

DIN EN 61800-7-204

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Ersatz für
DIN EN 61800-7-204:2008-11
Siehe Anwendungsbeginn

**Elektrische Leistungsantriebssysteme mit einstellbarer Drehzahl –
Teil 7-204: Generisches Interface und Nutzung von Profilen für
Leistungsantriebssysteme (PDS) –
Spezifikation von Profil-Typ 4
(IEC 61800-7-204:2015);
Englische Fassung EN 61800-7-204:2016**

Adjustable speed electrical power drive systems –
Part 7-204: Generic interface and use of profiles for power drive systems –
Profile type 4 specification
(IEC 61800-7-204:2015);
English version EN 61800-7-204:2016

Entraînements électriques de puissance à vitesse variable –
Partie 7-204: Interface générique et utilisation de profils pour les entraînements
électriques de puissance –
Spécification de profil de type 4
(IEC 61800-7-204:2015);
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Anwendungsbeginn

Anwendungsbeginn für die von CENELEC am 2015-12-25 angenommene Europäische Norm als DIN-Norm ist 2016-11-01.

Für DIN EN 61800-7-204:2008-11 besteht eine Übergangsfrist bis 2018-12-25.

Nationales Vorwort

Vorausgegangener Norm-Entwurf: E DIN EN 61800-7-204:2015-02.

Für dieses Dokument ist das nationale Arbeitsgremium K 226 „Ausrüstung von Starkstromgeräten und -anlagen mit elektronischen Betriebsmitteln“ der DKE Deutsche Kommission Elektrotechnik Elektronik Informationstechnik in DIN und VDE (www.dke.de) zuständig.

Die enthaltene IEC-Publikation wurde vom SC 22G „Adjustable speed electric drive systems incorporating semiconductor power converters“ erarbeitet.

Das IEC-Komitee hat entschieden, dass der Inhalt dieser Publikation bis zu dem Datum (stability date) unverändert bleiben soll, das auf der IEC-Website unter „<http://webstore.iec.ch>“ zu dieser Publikation angegeben ist. Zu diesem Zeitpunkt wird entsprechend der Entscheidung des Komitees die Publikation

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Der Zusammenhang der zitierten Dokumente mit den entsprechenden Deutschen Dokumenten ergibt sich, soweit ein Zusammenhang besteht, grundsätzlich über die Nummer der entsprechenden IEC-Publikation. Beispiel: IEC 60068 ist als EN 60068 als Europäische Norm durch CENELEC übernommen und als DIN EN 60068 ins Deutsche Normenwerk aufgenommen.

Das Präsidium des DIN hat mit Präsidialbeschluss 1/2004 festgelegt, dass DIN-Normen, deren Inhalt sich auf internationale Arbeitsergebnisse der Informationsverarbeitung gründet, unter bestimmten Bedingungen allein in englischer Sprache veröffentlicht werden dürfen. Diese Bedingungen sind für die vorliegende Norm erfüllt.

Da sich die Anwender der vorliegenden Norm der englischen Sprache als Fachsprache bedienen, wird die Englische Fassung der EN 61800-7-204 veröffentlicht. Zu deren Abschnitt 1, der den Anwendungsbereich festlegt, und Abschnitt 3, der die Begriffe festlegt, wurde eine Übersetzung angefertigt und als Nationaler Anhang NA der vorliegenden Norm hinzugefügt. Für einige der verwendeten Begriffe existieren keine gebräuchlichen deutschen Benennungen, da sich die deutschen Anwender in der Regel ebenfalls der englischen Benennungen bedienen. Diese Norm steht nicht in unmittelbarem Zusammenhang mit Rechtsvorschriften und ist nicht als Sicherheitsnorm anzusehen.

Das Original-Dokument enthält Bilder in Farbe, die in der Papierversion in einer Graustufen-Darstellung wiedergegeben werden. Elektronische Versionen dieses Dokuments enthalten die Bilder in der originalen Farbdarstellung.

Änderungen

Gegenüber DIN EN 61800-7-204:2008-11 wurden folgende Änderungen vorgenommen:

- a) Aktualisierung der Antriebsparameter und deren Spezifikationen;
- b) redaktionelle Überarbeitung des gesamten Dokuments.

