drives &amp; Controls Industrielaan 8 1740 Ternat</p> <p>Tel.: +32 (0)2 5830719 - service: +32 (0)2 5830717 Fax: +32 (0)2 5830731 <a href="mailto:indramat@boschrexroth.be">indramat@boschrexroth.be</a></p>	<p>Denmark - Dänemark</p> <p>BEC A/S Zinkvej 6 8900 Randers</p> <p>Tel.: +45 (0)87 11 90 60 Fax: +45 (0)87 11 90 61</p>
<p>Great Britain – Großbritannien</p> <p>Bosch Rexroth Ltd. Rexroth Indramat Division Broadway Lane, South Cerney Cirencester, Glos GL7 5UH</p> <p>Tel.: +44 (0)1285 863000 Fax: +44 (0)1285 863030 <a href="mailto:sales@boschrexroth.co.uk">sales@boschrexroth.co.uk</a> <a href="mailto:service@boschrexroth.co.uk">service@boschrexroth.co.uk</a></p>	<p>Finland - Finnland</p> <p>Bosch Rexroth Oy Rexroth Indramat division Ansatie 6 017 40 Vantaa</p> <p>Tel.: +358 (0)9 84 91-11 Fax: +358 (0)9 84 91-13 60</p>	<p>France - Frankreich</p> <p>Bosch Rexroth S.A. Division Rexroth Indramat Avenue de la Trentaine BP. 74 77503 Chelles Cedex</p> <p>Tel.: +33 (0)164 72-70 00 Fax: +33 (0)164 72-63 00 <b>Hotline:</b> +33 (0)608 33 43 28</p>	<p>France - Frankreich</p> <p>Bosch Rexroth S.A. Division Rexroth Indramat 1270, Avenue de Lardenne 31100 Toulouse</p> <p>Tel.: +33 (0)5 61 49 95 19 Fax: +33 (0)5 61 31 00 41</p>
<p>France - Frankreich</p> <p>Bosch Rexroth S.A. Division Rexroth Indramat 91, Bd. Irène Joliot-Curie 69634 Vénissieux – Cedex</p> <p>Tel.: +33 (0)4 78 78 53 65 Fax: +33 (0)4 78 78 53 62</p>	<p>Italy - Italien</p> <p>Bosch Rexroth S.p.A. Via G. Di Vittoria, 1 20063 Cernusco S/N.MI</p> <p>Tel.: +39 02 2 365 270 Fax: +39 02 700 408 252378</p>	<p>Italy - Italien</p> <p>Bosch Rexroth S.p.A. Via Paolo Veronesi, 250 10148 Torino</p> <p>Tel.: +39 011 224 88 11 Fax: +39 011 224 88 30</p>	<p>Italy - Italien</p> <p>Bosch Rexroth S.p.A. Via del Progresso, 16 (Zona Ind.) 35020 Padova</p> <p>Tel.: +39 049 8 70 13 70 Fax: +39 049 8 70 13 77</p>
<p>Italy - Italien</p> <p>Bosch Rexroth S.p.A. Via Mascia, 1 80053 Castellammare di Stabia NA</p> <p>Tel.: +39 081 8 71 57 00 Fax: +39 081 8 71 68 85</p>	<p>Italy - Italien</p> <p>Bosch Rexroth S.p.A. Viale Oriani, 38/A 40137 Bologna</p> <p>Tel.: +39 051 34 14 14 Fax: +39 051 34 14 22</p>	<p>Netherlands – Niederlande/Holland</p> <p>Bosch Rexroth B.V. Kruisbroeksestraat 1 (P.O. Box 32) 5281 RV Boxtel</p> <p>Tel.: +31 (0)411 65 19 51 Fax: +31 (0)411 65 14 83 <a href="mailto:indramat@hydraudyne.nl">indramat@hydraudyne.nl</a></p>	<p>Netherlands - Niederlande/Holland</p> <p>Bosch Rexroth Services B.V. Kruisbroeksestraat 1 (P.O. Box 32) 5281 RV Boxtel</p> <p>Tel.: +31 (0)411 65 19 51 Fax: +31 (0)411 67 78 14</p>
<p>Norway - Norwegen</p> <p>Bosch Rexroth AS Rexroth Indramat Division Berghagan 1 or: Box 3007 1405 Ski-Langhus 1402 Ski</p> <p>Tel.: +47 (0)64 86 41 00 Fax: +47 (0)64 86 90 62 <a href="mailto:jul.ruud@rexroth.no">jul.ruud@rexroth.no</a></p>	<p>Spain - Spanien</p> <p>Bosch Rexroth S.A. Divisiòn Rexroth Indramat Centro Industrial Santiga Obradors s/n 08130 Santa Perpetua de Mogoda Barcelona</p> <p>Tel.: +34 9 37 47 94 00 Fax: +34 9 37 47 94 01</p>	<p>Spain – Spanien</p> <p>Goimendi S.A. Divisiòn Rexroth Indramat Parque Empresarial Zuatzu C/ Francisco Grandmontagne no.2 20018 San Sebastian</p> <p>Tel.: +34 9 43 31 84 21 - service: +34 9 43 31 84 56 Fax: +34 9 43 31 84 27 - service: +34 9 43 31 84 60 <a href="mailto:sat.indramat@goimendi.es">sat.indramat@goimendi.es</a></p>	<p>Sweden - Schweden</p> <p>Rexroth Mecman Svenska AB Rexroth Indramat Division - Varuvägen 7 (Service: Konsumentvägen 4, Älfsjö) 125 81 Stockholm</p> <p>Tel.: +46 (0)8 727 92 00 Fax: +46 (0)8 647 32 77</p>
<p>Sweden - Schweden</p> <p>Rexroth Mecman Svenska AB Indramat Support Ekvåndan 7 254 67 Helsingborg</p> <p>Tel.: +46 (0) 42 38 88 -50 Fax: +46 (0) 42 38 88 -74</p>	<p>Switzerland West - Schweiz West</p> <p>Bosch Rexroth Suisse SA Département Rexroth Indramat Rue du village 1 1020 Renens</p> <p>Tel.: +41 (0)21 632 84 20 Fax: +41 (0)21 632 84 21</p>	<p>Switzerland East - Schweiz Ost</p> <p>Bosch Rexroth Schweiz AG Geschäftsbereich Indramat Hemrietstrasse 2 8863 Buttikon</p> <p>Tel. +41 (0) 55 46 46 111 Fax +41 (0) 55 46 46 222</p>	

