

**EUROMAP 27-2**

**Pipe and Profile Extrusion Lines  
Generic CANopen Interface  
Part 2: Puller**

Version 3.0, April 2007  
(25 pages)

This recommendation was prepared by the Technical Commission of EUROMAP in cooperation with CiA.

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see also <http://www.can-cia.org/downloads/ciaspecifications/?2036>

**HISTORY**

<b>Date</b>	<b>Changes</b>
2002-10-22	<i>Publication of version 1.0</i>
2004-02-27	<i>Publication of version 2.0</i>
2007-04-12	<i>Publication of version 3.0</i>
	Editorial corrections and clarifications
	Load control function included
<b>Note:</b>	Version 2.0 is not compatible to version 1.0

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## 1 Scope

The CANopen application profile for extruder downstream devices includes several parts:

- Part 1 specifies general definitions
- Part 2 specifies the device profile for the puller downstream device
- Part 3 specifies the device profile for the corrugator downstream device
- Part 4 specifies the device profile for the saw downstream device
- Part 5 specifies the device profile for the co-extruder device
- Part 6 specifies the device profile for the calibration-table downstream device

This part specifies the CANopen interface for the puller downstream device.

## 2 References

EUROMAP 27, Part 1: General definitions

The references given in EUROMAP 27-1 apply to this specification as well.

## 3 Abbreviations and definitions

### 3.1 Abbreviations

The abbreviations given in EUROMAP 27-1 apply to this specification as well.

### 3.2 Definitions

The definitions given in EUROMAP 27-1 apply to this specification as well.

## 4 Operating principles

### 4.1 General

The puller downstream device interface shall support all mandatory functions of /CiA301/ and EUROMAP 27-1 as well as all mandatory functions defined in this specification.

### 4.2 Load controller function

The load controller function is optional.

## 5 PDO specification

### 5.1 Overview

Table 1 shows the process data mapped into TPDOs and RPDOs.

**Table 1 – TPDO and RPDO mapping**

PDO number	Index/sub-index	Name/description
TPDO 1	6030 00 <sub>h</sub>	Status word
	6000 00 <sub>h</sub>	Puller speed actual value
TPDO 2	6004 00 <sub>h</sub>	Puller speed set echo

PDO number	Index/sub-index	Name/description
	6008 00 <sub>h</sub>	Product speed
RPDO 1	6020 00 <sub>h</sub>	Control word
	6002 00 <sub>h</sub>	Puller speed set value
	600B 00 <sub>h</sub>	Puller load set value
	NOTE	Device-specific process data
NOTE The RPDO 1 is able to map one and only one device-specific process data		

## 5.2 First TPDO

This TPDO shall be transmitted to the master-extruder. It contains by default the *status word*, the *puller speed actual value*, and the *puller load actual value*.

Table 2 specifies the object description of the PDO communication parameter and Table 3 specifies the associated entry description. The values are defined in /CiA301/. The sub-index 04<sub>h</sub> is reserved for compatibility reasons and shall not be implemented.

**Table 2 — Object description**

Attribute	Value
Index	1800 <sub>h</sub>
Name	TPDO 1 communication parameter
Object code	Record
Data type	PDO communication parameter record
Category	Mandatory

**Table 3 — Entry description**

Attribute	Value
Sub-index	00 <sub>h</sub>
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	02 <sub>h</sub> to 05 <sub>h</sub>
Default value	Device-specific
Sub-index	01 <sub>h</sub>
Description	COB-ID
Entry category	Mandatory
Access	rw
PDO mapping	No
Value range	4000 0180 <sub>h</sub> + node-ID or C000 0180 <sub>h</sub> + node-ID
Default value	4000 0180 <sub>h</sub> + node-ID

Attribute	Value
Sub-index	02 <sub>h</sub>
Description	Transmission type
Entry category	Mandatory
Access	rw
PDO mapping	Optional
Value range	See /CiA301/
Default value	01 <sub>h</sub>
Sub-index	03 <sub>h</sub>
Description	Inhibit time
Entry category	Optional
Access	rw
PDO mapping	No
Value range	See /CiA301/
Default value	0000 <sub>h</sub>
Sub-index	05 <sub>h</sub>
Description	Event timer
Entry category	Optional
Access	rw
PDO mapping	No
Value range	See /CiA301/
Default value	0000 <sub>h</sub>

Table 4 specifies the object description of the PDO mapping parameter and Table 5 specifies the associated entry description. The values are defined in /CiA301/. The unused bytes in the data field shall only be used for a manufacturer-specific second status word.

