# Sidoor

## Description of the manufacturer specific CANopen objects – AT40M

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# 1 Table of Content

# 1 Introduction

This document describes CANopen objects for the door controller device AT40M.

# 2 Profile specific objects

## 2.1 Object 6310h Light barrier status

Bits 0 to 5 reserved ($111111_b$)
Bits 6 to 7 Status

VALUE DEFINITION

| Bit 7 | Bit 6 | Description |
|---|---|---|
| 0 | 0 | No subject detected |
| 0 | 1 | Subject detected |
| 1 | 0 | Error indication |
| 1 | 1 | not available or not installed |

If the input 1 of the AT40M is configured as DCPS, the status bits are always 1.

OBJECT DESCRIPION

| | |
|---|---|
| Index | $6310_h$ |
| Name | Light barrier status |
| Object code | Array |
| Data type | Unsigned8 |
| Category | See *CiA DSP 417-2* |

ENTRY DESCRIPTION

| | |
|---|---|
| Sub-index | $00_h$ |
| Description | Highest sub-index supported |
| Access | const |
| PDO mapping | No |
| Value range | $04_h$ |
| Default value | $04_h$ |

| | |
|---|---|
| Sub-index | $01_h$ |
| Description | Door 1 |
| Access | ro |
| PDO mapping | Default |
| Value range | see value definition |
| Default value | $FF_h$ |

| | |
|---|---|
| Sub-index | 02h |
| Description | Door 2 |
| Access | ro |
| PDO mapping | Default |
| Value range | see value definition |
| Default value | FFh |

| | |
|---|---|
| Sub-index | 03h |
| Description | Door 3 |
| Access | ro |
| PDO mapping | Default |
| Value range | see value definition |
| Default value | FFh |

| | |
|---|---|
| Sub-index | 04h |
| Description | Door 4 |
| Access | ro |
| PDO mapping | Default |
| Value range | see value definition |
| Default value | FFh |

The Sidoor application does only control one door selected by COB 6003h. Depending on this setting, the corresponding sub index will return the correct value, while all other sub indices will return FFh.

# 3 Manufacturer-specific objects

Profile specific objects are used for setup of the driving profile and other general settings like node-ID and baudrate.

## 3.1 Object 3000h Node settings

This object contains the node settings like node-ID and baudrate. These parameters are essential for communication and are protected against unintentional change. A special sequence must be followed in order to open a 60 second time window for write access to sub-index 2 and 3. Accessing any other object than this by SDO for write will immediately close the time window.

Any changes to the node settings become active after a communication reset or node reset.

SEQUENCE:

| step | action | remark |
|---|---|---|
| 1 | write 340E 2231h to sub-index 1 | sequence started, step 2 must follow within 60s |
| 2 | write A1F7 EE93h to sub-index 1 | sequence successful, step 3 must follow within 60s |
| 3 | write desired value to sub-index 2 or 3 | write enable stays active for max. 60s. Indices 2 & 3 may both be changed in this time window |

VALUE DEFINITION
*Node-ID*

| Value | Definition |
|---|---|
| 00h | not allowed |
| 01h to 7Fh | passible setting |
| 80h to FFh | not allowed |

*Baudrate*

| Value | Definition |
|---|---|
| 0 | 1000 kBd |
| 1 | 800 kBd |
| 2 | 500 kBd |
| 3 | 250 kBd |
| 4 | 125 kBd |
| 5 | 100 kBd |
| 6 | 50 kBd |
| 7 | 20 kBd |
| 8 | 10 kBd |
| 9 | autobauding |
| all unmentioned values | not allowed |

OBJECT DESCRIPTION

| | |
|---|---|
| Index | 3000h |
| Name | Node settings |
| Object code | STRUCT |
| Data type | VAR |
| Category | optional (manufacturer-specific) |

