European Plastics and Rubber Machinery

EUROMAP 75-3	Protocol for Communication with Peripheral Equipment **Implementation of Different Realtime Ethernet Systems**

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9 pages

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History

Date	Changes
May 2010	Document published
May 27, 2010	Subtitle modified
July 19, 2010	Clause 1.4 "References" updated
March 2012	Clause 1.3 “Definitions, acronyms and abbreviations” deleted (see part 1) Clause 1.4 “References” updated Clause 1.5 “Document Overview” updated Chapter 2 "Mapping the Profile to VARAN-BUS" reduced and updated Clauses 2.3, 3.3 and 4.3: objects 1008h, 1009h and 100Ah updated

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1 Introduction

Please note:

When applying EUROMAP 75 please check in your quotation or machine documentation, if there is marked which Ethernet System is used for the device profile.

1.1 Purpose

This document describes the profile for EUROMAP 75 measuring amplifiers.

1.2 Scope

The EUROMAP 75 specification is divided into a general description, the device profile, a definition of the interface between the injection moulding machines and signal converters and the implementation of different realtime Ethernet Systems. The present part of document is the implementation of different realtime Ethernet Systems.

The device profile is based on the “CANopen Device Profile for Measuring Devices and Closed-Loop Controllers (CiA 404)" and is supplemented by the definitions of industrial realtime Ethernet including the specific requirements for these device categories.
The electrical interface comprises the definition of the plug connections, the "physical layer" and the wiring concept on the basis of a realtime Ethernet bus.

This document is intended for engineers who are concerned with the implementation of this interface. A basic knowledge of CANopen is prerequisite to understand the document.

1.3 References

Short name	Title	Version	Issued by
EUROMAP 75	EUROMAP 75-1 "Protocol for Communication with Peripheral Equipment - Device Profile for Measuring Amplifiers" EUROMAP 75-2 "Protocol for Communication with Peripheral Equipment - Demands on EUROMAP 75 Devices"	1.2 1.2	EUROMAP
CiA 102	CAN Physical Layer for Industrial Applications	3.0	CiA
CiA 301	CANopen Application Layer and Communication Profile	4.2	CiA
CiA 404	Device Profile for Measuring Devices and closed-loop controllers	2.0	CiA
CiA 303-2	Representation of SI Units and Prefixes	1.4	CiA

1.4 Document Overview

This document is divided into:

- Mapping the Profile to VARAN-BUS
- Mapping the profile to ETHERCAT
- Mapping the profile to POWERLINK

2 Mapping the Profile to VARAN-BUS

2.1 References

Euromap 75 mapping to the VARAN-BUS
Design Specification VARAN

2.2 General

The VARAN protocol is described in the document “Design Specification VARAN”

2.3 VARAN device description

Mapping General Device Description IDs to VARAN Identification List

Index	Object	Description	Type	Mapping to VARAN Identification List
1000h	VAR	Device Type	Unsigned32	
1001h	VAR	Error Register	Unsigned8	
1008h	VAR	Manufacturer Device Name	VisibleString [1)]	Device Name
1009h	VAR	Manufacturer Hardware Version	VisibleString [1)]	Hardware Revision
100Ah	VAR	Manufacturer Software Version	VisibleString [1)]	
1018h	RECORD	Identity Object	Identity (0x23)	
	Subindex 0	Number of entries	Unsigned8	
	Subindex 1	Vendor ID	Unsigned32	Vendor ID
	Subindex 2	Product Code	Unsigned32	
	Subindex 3	Revision Number	Unsigned32	
	Subindex 4	Serial Number	Unsigned32	Serial number
1600h	RECORD	1st receive PDO Mapping	PDO Mapping	
1601h	RECORD	2nd receive PDO Mapping	PDO Mapping	
…	…	…	…	
17FFh	RECORD	512th receive PDO Mapping	PDO Mapping	
1A00h	RECORD	1st transmit PDO Mapping	PDO Mapping	
1A01h	RECORD	2nd transmit PDO Mapping	PDO Mapping	
…	…	…	…	
1BFFh	RECORD	512th transmit PDO Mapping	PDO Mapping	

1) Do not use more than 20 Bytes

The standard VARAN Header also supports the following entries:

- Vendor Name
- Device Documentation (e.g. PDF-Format) and/or other Documents
- License Number
- Ordering Number
- Calibration Data
- Device Compatibility List
- Optional MAC / IP address
- Comment e.g. for maintenance

These entries can be accessed with standard VARAN commands.