**Table 4 — Object description**

Attribute	Value
Index	1A00 <sub>h</sub>
Name	TPDO 1 mapping parameter
Object code	Record
Data type	PDO mapping parameter record
Category	Mandatory

**Table 5 — Entry description**

Attribute	Value
Sub-index	00 <sub>h</sub>
Description	Highest sub-index supported
Entry category	Mandatory
Access	rw (const in NMT operational state)
PDO mapping	No
Value range	00 <sub>h</sub> , 03 <sub>h</sub> to 04 <sub>h</sub>
Default value	Device-specific
Sub-index	01 <sub>h</sub>
Description	1 <sup>st</sup> application object
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	6030 00 10 <sub>h</sub>
Default value	6030 00 10 <sub>h</sub>
Sub-index	02 <sub>h</sub>
Description	2 <sup>nd</sup> application object
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	6000 00 10 <sub>h</sub>
Default value	6000 00 10 <sub>h</sub>
Sub-index	03 <sub>h</sub>
Description	3 <sup>rd</sup> application object
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	6006 00 10 <sub>h</sub>
Default value	6006 00 10 <sub>h</sub>
Sub-index	04 <sub>h</sub>
Description	4 <sup>th</sup> application object
Entry category	Optional
Access	const
PDO mapping	No
Value range	See /CiA301/
Default value	Device-specific

### 5.3 Second TPDO

This TPDO shall be transmitted to the master-extruder. It contains by default the *puller speed set echo*, and the *product speed*.

Table 6 specifies the object description of the PDO communication parameter and Table 7 specifies the associated entry description. The values are defined in /CiA301/. The sub-index 04<sub>h</sub> is reserved for compatibility reasons and shall not be implemented.

**Table 6 — Object description**

Attribute	Value
Index	1801 <sub>h</sub>
Name	TPDO 2 communication parameter
Object code	Record
Data type	PDO communication parameter record
Category	Mandatory

**Table 7 — Entry description**

Attribute	Value
Sub-index	00 <sub>h</sub>
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	02 <sub>h</sub> to 05 <sub>h</sub>
Default value	Device-specific
Sub-index	01 <sub>h</sub>
Description	COB-ID
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	See /CiA301/
Default value	4000 0280 <sub>h</sub> + node-ID
Sub-index	02 <sub>h</sub>
Description	Transmission type
Entry category	Mandatory
Access	rw
PDO mapping	Optional
Value range	See /CiA301/
Default value	01 <sub>h</sub>

Attribute	Value
Sub-index	03 <sub>h</sub>
Description	Inhibit time
Entry category	Optional
Access	rw
PDO mapping	No
Value range	See /CiA301/
Default value	0000 <sub>h</sub>
Sub-index	05 <sub>h</sub>
Description	Event timer
Entry category	Optional
Access	rw
PDO mapping	No
Value range	See /CiA301/
Default value	0000 <sub>h</sub>

Table 8 specifies the object description of the PDO mapping parameter and Table 9 specifies the associated entry description. The values are defined in /CiA301/.

**Table 8 — Object description**

Attribute	Value
Index	1A01 <sub>h</sub>
Name	TPDO 2 mapping parameter
Object code	Record
Data type	PDO mapping parameter record
Category	Mandatory

**Table 9 — Entry description**

Attribute	Value
Sub-index	00 <sub>h</sub>
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	02 <sub>h</sub>
Default value	02 <sub>h</sub>
Sub-index	01 <sub>h</sub>
Description	1 <sup>st</sup> application object
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	6004 00 10 <sub>h</sub>
Default value	6004 00 10 <sub>h</sub>

Attribute	Value
Sub-index	02 <sub>h</sub>
Description	2 <sup>nd</sup> application object
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	6008 00 20 <sub>h</sub>
Default value	6008 00 20 <sub>h</sub>

#### 5.4 First RPDO

This RPDO shall be received from the master-extruder. It contains by default the *control word*, and the *puller speed set value*. Additionally, it shall contain the *puller load set value* if the puller load control function is implemented.