## Europa (Ost) - Europe (East)

**vom Ausland:** (0) nach Landeskennziffer weglassen  
**from abroad:** don't dial (0) after country code

Czech Republic - Tschechien	Czech Republic - Tschechien	Hungary - Ungarn	Poland – Polen
Bosch -Rexroth, spol.s.r.o. Hviezdoslavova 5 627 00 Brno Tel.: +420 (0)5 48 126 358 Fax: +420 (0)5 48 126 112	DEL a.s. Strojirenská 38 591 01 Zdar nad Sázavou Tel.: +420 616 64 3144 Fax: +420 616 216 57	Bosch Rexroth Kft. Angol utca 34 1149 Budapest Tel.: +36 (1) 364 00 02 Fax: +36 (1) 383 19 80	Bosch Rexroth Sp.zo.o. ul. Staszica 1 05-800 Pruszków Tel.: +48 22 738 18 00 – service: +48 22 738 18 46 Fax: +48 22 758 87 35 – service: +48 22 738 18 42
Poland – Polen	Rumania - Rumänien	Russia - Russland	Russia - Russland
Bosch Rexroth Sp.zo.o. Biuro Poznan ul. Dabrowskiego 81/85 60-529 Poznan Tel.: +48 061 847 64 62 /-63 Fax: +48 061 847 64 02	Bosch Rexroth Sp.zo.o. Str. Drobety nr. 4-10, app. 14 70258 Bucuresti, Sector 2 Tel.: +40 (0)1 210 48 25 +40 (0)1 210 29 50 Fax: +40 (0)1 210 29 52	Bosch Rexroth Wjatskaja ul. 27/15 125015 Moskau Tel.: +7-095-785 74 78 +7-095 785 74 79 Fax: +7 095 785 74 77 <a href="mailto:laura.kanina@boschrexroth.ru">laura.kanina@boschrexroth.ru</a>	ELMIS 10, Internationalnaya Str. 246640 Gomel, Belarus Tel.: +375/ 232 53 42 70 +375/ 232 53 21 69 Fax: +375/ 232 53 37 69 <a href="mailto:elmis_ltd@yahoo.com">elmis_ltd@yahoo.com</a>
Turkey - Türkei	Slowenia - Slowenien		
Bosch Rexroth Otomasyon San & Tic. A.S. Fevzi Cakmak Cad No. 3 34630 Sefaköy Istanbul Tel.: +90 212 541 60 70 Fax: +90 212 599 34 07	DOMEL Otoki 21 64 228 Zelezniki Tel.: +386 5 5117 152 Fax: +386 5 5117 225 <a href="mailto:brane.ozebek@domel.si">brane.ozebek@domel.si</a>		