Frühere Ausgaben

DIN EN 61491: 1999-11

DIN EN 61800-7-204: 2008-11

Nationaler Anhang NA (informativ)

Auszugsweise Übersetzung^{N1)}

1 Anwendungsbereich

Dieser Teil der IEC 61800 beschreibt den Profil-Typ 4 für Leistungsantriebssysteme (PDS). Profil-Typ 4 kann auf verschiedene Technologien für Kommunikationsnetzwerke abgebildet werden.

Es ist nicht Zweck der in diesem Teil der IEC 61800 beschriebenen Funktionen, funktionale Sicherheit sicherzustellen. Dies erfordert zusätzliche Maßnahmen nach den maßgeblichen Normen, Vereinbarungen und Gesetzen.

3 Begriffe und Abkürzungen

3.1 Begriffe

Für die Anwendung dieses Dokuments gelten die folgenden Begriffe.

3.1.1

Bestätigungstelegramm

(en: acknowledge telegram)

AT

Telegramm, in das jeder Slave seine Daten einfügt

Anmerkung 1 zum Begriff: Die englische Abkürzung AT wird auch in der französischen Sprachfassung benutzt.

3.1.2

Istwert

(en: actual value)

Wert einer variablen Größe zu einem gegebenen Zeitpunkt

Anmerkung 1 zum Begriff: Der Istwert wird in diesem Dokument als Eingangsdatenwert des Programms zur Steuerung der Anwendung verwendet, um Variable des PDS (z. B. Rückführgrößen) zu überwachen.

[QUELLE: IEC 61800-7-1:2015, 3.3.1.1]

3.1.3

Anwendung

(en: application)

funktionales Element der Software, spezifisch für die Problemlösung bei industriellen Prozessen mit Messen und Regeln

Anmerkung 1 zum Begriff: Eine Anwendung kann über Ressourcen verteilt sein und kann mit anderen Anwendungen kommunizieren.

[QUELLE: IEC 61800-7-1:2015, 3.2.2]

3.1.4

Attribut

(en: attribute)

Eigenschaft oder Charakteristik einer Funktionseinheit

[QUELLE: IEC 61800-7-1:2015, 3.2.3]

^{N1)} Nationale Fußnote: Die Nummerierung aus IEC 61800-7-204:2015-11 wurde beibehalten.

3.1.5

Klasse

(en: class)

Beschreibung einer Menge von Objekten, die dieselben Attribute, Operationen, Methoden, Beziehungen und dieselbe Semantik haben

[QUELLE: IEC 61800-7-1:2015, 3.2.5]

3.1.6

Befehle

(en: commands)

Menge an Befehlen von dem Programm zur Steuerung der Anwendung an das PDS, um das Verhalten des PDS oder der funktionalen Elemente des PDS zu steuern

Anmerkung 1 zum Begriff: Das Verhalten wird durch Zustände oder Betriebsarten wiedergegeben.

Anmerkung 2 zum Begriff: Die verschiedenen Befehle können jeweils durch ein Bit dargestellt werden.

[QUELLE: IEC 61800-7-1:2015, 3.3.1.3]

3.1.7

Kommunikationszyklus

(en: communication cycle)

Ansammlung aller Telegramme zwischen zwei Master-Synchronisationstelegrammen

3.1.8

Leiten

(en: control)

zweckmäßige Maßnahmen an oder in einem Prozess, um vorgegebene Ziele zu erreichen

[QUELLE: IEC 61800-7-1:2015, 3.2.6]

3.1.9

Steuergerät

Leiteinheit

(en: control device; control unit)

Baueinheit, die – innerhalb eines Moduls/einer Baugruppe oder eines Geräts – ein Anwendungsprogramm zur Steuerung des PDS enthält

[QUELLE: IEC 61800-7-1:2015, 3.2.7]

3.1.10

Steuerwort

(en: control word)

zwei benachbarte Bytes im Master-Datentelegramm, die Befehle für den adressierten Antrieb enthalten

[QUELLE: IEC 61800-7-1:2015, 3.3.5.4]

3.1.11

Zykluszeit

(en: cycle time)