Table 10 specifies the object description of the PDO communication parameter and Table 11 specifies the associated entry description. The values are defined in /CiA301/. The sub-index 04<sub>h</sub> is reserved for compatibility reasons and shall not be implemented.

**Table 10 — Object description**

Attribute	Value
Index	1400 <sub>h</sub>
Name	RPDO 1 communication parameter
Object code	Record
Data type	PDO communication parameter record
Category	Mandatory

**Table 11 — Entry description**

Attribute	Value
Sub-index	00 <sub>h</sub>
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	02 <sub>h</sub> to 05 <sub>h</sub>
Default value	Device-specific
Sub-index	01 <sub>h</sub>
Description	COB-ID
Entry category	Mandatory
Access	rw
PDO mapping	No
Value range	4000 0200 <sub>h</sub> + node-ID or C000 0200 <sub>h</sub> + node-ID
Default value	4000 0200 <sub>h</sub> + node-ID

Attribute	Value
Sub-index	02 <sub>h</sub>
Description	Transmission type
Entry category	Mandatory
Access	rw
PDO mapping	Optional
Value range	See /CiA301/
Default value	01 <sub>h</sub>
Sub-index	03 <sub>h</sub>
Description	Inhibit time
Entry category	Optional
Access	rw
PDO mapping	No
Value range	See /CiA301/
Default value	0000 <sub>h</sub>
Sub-index	05 <sub>h</sub>
Description	Event timer
Entry category	Optional
Access	rw
PDO mapping	No
Value range	See /CiA301/
Default value	0000 <sub>h</sub>

Table 12 specifies the object description of the PDO mapping parameter and Table 13 specifies the associated entry description. The values are defined in /CiA301/. The unused bytes in the data field shall only be used for a manufacturer-specific second control word.

**Table 12 — Object description**

Attribute	Value
Index	1600 <sub>h</sub>
Name	RPDO 1 mapping parameter
Object code	Record
Data type	PDO mapping parameter record
Category	Mandatory

**Table 13 — Entry description**

Attribute	Value
Sub-index	00 <sub>h</sub>
Description	Highest sub-index supported
Entry category	Mandatory
Access	rw (const in NMT operational state)
PDO mapping	No
Value range	00 <sub>h</sub> , 03 <sub>h</sub> to 04 <sub>h</sub>
Default value	Device-specific
Sub-index	01 <sub>h</sub>
Description	1 <sup>st</sup> application object
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	6020 00 10 <sub>h</sub>
Default value	6020 00 10 <sub>h</sub>
Sub-index	02 <sub>h</sub>
Description	2 <sup>nd</sup> application object
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	6002 00 10 <sub>h</sub>
Default value	6002 00 10 <sub>h</sub>
Sub-index	03 <sub>h</sub>
Description	3 <sup>rd</sup> application object
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	600B 00 10 <sub>h</sub>
Default value	600B 00 10 <sub>h</sub>
Sub-index	04 <sub>h</sub>
Description	4 <sup>th</sup> application object
Entry category	Optional
Access	const
PDO mapping	No
Value range	See /CiA301/
Default value	Device-specific

## 6 Application object specification

### 6.1 Object 6000<sub>h</sub>: Puller speed actual value

This object shall provide the actual speed value of the puller. The value shall be given in 0,01% of the maximum speed. Negative values shall be given if the direction is reversed.

Table 14 specifies the object description and Table 15 specifies the entry description.

**Table 14 — Object description**

Attribute	Value
Index	6000 <sub>h</sub>
Name	Puller speed actual value
Object code	Var
Data type	Integer16
Category	Mandatory

**Table 15 — Entry description**

Attribute	Value
Sub-index	00 <sub>h</sub>
Access	ro
PDO mapping	Default
Value range	-10000 <sub>d</sub> to +10000 <sub>d</sub>
Default value	No

### 6.2 Object 6001<sub>h</sub>: Puller speed real maximum

This object shall provide the maximum speed value of the puller based on the real maximum puller speed at 100% set value. The value shall be given in 1 mm/min.

Table 16 specifies the object description and Table 17 specifies the entry description.