## Africa, Asia, Australia – incl. Pacific Rim

**vom Ausland:** (0) nach Landeskennziffer weglassen!  
**from abroad:** don't dial (0) after country code!

<p>Australia - Australien</p> <p>AIMS - Australian Industrial Machinery Services Pty. Ltd. Unit 3/45 Horne ST Campbellfield , VIC 3061 Melbourne</p> <p>Tel.: +61 (0) 393 590 228 Fax: +61 (0) 393 590 286 Hotline: +61 (0) 419 369 195 <a href="mailto:terryobrien@aimsservices.com.au">terryobrien@aimsservices.com.au</a></p>	<p>Australia - Australien</p> <p>Bosch Rexroth Pty. Ltd. No. 7, Endeavour Way Braeside Victoria, 31 95 Melbourne</p> <p>Tel.: +61 (0)3 95 80 39 33 Fax: +61 (0)3 95 80 17 33 <a href="mailto:mel@rexroth.com.au">mel@rexroth.com.au</a></p>	<p>China</p> <p>Shanghai Bosch Rexroth Hydraulics &amp; Automation Ltd. Wai Gao Qiao Free Trade Zone No.122, Fu Te Dong Yi Road Shanghai 200131 - P.R.China</p> <p>Tel.: +86 21 58 66 30 30 Fax: +86 21 58 66 55 23 <a href="mailto:roger.shi_sh@boschrexroth.com.cn">roger.shi_sh@boschrexroth.com.cn</a></p>	<p>China</p> <p>Bosch Rexroth (China) Ltd. 15/F China World Trade Center 1, Jianguomenwai Avenue Beijing 100004, P.R.China</p> <p>Tel.: +86 10 65 05 03 80 Fax: +86 10 65 05 03 79</p>
<p>China</p> <p>Bosch Rexroth (China) Ltd. A-5F., 123 Lian Shan Street Sha He Kou District Dalian 116 023, P.R.China</p> <p>Tel.: +86 411 46 78 930 Fax: +86 411 46 78 932</p>	<p>China</p> <p>Bosch Rexroth (Changzhou) Co.Ltd. Guangzhou Repres. Office Room 1014-1016, Metro Plaza, Tian He District, 183 Tian He Bei Rd Guangzhou 510075, P.R.China</p> <p>Tel.: +86 20 8755-0030 Fax: +86 20 8755-0011 +86 20 8755-2387</p>	<p>Hongkong</p> <p>Bosch Rexroth (China) Ltd. 6<sup>th</sup> Floor, Yeung Yiu Chung No.6 Ind Bldg. 19 Cheung Shun Street Cheung Sha Wan, Kowloon, Hongkong</p> <p>Tel.: +852 22 62 51 00 Fax: +852 27 41 33 44 <a href="mailto:alexis.siu@boschrexroth.com.hk">alexis.siu@boschrexroth.com.hk</a></p>	<p>India - Indien</p> <p>Bosch Rexroth (India) Ltd. Rexroth Indramat Division Plot. A-58, TTC Industrial Area Thane Turbhe Midc Road Mahape Village Navi Mumbai - 400 701</p> <p>Tel.: +91 (0)22 7 61 46 22 Fax: +91 (0)22 7 68 15 31</p>