2.4 Process Data

The standard PDO mapping and protocol specifications as defined in the document „EUROMAP 75 mapping to the VARAN-BUS“ shall be used.

2.5 Service Data Objects

The standard SDO mapping and protocol specifications as defined in the document „EUROMAP 75 mapping to the VARAN-BUS“ shall be used to access the objects.

3 Mapping the profile to ETHERCAT

3.1 References

IEC 61158 series, Industrial communication networks – Fieldbus specifications, Type 12

3.2 General

EtherCAT is defined in IEC 61158 as Type 12.
The Mapping of the profile EUROMAP 75 to EtherCAT can easily be done by using the CoE (CAN application protocol over EtherCAT) services.

3.3 EtherCAT Device Description

The following parameters are part of the EtherCAT specification (IEC 61158-6-12).

Index	Object	Description	Type
1000h	VAR	Device Type	Unsigned32
1001h	VAR	Error Register	Unsigned8
1008h	VAR	Manufacturer Device Name	VisibleString [1)]
1009h	VAR	Manufacturer Hardware Version	VisibleString [1)]
100Ah	VAR	Manufacturer Software Version	VisibleString [1)]
1018h	RECORD	Identity Object	Identity (0x23)
	Subindex 0	Number of entries	Unsigned8
	Subindex 1	Vendor ID	Unsigned32
	Subindex 2	Product Code	Unsigned32
	Subindex 3	Revision Number	Unsigned32
	Subindex 4	Serial Number	Unsigned32
1600h	RECORD	1st receive PDO Mapping	PDO Mapping
1601h	RECORD	2nd receive PDO Mapping	PDO Mapping
…	…	…	…
17FFh	RECORD	512th receive PDO Mapping	PDO Mapping
1A00h	RECORD	1st transmit PDO Mapping	PDO Mapping
1A01h	RECORD	2nd transmit PDO Mapping	PDO Mapping
…	…	…	…
1BFFh	RECORD	512th transmit PDO Mapping	PDO Mapping

1) Do not use more than 20 Bytes

3.4 Process Data

The standard PDO mapping services and protocol specifications as defined in IEC 61158 series Type 12 shall be used.

3.5 Service Data Objects

The standard SDO service and protocol specifications via CoE as defined in IEC 61158 series Type 12 shall be used to access the objects.

4 Mapping the profile to POWERLINK

4.1 References

IEC 61158 series, Industrial communication networks – Fieldbus specifications, Type 13
EPSG DS 301 V1.1.0, Ethernet POWERLINK communication profile specification, Version 1.1.0
EPSG Generic Profile Transformation, Version 1.0.0

4.2 General

POWERLINK is defined in IEC 61158 as Type 13.
The Mapping of the profile EUROMAP 75 to POWERLINK can easily be done by using the EPSG Generic Profile Transformation.

4.3 POWERLINK Device Description

The following parameters are part of the POWERLINK specification (IEC 61158-6-13).

Index	Object	Description	Type
1000h	VAR	Device Type	Unsigned32
1001h	VAR	Error Register	Unsigned8
1008h	VAR	Manufacturer Device Name	VisibleString [1)]
1009h	VAR	Manufacturer Hardware Version	VisibleString [1)]
100Ah	VAR	Manufacturer Software Version	VisibleString [1)]
1018h	RECORD	Identity Object	Identity (0x23)
	Subindex 0	Number of entries	Unsigned8
	Subindex 1	Vendor ID	Unsigned32
	Subindex 2	Product Code	Unsigned32
	Subindex 3	Revision Number	Unsigned32
	Subindex 4	Serial Number	Unsigned32
1600h	RECORD	1st receive PDO Mapping	PDO Mapping
1601h	RECORD	2nd receive PDO Mapping	PDO Mapping
…	…	…	…
16FFh	RECORD	256th receive PDO Mapping	PDO Mapping
1A00h	RECORD	1st transmit PDO Mapping	PDO Mapping
1A01h	RECORD	2nd transmit PDO Mapping	PDO Mapping
…	…	…	…
1AFFh	RECORD	256th transmit PDO Mapping	PDO Mapping

1) Do not use more than 20 Bytes

4.4 Process Data

The standard PDO mapping services and protocol specifications as defined in IEC 61158 series Type 13 shall be used.

4.5 Service Data Objects

The standard SDO service and protocol specifications as defined in IEC 61158 series Type 13 shall be used to access the objects.

EUROMAP

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