**Table 16 — Object description**

Attribute	Value
Index	6001 <sub>h</sub>
Name	Puller speed real maximum
Object code	Var
Data type	Unsigned32
Category	Mandatory

**Table 17 — Entry description**

Attribute	Value
Sub-index	00 <sub>h</sub>
Access	const
PDO mapping	Optional
Value range	Unsigned32
Default value	Device specific

### 6.3 Object 6002<sub>h</sub>: Puller speed set value

This object shall indicate the speed set value send by the master-extruder. The value shall be given in 0,01% of the maximum speed. Negative values shall be given if the direction is reversed.

Table 18 specifies the object description and Table 19 specifies the entry description.

**Table 18 — Object description**

Attribute	Value
Index	6002 <sub>h</sub>
Name	Puller speed set value
Object code	Var
Data type	Integer16
Category	Mandatory

**Table 19 — Entry description**

Attribute	Value
Sub-index	00 <sub>h</sub>
Access	rw
PDO mapping	Default
Value range	-10000 <sub>d</sub> to +10000 <sub>d</sub>
Default value	0 <sub>d</sub>

### 6.4 Object 6003<sub>h</sub>: Puller speed set maximum

This object shall indicate the maximum speed set value of the puller. The value shall be given in 1 mm/min.

Table 20 specifies the object description and Table 21 specifies the entry description.

**Table 20 — Object description**

Attribute	Value
Index	6003 <sub>h</sub>
Name	Puller speed set maximum
Object code	Var
Data type	Unsigned32
Category	Mandatory

**Table 21 — Entry description**

Attribute	Value
Sub-index	00 <sub>h</sub>
Access	rw
PDO mapping	Optional
Value range	Unsigned32
Default value	Value as given in object 6001 <sub>h</sub>

### 6.5 Object 6004<sub>h</sub>: Puller speed set echo

This object shall provide the puller speed set value after recovering from bus-off state. The value shall be given in 0,01% of the maximum speed. Negative values shall be given if the direction is reversed. The scaling is given in object 6003<sub>h</sub>.

Table 22 specifies the object description and Table 23 specifies the entry description.

**Table 22 — Object description**

Attribute	Value
Index	6004 <sub>h</sub>
Name	Puller speed set echo
Object code	Var
Data type	Integer16
Category	Mandatory

**Table 23 — Entry description**

Attribute	Value
Sub-index	00 <sub>h</sub>
Access	ro
PDO mapping	Default
Value range	-10000 <sub>d</sub> to +10000 <sub>d</sub>
Default value	No

### 6.6 Object 6005<sub>h</sub>: Puller speed step

This object shall indicate the size of the first speed change at using increase or decrease key requested by the master-extruder. The value shall be given in 0,01% of the maximum speed. The scaling is given in object 6003<sub>h</sub>.

Table 24 specifies the object description and Table 25 specifies the entry description.

**Table 24 — Object description**

Attribute	Value
Index	6005 <sub>h</sub>
Name	Puller speed step
Object code	Var
Data type	Unsigned16
Category	Mandatory

**Table 25 — Entry description**

Attribute	Value
Sub-index	00 <sub>h</sub>
Access	rw
PDO mapping	Optional
Value range	0 <sub>d</sub> to 10000 <sub>d</sub>
Default value	0 <sub>d</sub>

### 6.7 Object 6006<sub>h</sub>: Puller load actual value

This object shall provide the actual value of the puller load. The value shall be given in 0,01% of the maximum load. Negative value shall be given if the load is negative.

Table 26 specifies the object description and Table 27 specifies the entry description.

**Table 26 — Object description**

Attribute	Value
Index	6006 <sub>h</sub>
Name	Puller load actual value
Object code	Var
Data type	Integer16
Category	Mandatory

**Table 27 — Entry description**

Attribute	Value
Sub-index	00 <sub>h</sub>
Access	ro
PDO mapping	Default
Value range	-32.768 <sub>d</sub> to +32.767 <sub>d</sub>
Default value	No

### 6.8 Object 6007<sub>h</sub>: Scaling factor

This object shall indicate the default factor between counted pulses and length. The value shall be given in pulse/m.

Note:

Pulse/mm does not allow the necessary scaling resolution that is required for calibration.