<p>India - Indien</p> <p>Bosch Rexroth (India) Ltd. Rexroth Indramat Division Plot. 96, Phase III Peenya Industrial Area Bangalore - 560058</p> <p>Tel.: +91 (0)80 8 39 73 74 Fax: +91 (0)80 8 39 43 45 <a href="mailto:rexbang@bgl.vsnl.net.in">rexbang@bgl.vsnl.net.in</a></p>	<p>Indonesia - Indonesien</p> <p>PT. Rexroth Wijayakusuma Building # 202, Cilandak Commercial Estate Jl. Cilandak KKO, Jakarta 12560</p> <p>Tel.: +62 21 7891169 (5 lines) Fax: +62 21 7891170 - 71</p>	<p>Japan</p> <p>Bosch Rexroth Automation Corp. Service Center Japan Yutakagaoka 1810, Meito-ku, NAGOYA 465-0035, Japan</p> <p>Tel.: +81 (0)52 777 88 41 +81 (0)52 777 88 53 +81 (0)52 777 88 79 Fax: +81 (0)52 777 89 01</p>	<p>Japan</p> <p>Bosch Rexroth Automation Corp. Rexroth Indramat Division 1F, I.R. Building Nakamachidai 4-26-44, Tsuzuki-ku YOKOHAMA 224-0041, Japan</p> <p>Tel.: +81 (0)45 942 72 10 Fax: +81 (0)45 942 03 41</p>
<p>Korea</p> <p>Bosch Rexroth-Korea Ltd. 1515-14 Dadae-Dong, Saha-Ku Rexroth Indramat Division Pusan Metropolitan City, 604-050 Republic of South Korea</p> <p>Tel.: +82 (0)51 26 00 741 Fax: +82 (0)51 26 00 747 <a href="mailto:gyhan@rexrothkorea.co.kr">gyhan@rexrothkorea.co.kr</a></p>	<p>Malaysia</p> <p>Bosch Rexroth Sdn.Bhd. 11, Jalan U8/82 Seksyen U8 40150 Shah Alam Selangor, Malaysia</p> <p>Tel.: +60 (0) 3 78 44 80 00 Fax: +60 (0) 3 78 45 48 00 <a href="mailto:hockhwa@hotmail.com">hockhwa@hotmail.com</a> <a href="mailto:rexroth1@tm.net.my">rexroth1@tm.net.my</a></p>	<p>Singapore - Singapur</p> <p>Bosch Rexroth SDN BHD. No.11, Jalan Astaka U8/82 Seksyen U8 40150 Shah Alam Selangor Darul Ehsan</p> <p>Tel.: +65 (0) 3 7844 8000 Fax: +65 (0) 3 7845 4800 <a href="mailto:kenton.peh@boschrexroth.com.sg">kenton.peh@boschrexroth.com.sg</a></p>	<p>South Africa - Südafrika</p> <p>TECTRA Automation (Pty) Ltd. 71 Watt Street, Meadowdale Edenvale 1609</p> <p>Tel.: +27 (0)11 971 94 00 Fax: +27 (0)11 971 94 40 Hotline: +27 (0)82 903 29 23 <a href="mailto:georgv@tectra.co.za">georgv@tectra.co.za</a></p>
<p>Taiwan</p> <p>Rexroth Uchida Co., Ltd. No.17, Lane 136, Cheng Bei 1 Rd., Yung Kang, Tainan Hsien Taiwan, R.O.C.</p> <p>Tel.: +886 (0)6 25 36 565 Fax: +886 (0)6 25 34 754 <a href="mailto:indramat@mail.net.tw">indramat@mail.net.tw</a></p>	<p>Thailand</p> <p>NC Advance Technology Co. Ltd. 59/76 Moo 9 Ramintra road 34 Tharang, Bangkokhen, Bangkok 10230</p> <p>Tel.: +66 2 943 70 62 +66 2 943 71 21 Fax: +66 2 509 23 62 <a href="mailto:sonkawin@hotmail.com">sonkawin@hotmail.com</a></p>		