ENTRY DESCRIPTION

| | |
|---|---|
| Sub-index | 00h |
| Description | Highest sub-index supported |
| Access | const |
| PDO mapping | No |
| Value range | 03h |
| Default value | 03h |

| | |
|---|---|
| Sub-index | 01h |
| Description | sequence object for enable write access |
| Access | rw |
| PDO mapping | No |
| Value range | UNSIGNED32 |
| Default value | FFFF FFFFh |

| | |
|---|---|
| Sub-index | 02h |
| Description | Node ID |
| Access | ro (rw timewise after special sequence) |
| PDO mapping | No |
| Value range | UNSIGNED8 (see value definition) |
| Default value | 07h |

| | |
|---|---|
| Sub-index | 03h |
| Description | Baudrate Index |
| Access | ro (rw timewise after special sequence) |
| PDO mapping | Default |
| Value range | UNSIGNED8 (see value definition) |
| Default value | 3 (equals 250kBaud) |

### 3.2 Object 3001h Door 1 profile

This object contains the profile parameter for door 1. If door 1 is not selected by SDO 6003h, this object is not available.
All sub-indices except 0 are of kind UNSIGNED16, supports rw, are not PDO mappable and have motor dependant ranges and default values (see user manual). So for ease of description, these properties are not explicitly mentioned for every sub-index.

OBJECT DESCRIPTION

| | |
|---|---|
| Index | 3001h |
| Name | Door 1 profile |
| Object code | ARRAY |
| Data type | UNSIGNED16 |
| Category | Optional |

ENTRY DESCRIPTION

| | |
|---|---|
| Sub-index | 00h |
| Description | Highest sub-index supported |
| Access | const |
| PDO mapping | No |
| Value range | 1Ah |
| Default value | 1Ah |

| | |
|---|---|
| Sub-index | 01h |
| Description | SlowEndDistOp [mm] (Slow speed opening distance in opened position) |

| | |
|---|---|
| Sub-index | 02h |
| Description | SlowStrtDistOp [mm] (Slow speed opening distance in closed position) |

| | |
|---|---|
| Sub-index | 03h |
| Description | SlowStrtDistCls [mm] (Slow speed closing distance in opened position) |

| | |
|---|---|
| Sub-index | 04h |
| Description | SlowEndDistCls [mm] (Slow speed closing distance in closed position) |

| | |
|---|---|
| Sub-index | 05h |
| Description | MaxSpdOp [mm/s] (Max. speed in opening direction) |

| | |
|---|---|
| Sub-index | 06h |
| Description | SlowEndSpdOp [mm/s] (Slow end speed in opening direction) |

| | |
|---|---|
| Sub-index | 07h |
| Description | SlowStrtSpdOp [mm/s] (Slow start speed in opening direction) |

| Sub-index | 08h |
|---|---|
| Description | SlowIniSpdOp [mm/s] (Slow speed in opening direction and init mode) |

| Sub-index | 09h |
|---|---|
| Description | MaxSpdCls [mm/s] (Max. speed in closing direction) |

| Sub-index | 0Ah |
|---|---|
| Description | SlowStrtSpdCls [mm/s] (Slow start speed in closing direction) |

| Sub-index | 0Bh |
|---|---|
| Description | SlowEndSpdCls [mm/s] (Slow end speed in closing direction) |

| Sub-index | 0Ch |
|---|---|
| Description | SlowIniSpdCls [mm/s] (Slow speed in closing direction and init mode) |

| Sub-index | 0Dh |
|---|---|
| Description | NdgSpd [mm/s] (Nudging speed in closing direction) |

| Sub-index | 0Eh |
|---|---|
| Description | AccRampOp [mm/s2] (Acceleration ramp in opening direction) |

| Sub-index | 0Fh |
|---|---|
| Description | DecRampOp [mm/s2] (Deceleration ramp in opening direction) |

| Sub-index | 10h |
|---|---|
| Description | RevRampOpToCls [mm/s2] (Reversal deceleration ramp from OP to CLS) |

| Sub-index | 11h |
|---|---|
| Description | AccRampCls [mm/s2] (Acceleration ramp in closing direction) |

| Sub-index | 12h |
|---|---|
| Description | DecRampCls [mm/s2] (Deceleration ramp in closing direction) |

| Sub-index | 13h |
|---|---|
| Description | RevRampClsToOp [mm/s2] (Reversal deceleration ramp from CLS to OP) |

| Sub-index | 14h |
|---|---|
| Description | IdleTorqueOpd [mA] (Idle torque in opened position) |

| Sub-index | 15h |
|---|---|
| Description | IdleTorqueCld [mA] (Idle torque in closed position) |