Table 28 specifies the object description and Table 29 specifies the entry description.

**Table 28 — Object description**

Attribute	Value
Index	6007 <sub>h</sub>
Name	Scaling factor
Object code	Var
Data type	Unsigned32
Category	Mandatory

**Table 29 — Entry description**

Attribute	Value
Sub-index	00 <sub>h</sub>
Access	rw
PDO mapping	Optional
Value range	Unsigned32
Default value	Device-specific

### 6.9 Object 6008<sub>h</sub>: Product speed

This object shall provide the actual value calculated from measuring wheel or motor encoder pulses and time. The accuracy of this value shall be better than 0,3%. The value shall be given in 0,1 mm/min. Negative values shall be given if the direction is reversed.

Table 30 specifies the object description and Table 31 specifies the entry description.

**Table 30 — Object description**

Attribute	Value
Index	6008 <sub>h</sub>
Name	Product speed
Object code	Var
Data type	Integer32
Category	Mandatory

**Table 31 — Entry description**

Attribute	Value
Sub-index	00 <sub>h</sub>
Access	ro
PDO mapping	Default
Value range	Integer32
Default value	No

### 6.10 Object 6009<sub>h</sub>: Height adjustments

This object shall indicate the height adjustment values configured by the master-extruder (e.g. the distance from the centerline to the bottom of the product). The values shall be given in 0,1 mm. Positive values shall be given if the distance is above the centerline and negative values shall be given if the distance is below the centerline.

Table 32 specifies the object description and Table 33 specifies the entry description.

**Table 32 — Object description**

Attribute	Value
Index	6009 <sub>h</sub>
Name	Height adjustments
Object code	Array
Data type	Integer16
Category	Optional

**Table 33 — Entry description**

Attribute	Value
Sub-index	00 <sub>h</sub>
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01 <sub>h</sub> to 0A <sub>h</sub>
Default value	Device-specific
Sub-index	01 <sub>h</sub>
Description	Height adjustment 1
Entry category	Mandatory
Access	rw
PDO mapping	Optional
Value range	Integer16
Default value	0000 <sub>h</sub>
Sub-index	02 <sub>h</sub>
Description	Height adjustment 2
Entry category	Optional
Access	rw
PDO mapping	Optional
Value range	Integer16
Default value	0000 <sub>h</sub>
to	
Sub-index	0A <sub>h</sub>
Description	Height adjustment 10
Entry category	Optional
Access	rw
PDO mapping	Optional
Value range	Integer16
Default value	0000 <sub>h</sub>

### 6.11 Object 600A<sub>h</sub>: Pressure set values

This object shall indicate the pressure set values configured by the master-extruder (e.g. for upper caterpillar) The value shall be given in 0,01% of the maximum pressure.

Table 34 specifies the object description and Table 35 specifies the entry description.

**Table 34 — Object description**

Attribute	Value
Index	600A <sub>h</sub>
Name	Pressure set value array
Object code	Array
Data type	Unsigned16
Category	Optional

**Table 35 — Entry description**

Attribute	Value
Sub-index	00 <sub>h</sub>
Description	Highest sub-index supported
Entry category	Mandatory
Access	const
PDO mapping	No
Value range	01 <sub>h</sub> to 0A <sub>h</sub>
Default value	Device-specific
Sub-index	01 <sub>h</sub>
Description	Pressure set value 1
Entry category	Mandatory
Access	rw
PDO mapping	Optional
Value range	0 <sub>d</sub> to 10000 <sub>d</sub>
Default value	0 <sub>d</sub>
Sub-index	02 <sub>h</sub>
Description	Pressure set value 2
Entry category	Optional
Access	rw
PDO mapping	Optional
Value range	0 <sub>d</sub> to 10000 <sub>d</sub>
Default value	0 <sub>d</sub>
to	
Sub-index	0A <sub>h</sub>
Description	Pressure set value 10
Entry category	Optional
Access	rw
PDO mapping	Optional
Value range	0 <sub>d</sub> to 10000 <sub>d</sub>
Default value	0 <sub>d</sub>

**6.12 Object 600B<sub>h</sub>: Puller load set value**

This object shall indicate the set value of the puller load controller. The value shall be given in 0,01%.