Zeitspanne zwischen zwei aufeinanderfolgenden zyklisch auftretenden Ereignissen

3.1.12

zyklische Daten

(en: cyclic data)

Teil der Nachricht, deren Bedeutung sich während des zyklischen Betriebs der Schnittstelle nicht ändert

3.1.13

zyklischer Betrieb

(en: cyclic operation)

Geräte im Kommunikationsnetzwerk werden nacheinander zu feststehenden, konstanten Zeitintervallen adressiert und abgefragt

3.1.14

Datenaustausch

(en: data exchange)

bedarfsabhängige, nicht zyklische Übertragung von Informationen, nachdem vom Master eine Anforderung gesendet wurde (Dienstkanal)

[QUELLE: IEC 61800-7-1:2015, 3.3.5.7]

3.1.15

Datentyp

(en: data type)

Menge von Werten mit einer Menge zulässiger Operationen

[QUELLE: IEC 61800-7-1:2015, 3.2.8]

3.1.16

Gerät

Feldgerät

(en: device; field device)

vernetzte unabhängige physische Einheit eines industriellen Automatisierungssystems, die fähig ist, spezifische Funktionen in einem speziellen Kontext auszuführen, und die durch ihre Schnittstellen abgegrenzt ist

[QUELLE: IEC 61800-7-1:2015, 3.2.9]

3.1.17

Geräteprofil

(en: device profile)

Darstellung eines Geräts bezüglich seiner Parameter, Parametergruppen und seines Verhaltens gemäß eines Gerätemodells, das die Daten und das Verhalten des Geräts beschreibt, wie es durch ein Netzwerk gesehen wird, unabhängig von einer bestimmten Netzwerktechnologie

[QUELLE: IEC 61800-7-1:2015, 3.2.11]

3.1.18

Vorsteuerung

(en: feed forward)

Befehlswert, der zum Ausgleichen der Verzögerung im Regelkreis verwendet wird

3.1.19

Rückführgröße

(en: feedback variable)

variable Größe, die die Regelgröße abbildet und zum Vergleichsglied zurückgeführt wird

[QUELLE: IEC 61800-7-1:2015, 3.2.12]

3.1.20

funktionales Element

(en: functional element)

Einheit von Software oder von Software, die mit Hardware kombiniert ist, fähig, eine festgelegte Funktion eines Geräts zu erfüllen

Anmerkung 1 zum Begriff: Ein funktionales Element hat eine Schnittstelle zu anderen funktionalen Elementen und Funktionen.

Anmerkung 2 zum Begriff: Ein funktionales Element kann aus einem oder mehreren Funktionsbausteinen, Objekten oder Parameterlisten erstellt werden.

[QUELLE: IEC TR 62390:2005, 3.1.12]

3.1.21

Identifikationsnummer

IDN

(en: identification number)

Kennzeichnung von Betriebsdaten, unter der ein Datenblock mit seinem Attribut, seinem Namen, seiner Einheit, seinen minimalen und maximalen Eingabewerten und den Daten aufbewahrt wird

Anmerkung 1 zum Begriff: Die englische Abkürzung IDN wird auch in der französischen Sprachfassung benutzt.

3.1.22

Eingangsdaten

(en: input data)

Daten, die von einer externen Quelle in ein Gerät, eine Ressource oder ein funktionales Element übertragen werden

[QUELLE: IEC TR 62390:2005, 3.1.14]

3.1.23

Schnittstelle

(en: interface)

Grenze zwischen zwei Einheiten, die durch funktionale Merkmale, Signalkenngrößen oder andere Merkmale als geeignet festgelegt ist

[QUELLE: IEC 60050-351:2007, 351-48-03, modifiziert – Die Worte „Funktionseinheiten“ wurden durch „Einheiten“ ersetzt und die Anmerkungen zum Begriff wurden gestrichen.^{N2)}]

3.1.24

Maschinennullpunkt

(en: machine zero point)

maschinenbezogener Punkt (auf jeder Achse), auf den alle Positionsdaten bezogen werden

3.1.25

Master

(en: master)

Knoten, der den anderen Knoten das Recht zur Übertragung zuweist

3.1.26

Master-Datentelegramm

MDT

(en: master data telegram)

Telegramm, in das der Master seine Daten einfügt

Anmerkung 1 zum Begriff: Die englische Abkürzung MDT wird auch in der französischen Sprachfassung benutzt.