| | |
|---|---|
| Sub-index | 16h |
| Description | PeakTorqueCld [mA] (Peak torque in closed position for app. 2s) |

| | |
|---|---|
| Sub-index | 17h |
| Description | LimForceOp [N] (Force limitation in opening direction) |

| | |
|---|---|
| Sub-index | 18h |
| Description | LimForceCls [N] (Force limitation in closing direction) |

| | |
|---|---|
| Sub-index | 19h |
| Description | LimForceEndCls [N] (Force limitation in end distance of closing direction) |

| | |
|---|---|
| Sub-index | 1Ah |
| Description | LimForceNdgCls [N] (Force limitation in closing direction and nudging active) |

### 3.3 Object 3002h Door 2 profile

This object is functionally identical to 3001h except that it describes the profile for door 2. It will only be available, if door 2 is selected (see object 6003h).

### 3.4 Object 3003h Door 3 profile

This object is functionally identical to 3001h except that it describes the profile for door 3. It will only be available, if door 3 is selected (see object 6003h).

### 3.5 Object 3004h Door 4 profile

This object is functionally identical to 3001h except that it describes the profile for door 4. It will only be available, if door 4 is selected (see object 6003h).

### 3.6 Object 3005h Door 1 parameter

This object covers the main parameter of door 1. If door 1 is not selected by SDO 6003h, this object is not available.

OBJECT DESCRIPTION

| | |
|---|---|
| Index | 3005h |
| Name | Node settings |
| Object code | STRUCT |
| Data type | VAR |
| Category | optional (manufacturer-specific) |

ENTRY DESCRIPTION

| | |
|---|---|
| Sub-index | 00h |
| Description | Highest sub-index supported |
| Access | const |
| PDO mapping | No |
| Value range | 08h |
| Default value | 08h |

| | |
|---|---|
| Sub-index | 01h |
| Description | DoorWidth [mm] (detected door width from last learn run) |
| Access | ro |
| PDO mapping | No |
| Value range | UNSIGNED16 |
| Default value | 300d |

| | |
|---|---|
| Sub-index | 02h |
| Description | MotorType (detected type of connected motor from last learn run) |
| Access | ro |
| PDO mapping | No |
| Value range | UNSIGNED16 |
| Default value | 0000h |

| | |
|---|---|
| Sub-index | 03h |
| Description | EffDoorMass [kg] (detected effective door mass from last learn run) |
| Access | ro |
| PDO mapping | No |
| Value range | UNSIGNED16 |
| Default value | depends on the motor |

| | |
|---|---|
| Sub-index | 04h |
| Description | CntOperHours [h] (counter for operating hours) |
| Access | ro |
| PDO mapping | No |
| Value range | UNSIGNED16 |
| Default value | n.a. |

| | |
|---|---|
| Sub-index | 05h |
| Description | CntInitialLearnRuns (counter for initial learn runs) |
| Access | ro |
| PDO mapping | No |
| Value range | UNSIGNED16 |
| Default value | n.a. |

| | |
|---|---|
| Sub-index | 06h |
| Description | CntStartUps (counter for start up's) |
| Access | ro |
| PDO mapping | No |
| Value range | UNSIGNED16 |
| Default value | n.a. |

| | |
|---|---|
| Sub-index | 07h |
| Description | CntDoorOpenings(counter for openings) |
| Access | ro |
| PDO mapping | No |
| Value range | 0 to 6553499 |
| Default value | n.a. |

| | |
|---|---|
| Sub-index | 08h |
| Description | CntDoorBlockings (counter for door blockings) |
| Access | ro |
| PDO mapping | No |
| Value range | 0 to 6553499 |
| Default value | n.a. |

### 3.7 Object 3006h Door 2 parameter

This object is functionally identical to 3005h except that it describes the parameter for door 2. It will only be available, if door 2 is selected (see object 6003h).

### 3.8 Object 3007h Door 3 parameter

This object is functionally identical to 3005h except that it describes the parameter for door 3. It will only be available, if door 3 is selected (see object 6003h).

### 3.9 Object 3008h Door 4 parameter

This object is functionally identical to 3005h except that it describes the parameter for door 4. It will only be available, if door 4 is selected (see object 6003h).