Table 30 specifies the object description and Table 31 specifies the entry description.

**Table 36 — Object description**

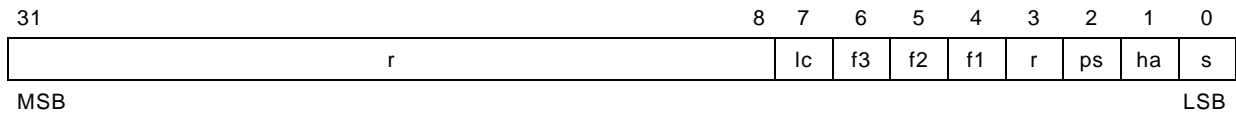
Attribute	Value
Index	600B <sub>h</sub>
Name	Puller load set value
Object code	Var
Data type	Unsigned32
Category	Optional

**Table 37 — Entry description**

Attribute	Value
Sub-index	00 <sub>h</sub>
Access	rw
PDO mapping	Default if load controller is available
Value range	0 <sub>d</sub> to 10000 <sub>d</sub>
Default value	0 <sub>d</sub>

**6.13 Object 6010<sub>h</sub>: Configuration word**

This object shall provide the configured functionality. Figure 1 specifies the object structure and Table 38 defines the values. Table 39 specifies the object description and Table 40 specifies the entry description.



**Figure 1 — Object structure**

**Table 38 — Value definition**

Signal	Value	Definition
s (speed measuring)	0 <sub>b</sub> 1 <sub>b</sub>	Speed measuring not available Speed measuring available
ha (height adjustment)	0 <sub>b</sub> 1 <sub>b</sub>	Height adjustment not available Height adjustment available
ps (pressure set values)	0 <sub>b</sub> 1 <sub>b</sub>	Pressure set values not available Pressure set values available
f1, f2, f3 (auxiliary function)	0 <sub>b</sub> 1 <sub>b</sub>	Auxiliary function not available Auxiliary function available
lc (load control)	0 <sub>b</sub> 1 <sub>b</sub>	Load controller not available Load controller available
r (reserved)	0 <sub>d</sub>	Reserved

**Table 39 — Object description**

Attribute	Value
Index	6010 <sub>h</sub>
Name	Configuration word
Object code	Var
Data type	Unsigned32
Category	Mandatory

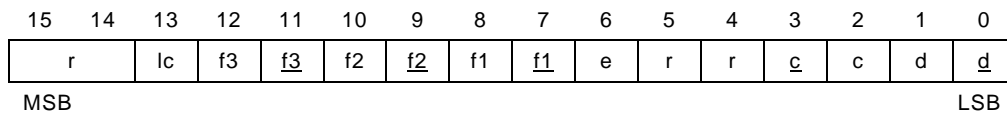
**Table 40 — Entry description**

Attribute	Value
Sub-index	00 <sub>h</sub>
Access	ro
PDO mapping	No
Value range	See Table 38
Default value	No

**6.14 Object 6020<sub>h</sub>: Control word**

This object shall indicate the commands transmitted by the master-extruder. The master-extruder shall set the bits to 1<sub>b</sub> if the corresponding button is pressed but not shorter than 100 ms.

Figure 2 specifies the object structure and Table 41 defines the values. Table 42 specifies the object description and Table 43 specifies the entry description.



**Figure 2 — Object structure**

**Table 41 — Value definition**

Signal	Value	Definition
d (drive stop)	0 <sub>b</sub> 1 <sub>b</sub>	No command (default value) Stop drive (start prevention)
d (drive start)	0 <sub>b</sub> 1 <sub>b</sub>	No command (default value) Start drive
c (clamp open)	0 <sub>b</sub> 1 <sub>b</sub>	No command (default value) Open clamp (close prevention)
c (clamp close)	0 <sub>b</sub> 1 <sub>b</sub>	No command (default value) Close clamp
e (extruder run)	0 <sub>b</sub> 1 <sub>b</sub>	Extruder stopped (default value) Extruder is running
f <sub>1</sub> , f <sub>2</sub> , f <sub>3</sub> (function stop)	0 <sub>b</sub> 1 <sub>b</sub>	No command (default value) Stop function (start prevention)
f <sub>1</sub> , f <sub>2</sub> , f <sub>3</sub> (function start)	0 <sub>b</sub> 1 <sub>b</sub>	No command (default value) Start function
lc (load controller mode)	0 <sub>b</sub> 1 <sub>b</sub>	Load controller off (default value) Load controller on
r (reserved)	0 <sub>d</sub>	Reserved