3.1.27

Master-Synchronisationstelegramm

MST

(en: master synchronisation telegram)

Telegramm oder Teil eines Telegrammes, in das der Master ein Zeitsynchronisationssignal einfügt

Anmerkung 1 zum Begriff: Die englische Abkürzung MST wird auch in der französischen Sprachfassung benutzt.

3.1.28

Modell

(en: model)

mathematische oder physikalische Darstellung eines Systems oder Prozesses, die das System oder den Prozess aufgrund bekannter Gesetzmäßigkeiten, einer Identifikation oder getroffener Annahmen genügend genau abbildet

[QUELLE: IEC 60050-351:2013, 351-42-26]

3.1.29

Betriebsart

(en: operating mode)

Kennzeichnung von Art und Umfang, wie der Mensch als Bediener in eine Leiteinrichtung eingreift

[QUELLE: IEC 61800-7-1:2015, 3.2.18]

^{N2)} Nationale Fußnote: QUELLE: IEC 60050-351:2007 ist ungültig. Verweis zu: IEC 61800-7-1:2015, 3.2.15.

3.1.30

Ausgabedaten

(en: output data)

Daten, die von einem Gerät, einer Ressource oder einem funktionalen Element kommen und von diesem/dieser zu externen Systemen übertragen werden

[QUELLE: IEC 61800-7-1:2015, 3.2.19]

3.1.31

Parameter

(en: parameter)

Datenelement, das Geräteinformationen darstellt, die aus einem Gerät gelesen oder in ein Gerät geschrieben werden können, z. B. durch ein Netzwerk oder ein lokales Bediengerät

Anmerkung 1 zum Begriff: Ein Parameter ist typischerweise durch einen Parameternamen, einen Datentyp und eine Zugriffsrichtung gekennzeichnet.

[QUELLE: IEC 61800-7-1:2015, 3.2.20]

3.1.32

PDS enable

(en: PDS enable)

Befehl zum Schließen der (des) Rückführkreise(s)

3.1.33

PDS on

(en: PDS on)

Befehl zum Aktivieren der Leistungsstufe

3.1.34

Profil

(en: profile)

Darstellung einer PDS-Schnittstelle bezüglich ihrer Parameter, Parametergruppen und ihres Verhaltens nach einem Kommunikationsprofil und einem Geräteprofil

[QUELLE: IEC 61800-7-1:2015, 3.2.21, modifiziert – Anmerkung 1 zum Begriff wurde gestrichen.]

3.1.35

Bezugspunkt

(en: reference point)

Punkt, bezogen auf das Rückführsystem (auf jeder Achse), auf den die Rückführ- und Befehlswerte nach einem Referenzvorgang bezogen werden

3.1.36

Skalierungsdaten

(en: scaling data)

Daten, die die Wichtung der übertragenen Operationsdaten bestimmen

3.1.37

Slave

(en: slave)

Knoten, dem das Recht zur Übertragung durch den Master zugewiesen wird

3.1.38

Zustand

(en: status)

Menge an Informationen von dem PDS an das Programm zur Steuerung der Anwendung, die den Zustand oder die Betriebsart des PDS oder eines funktionalen Elements des PDS wiedergibt

Anmerkung 1 zum Begriff: Die verschiedenen Zustandsinformationen können jeweils mit einem Bit kodiert werden.

3.1.39**Statuswort**

(en: status word)

zwei aufeinanderfolgende Bytes im Antriebstelegramm, die Statusinformationen enthalten

3.1.40**Telegramm**

Nachricht

(en: telegram; message)

Datensatz

3.1.41**Typ**

(en: type)

Hardware- oder Software-Element, das die gemeinsamen Attribute festlegt, die von allen Instanzen des Typs gemeinsam genutzt werden

[QUELLE: IEC TR 62390:2005, 3.1.25]

3.1.42**Variable**

(en: variable)

Software-Einheit, die jeweils verschiedene Werte zu einer Zeit annehmen kann

Anmerkung 1 zum Begriff: Die Werte sowohl einer Variablen als auch eines Parameters sind üblicherweise auf einen bestimmten Datentyp festgelegt.

