PD IEC/TR 62343-6-10:2017

BSI Standards Publication

Dynamic modules

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

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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.

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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

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

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FOREWORD

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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

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- withdrawn,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.

INTRODUCTION

Software defined networking (SDN) technology is widely recognized as a promising solution for flexible and efficient provisioning of networks by virtualizing their infrastructures, which results in cost-effective realization of high capacity, low energy consumption and even low latency. SDN technology will remain highly influential over global industries, societies, and the environment for many years to come.

Optical fibre communication technology has offered sufficient transport capacity with a fixed physical topology. However, recent technological progress in optical networking enables physical reconfiguration of optical paths by controlling multiple dynamic modules such as wavelength division multiplexing (WDM) devices and switching devices. Here, the key is to have an intermediate controller that controls and maintains the multiple dynamic modules in an integrated fashion, according to the upper layer controller of the SDN.

In order to realize such a reconfigurable and/or dynamically switchable optical network infrastructures at a hardware level in a cost-effective, reliable, scalable and low-carbon manner, it is important to initiate, in a timely manner and to a wide extent, conceptual and technical discussions, particularly on the intermediate controller for future standardization.

It is very important for industries to identify requirements for network architecture and devices/components in a timely manner, and to improve the technology development and investment efficiencies.

The objective of this part of IEC 62343 is to contribute to the standardization of basic requirements of the dynamic optical path networks using the intermediate controller.

DYNAMIC MODULES –

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

1 Scope

This part of IEC 62343, which is a Technical Report, discusses the rationale, conceptual definition, and minimum list of functions for an intermediate controller that delivers a dynamic control signal to multiple dynamic modules. These modules are included in an optical switch-based network node, according to the upper layer controller of software-defined optical networking.

2 Normative references

There are no normative references in this document.

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.2 Abbreviated terms

AWG	arrayed waveguide grating
C/D/C-ROADM	colourless/directionless/contentionless reconfigurable optical add-drop multiplexing
I/F	interface
IP	internet protocol
mI/F	module side interface
MCOS	multicast optical switch
OCM	optical channel monitor
ODU	optical data unit
OXC	optical cross connect
PLC	planar lightwave circuit
ROADM	reconfigurable optical add-drop multiplexing
Rx	receiver
SDN	software defined networking
TPA	transponder aggregator
Tx	transmitter
Tx/Rx	transceiver