**Table 42 — Object description**

Attribute	Value
Index	6020 <sub>h</sub>
Name	Control word
Object code	Var
Data type	Unsigned16
Category	Mandatory

**Table 43 — Entry description**

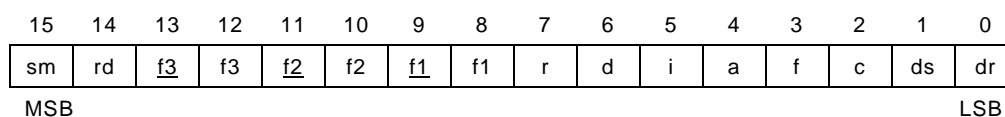
Attribute	Value
Sub-index	00 <sub>h</sub>
Access	rw
PDO mapping	Default
Value range	See Table 41
Default value	See Table 41

**6.15 Object 6030<sub>h</sub>: Status word**

This object shall provide the status transmitted to the master-extruder. The puller downstream device shall set the bits to 1<sub>b</sub> if the corresponding button is pressed but not shorter than 100 ms.

The *speed set mode (sm)* signal shall indicate if the puller takes the *speed set value* object (remote mode) as defined in clause 6.3 or if the puller adjusts the speed locally (local mode). In local mode, the puller reports its speed set by the *puller speed set echo* object (see clause 6.5).

Figure 3 specifies the object structure and Table 44 defines the values. Table 45 specifies the object description and Table 46 specifies the entry description.



**Figure 3 — Object structure**

**Table 44 — Value definition**

Signal	Value	Definition
dr (drive run)	0 <sub>b</sub>	Drive is not running (drive controller disabled) (see Note 1)
	1 <sub>b</sub>	Drive is running (drive controller enabled) (see Note 2)
ds (drive ready to start)	0 <sub>b</sub>	Drive is not ready to start
	1 <sub>b</sub>	Drive is ready to start
c (clamp closed)	0 <sub>b</sub>	Clamp opened
	1 <sub>b</sub>	Clamp closed
f (fault downstream equipment)	0 <sub>b</sub>	No fault
	1 <sub>b</sub>	Fault (puller switched-off and start prevention of puller)
a (alarm downstream equipment)	0 <sub>b</sub>	No alarm
	1 <sub>b</sub>	Alarm (puller not switched-off, puller start still permitted)
i (increase set value)	0 <sub>b</sub>	No request
	1 <sub>b</sub>	Increase speed request (Example: Is the signal shorter than 1 s only one step takes place. A longer signal activates one step and after the first second the selected ramp is used to increase the speed)
d (decrease set value)	0 <sub>b</sub>	No request
	1 <sub>b</sub>	Decrease speed request (Example: Is the signal shorter than 1 s only one step takes place. A longer signal activates one step and after the first second the selected ramp is used to decrease the speed)
rd (reverse direction)	0 <sub>b</sub>	Normal direction
	1 <sub>b</sub>	Reverse direction
f1, f2, f3 (function run)	0 <sub>b</sub>	Function is not running
	1 <sub>b</sub>	Function is running
<u>f1</u> , <u>f2</u> , <u>f3</u> (function ready to start)	0 <sub>b</sub>	Function is blocked
	1 <sub>b</sub>	Function is ready to start
sm (speed set mode)	0 <sub>b</sub>	Remote mode
	1 <sub>b</sub>	Local mode
r (reserved)	0 <sub>d</sub>	Reserved
Note 1 Independent of the actual speed.		
Note 2 Independent of the speed settings.		

**Table 45 — Object description**

<b>Attribute</b>	<b>Value</b>
Index	6030 <sub>h</sub>
Name	Status word
Object code	Var
Data type	Unsigned16
Category	Mandatory

**Table 46 — Entry description**

<b>Attribute</b>	<b>Value</b>
Sub-index	00 <sub>h</sub>
Access	ro
PDO mapping	Default
Value range	See Table 44
Default value	No

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