[QUELLE: IEC TR 62390:2005, 3.1.27, modifiziert – Anmerkung 1 zum Begriff wurde ergänzt.]

3.2 Abkürzungen

AT	Bestätigungstelegramm (en: acknowledge telegram)
C1D	Diagnoseklasse 1 (en: class 1 diagnostic)
C2D	Diagnoseklasse 2 (en: class 2 diagnostic)
C3D	Diagnoseklasse 3 (en: class 3 diagnostic)
CP	Kommunikationsphase (CP0 bis CP6 – Kommunikationsphasen 0 bis 6) (en: Communication Phase)
ID	Kennzeichner (en: identifier)
IDN	Identifikationsnummer (en: identification number)
IPOSYNC	Synchronisation des PDS-Interpolators
HMI	Mensch-Maschine-Schnittstelle (en: human machine interface)
K_V (K_V -Faktor)	Verstärkung des Positionsregelkreises
LSB	niedrigstwertiges Bit (en: least significant bit)
Max	Maximum
MDT	Master-Datentelegramm
Min	Minimum
MSB	höchstwertiges Bit (en: most significant bit)
MST	Master-Synchronisationstelegramm (en: master sync telegram)
n	Geschwindigkeit
$n_{\min}$	Abschaltgeschwindigkeit im Antrieb nach C1D-Fehler
n_x	Schwellenwert der Geschwindigkeit
P	Leistung (en: power)
PDS	Leistungsantriebssystem (en: power drive system)

P_x	Schwellenwert der Leistung
SERCOS	serielles Echtzeitkommunikationssystem (en: SErial Real time COmmunication System)
T	Drehmoment (en: torque)
T_{limit}	Grenzwert für das Drehmoment
T_x	Schwellenwert des Drehmoments
t_{Ncyc}	Zykluszeit der Steuereinheit
t_{Scyc}	Kommunikationszykluszeit

English Version

**Adjustable speed electrical power drive systems -
Part 7-204: Generic interface and use of profiles for power drive
systems - Profile type 4 specification
(IEC 61800-7-204:2015)**

Entraînements électriques de puissance à vitesse variable -
Partie 7-204: Interface générique et utilisation de profils
pour les entraînements électriques de puissance -
Spécification de profil de type 4
(IEC 61800-7-204:2015)

Elektrische Leistungsantriebssysteme mit einstellbarer
Drehzahl - Teil 7-204: Generisches Interface und Nutzung
von Profilen für Leistungsantriebssysteme (PDS) -
Spezifikation von Profil-Typ 4
(IEC 61800-7-204:2015)

This European Standard was approved by CENELEC on 2015-12-25. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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European foreword

The text of document 22G/310/FDIS, future edition 2 of IEC 61800-7-204, prepared by SC 22G "Adjustable speed electric drive systems incorporating semiconductor power converters" of IEC/TC 22 "Power electronic systems and equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61800-7-204:2016.

The following dates are fixed:

- latest date by which the document has to be (dop) 2016-09-25
implemented at national level by
publication of an identical national
standard or by endorsement
- latest date by which the national (dow) 2018-12-25
standards conflicting with the
document have to be withdrawn

This document supersedes EN 61800-7-204:2008.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 61800-7-204:2015 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 61158 Series	NOTE	Harmonized as EN 61158 Series.
IEC 61499-1:2005	NOTE	Harmonized as EN 61499-1:2005 ¹⁾ (not modified).
IEC 61800 Series	NOTE	Harmonized as EN 61800 Series.
IEC 61800-7 Series	NOTE	Harmonized as EN 61800-7 Series.
IEC 61800-7-1	NOTE	Harmonized as EN 61800-7-1.
IEC 61800-7-201	NOTE	Harmonized as EN 61800-7-201.
IEC 61800-7-202	NOTE	Harmonized as EN 61800-7-202.
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IEC 61800-7-303	NOTE	Harmonized as EN 61800-7-303.
IEC 62026-3	NOTE	Harmonized as EN 62026-3.

¹⁾ Superseded by EN 61499-1:2013 (IEC 61499-1:2012).

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