PD IEC/TR 62343-6-10:2017

BSI Standards Publication

Dynamic modules

Part 6-10: Design guide — Intermediate controller for multiple dynamic module systems

Documents
Document Sharing Hub

Full document details: PD IEC/TR 62343-6-10:2017

National foreword

This Published Document is the UK implementation of IEC/TR 62343-6-10:2017.

The UK participation in its preparation was entrusted by Technical Committee GEL/86, Fibre optics, to Subcommittee GEL/86/3, Fibre optic systems and active devices.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2017.
Published by BSI Standards Limited 2017

ISBN 978 0 580 92875 8
ICS 33.180.01; 33.180.99

Compliance with a British Standard cannot confer immunity from legal obligations.

This Published Document was published under the authority of the Standards Policy and Strategy Committee on 30 April 2017.

Amendments/corrigenda issued since publication

Date	Text affected

Documents
Document Sharing Hub

Full document details: PD IEC/TR 62343-6-10:2017

IEC TR 62343-6-10

Edition 1.0 2017-03

TECHNICAL REPORT

colour inside

Dynamic modules –
Part 6-10: Design guide – Intermediate controller for multiple dynamic module systems

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 33.180.01, 33.180.99

ISBN 978-2-8322-4127-1

Warning! Make sure that you obtained this publication from an authorized distributor.

® Registered trademark of the International Electrotechnical Commission

Documents
Document Sharing Hub

Full document details: PD IEC/TR 62343-6-10:2017

CONTENTS

FOREWORD 3
INTRODUCTION 5
1 Scope 6
2 Normative references 6
3 Terms, definitions and abbreviated terms 6
3.1 Terms and definitions 6
3.2 Abbreviated terms 6
4 Background of the software defined networking and its control plane for optical nodes 7
5 Research activities on high-performance node systems where intermediate controller plays key role 7
5.1 Photonic network with OpenFlow® controller 7
5.2 Dynamic optical path network with a network controller 7
5.3 Control interface of the Photonic Layer-2 8
6 Intermediate controller for multiple dynamic module systems 8
6.1 Description of the controller 8
6.1.1 Controller of multiple dynamic modules for a network node 8
6.1.2 Structure of the intermediate controller 9
6.2 Functions 10
6.3 Shared information between the control interface and the network control plane 11
7 Example of multi-degree ROADM systems 12
8 Conclusion 14
Bibliography 15

Figure 1 – Conceptual block of the control interface for multiple dynamic modules and network devices 8
Figure 2 – Basic block of the control interface for multiple dynamic modules 9
Figure 3 – Difference between connection information and configuration information 10
Figure 4 – Function coverage of the intermediate controller 11
Figure 5 – Example of a multiple dynamic module system 12
Figure 6 – Example of 4-degree ROADM node architecture 13
Figure 7 – 3-degree ROADM node with colourless, non-directional add/drop ports 13
Figure 8 – Compact PLC-based transponder aggregator for colourless and directionless ROADM 14

Table 1 – Shared information in the intermediate controller 12

Documents
Document Sharing Hub
Full document details: PD IEC/TR 62343-6-10:2017

INTERNATIONAL ELECTROTECHNICAL COMMISSION

DYNAMIC MODULES –

Part 6-10: Design guide – Intermediate controller for multiple dynamic module systems

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

The main task of IEC technical committees is to prepare International Standards. However, a technical committee may propose the publication of a technical report when it has collected data of a different kind from that which is normally published as an International Standard, for example "state of the art".

IEC TR 62343-6-10, which is a technical report, has been prepared by subcommittee 86C: Fibre optic systems and active devices, of IEC technical committee TC 86: Fibre optics.

The text of this technical report is based on the following documents:

Enquiry draft	Report on voting
86C/1381/DTR	86C/1422/RVC

Documents
Document Sharing Hub
Full document details: PD IEC/TR 62343-6-10:2017

Full information on the voting for the approval of this technical report can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 62343 series, published under the general title *Dynamic modules*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

Documents
Document Sharing Hub

Full document details: PD IEC/TR 62343-6-10:2017