## Nordamerika – North America

<p>USA Hauptniederlassung - Headquarters</p> <p>Bosch Rexroth Corporation Rexroth Indramat Division 5150 Prairie Stone Parkway Hoffman Estates, IL 60192-3707</p> <p>Tel.: +1 847 6 45 36 00 Fax: +1 847 6 45 62 01 <a href="mailto:servicebrc@boschrexroth-us.com">servicebrc@boschrexroth-us.com</a> <a href="mailto:repairbrc@boschrexroth-us.com">repairbrc@boschrexroth-us.com</a></p>	<p>USA Central Region - Mitte</p> <p>Bosch Rexroth Corporation Rexroth Indramat Division Central Region Technical Center 1701 Harmon Road Auburn Hills, MI 48326</p> <p>Tel.: +1 248 3 93 33 30 Fax: +1 248 3 93 29 06</p>	<p>USA Southeast Region - Südwest</p> <p>Bosch Rexroth Corporation Rexroth Indramat Division Southeastern Technical Center 3625 Swiftwater Park Drive Suwanee, Georgia 30124</p> <p>Tel.: +1 770 9 32 32 00 Fax: +1 770 9 32 19 03</p>	<p>USA SERVICE-HOTLINE</p> <p>- 7 days x 24hrs -</p> <p><b>+1-800-860-1055</b></p>
<p>USA East Region –Ost</p> <p>Bosch Rexroth Corporation Rexroth Indramat Division Charlotte Regional Sales Office 14001 South Lakes Drive Charlotte, North Carolina 28273</p> <p>Tel.: +1 704 5 83 97 62 +1 704 5 83 14 86</p>	<p>USA Northeast Region – Nordost</p> <p>Bosch Rexroth Corporation Rexroth Indramat Division Northeastern Technical Center 99 Rainbow Road East Granby, Connecticut 06026</p> <p>Tel.: +1 860 8 44 83 77 Fax: +1 860 8 44 85 95</p>	<p>USA West Region – West</p> <p>Bosch Rexroth Corporation 7901 Stoneridge Drive, Suite 220 Pleasant Hill, California 94588</p> <p>Tel.: +1 925 227 10 84 Fax: +1 925 227 10 81</p>	
<p>Canada East - Kanada Ost</p> <p>Bosch Rexroth Canada Corporation Burlington Division 3426 Mainway Drive Burlington, Ontario Canada L7M 1A8</p> <p>Tel.: +1 905 335 55 11 Fax: +1 905 335-41 84 <a href="mailto:michael.moro@boschrexroth.ca">michael.moro@boschrexroth.ca</a></p>	<p>Canada West - Kanada West</p> <p>Bosch Rexroth Canada Corporation 5345 Goring St. Burnaby, British Columbia Canada V7J 1R1</p> <p>Tel. +1 604 205-5777 Fax +1 604 205-6944 <a href="mailto:david.gunby@boschrexroth.ca">david.gunby@boschrexroth.ca</a></p>	<p>Mexico</p> <p>Bosch Rexroth S.A. de C.V. Calle Neptuno 72 Unidad Ind. Vallejo 07700 Mexico, D.F.</p> <p>Tel.: +52 5 754 17 11 +52 5 754 36 84 +52 5 754 12 60 Fax: +52 5 754 50 73 +52 5 752 59 43</p>	<p>Mexico</p> <p>Bosch Rexroth S.A. de C.V. Calle Argentina No 3913 Fracc. las Torres 64930 Monterey, N.L.</p> <p>Tel.: +52 8 333 88 34...36 +52 8 349 80 91...93 Fax: +52 8 346 78 71 <a href="mailto:mario.quiroga@boschrexroth.com.mx">mario.quiroga@boschrexroth.com.mx</a></p>

## Südamerika – South America

<p>Argentina - Argentinien</p> <p>Bosch Rexroth S.A.I.C. "The Drive &amp; Control Company" Acassusso 48 41/47 1605 Munro Prov. Buenos Aires</p> <p>Tel.: +54 (0)11 4756 01 40 Fax: +54 (0)11 4756 01 36 <a href="mailto:victor.jabif@boschrexroth.com.ar">victor.jabif@boschrexroth.com.ar</a></p>	<p>Argentina - Argentinien</p> <p>NAKASE Servicio Tecnico CNC Calle 49, No. 5764/66 1653 Villa Balester Prov. - Buenos Aires</p> <p>Tel.: +54 (0) 11 4768 36 43 Fax: +54 (0) 11 4768 24 13 <a href="mailto:nakase@usa.net">nakase@usa.net</a> <a href="mailto:nakase@nakase.com">nakase@nakase.com</a> <a href="mailto:gerencia@nakase.com">gerencia@nakase.com</a> (Service)</p>	<p>Brazil - Brasilien</p> <p>Bosch Rexroth Ltda. Av. Tégula, 888 Ponte Alta, Atibaia SP CEP 12942-440</p> <p>Tel.: +55 (0)11 4414 56 92 +55 (0)11 4414 56 84 Fax sales: +55 (0)11 4414 57 07 Fax serv.: +55 (0)11 4414 56 86 <a href="mailto:alexandre.wittwer@rexroth.com.br">alexandre.wittwer@rexroth.com.br</a></p>	<p>Brazil - Brasilien</p> <p>Bosch Rexroth Ltda. R. Dr.Humberto Pinheiro Vieira, 100 Distrito Industrial [Caixa Postal 1273] 89220-390 Joinville - SC</p> <p>Tel./Fax: +55 (0)47 473 58 33 Mobil: +55 (0)47 9974 6645 <a href="mailto:prochnow@zaz.com.br">prochnow@zaz.com.br</a></p>
<p>Columbia - Kolumbien</p> <p>Reflutec de Colombia Ltda. Calle 37 No. 22-31 Santafé de Bogotá, D.C. Colombia</p> <p>Tel.: +57 1 368 82 67 +57 1 368 02 59 Fax: +57 1 268 97 37 <a href="mailto:reflutec@neutel.com.co">reflutec@neutel.com.co</a></p>			

**Notes**

---

293894