### 3.10 Object 3009h Door 1 event log

This object covers the event log history of door 1. If door 1 is not selected by SDO 6003h, this object is not available.

The event log stores the events in the order of their occurance with respect to time. The amount may vary and can be checked with sub-index 0 (max. amount is 8 errors). The event display is done in form of a string and the event log can be cleared by writing a zero to sub-index 0.

All sub-indices except 0 are of kind STRING, supports only ro, are not PDO mappable and the default value is not applicapable. So for ease of description, these properties are not explicitly mentioned for every sub-index.

OBJECT DESCRIPTION

| | |
|---|---|
| Index | 3009h |
| Name | Door 1 event log |
| Object code | ARRAY |
| Data type | STRING |
| Category | optional (manufacturer-specific) |

ENTRY DESCRIPTION

| | |
|---|---|
| Sub-index | 00h |
| Description | Highest sub-index supported |
| Access | ro |
| PDO mapping | No |
| Value range | UNSIGNED8 |
| Default value | 00h |

| | |
|---|---|
| Sub-index | 01h to max. stored events |
| Description | step from newest to oldest event |

### 3.11 Object 300Ah Door 2 event log

This object is functionally identical to 3009h except that it describes the parameter for door 2. It will only be available, if door 2 is selected (see object 6003h).

### 3.12 Object 300Bh Door 3 event log

This object is functionally identical to 3009h except that it describes the parameter for door 3. It will only be available, if door 3 is selected (see object 6003h).

### 3.13 Object 300Ch Door 4 event log

This object is functionally identical to 3009h except that it describes the parameter for door 4. It will only be available, if door 4 is selected (see object 6003h).

### 3.14 Object 300Dh Door 1 event statistic

This object covers the event statistic of door 1. If door 1 is not selected by SDO 6003h, this object is not available.

The event statistic stores the amount of occurances in the order of their first occurance. The amount may vary and can be checked with sub-index 0 (max. amount is presently 24 errors). The event statistic display is done in form of a string and the can be cleared by writing a zero to sub-index 0.

All sub-indices except 0 are of kind STRING, supports only ro, are not PDO mappable and the default value is not applicapable. So for ease of description, these properties are not explicitly mentioned for every sub-index.

OBJECT DESCRIPTION

| | |
|---|---|
| Index | 300Dh |
| Name | Door 1 event statistic |
| Object code | ARRAY |
| Data type | STRING |
| Category | optional (manufacturer-specific) |

ENTRY DESCRIPTION

| | |
|---|---|
| Sub-index | 00h |
| Description | Highest sub-index supported |
| Access | ro |
| PDO mapping | No |
| Value range | UNSIGNED8 |
| Default value | 00h |

| | |
|---|---|
| Sub-index | 01h to max. stored events |
| Description | step from newest to oldest statistic entry |

### 3.15 Object 300E$_h$ Door 2 event statistic

This object is functionally identical to 300D$_h$ except that it describes the parameter for door 2. It will only be available, if door 2 is selected (see object 6003$_h$).

### 3.16 Object 300F$_h$ Door 3 event statistic

This object is functionally identical to 300D$_h$ except that it describes the parameter for door 3. It will only be available, if door 3 is selected (see object 6003$_h$).

### 3.17 Object 3010$_h$ Door 4 event statistic

This object is functionally identical to 300D$_h$ except that it describes the parameter for door 4. It will only be available, if door 4 is selected (see object 6003$_h$).

### 3.18 Object 4000$_h$ Intermediate link voltage

For information, the value of the intermediate link voltage can be read.

OBJECT DESCRIPTION

| | |
|---|---|
| Index | 4000$_h$ |
| Name | Intermediate link voltage |
| Object code | VAR |
| Data type | UNSIGNED16 |
| Category | optional (manufacturer-specific) |

ENTRY DESCRIPTION

| | |
|---|---|
| Sub-index | 00$_h$ |
| Description | Value of intermediate link voltage in mV |
| Access | ro |
| PDO mapping | No |

### 3.19 Object 4001h Motor current

For information, the value of the present motor current can be read.

All sub-indices are of kind SIGNED16, supports only ro, are not PDO mappable and the default value is not applicapable. So for ease of description, these properties are not explicitly mentioned for every sub-index.

OBJECT DESCRIPTION

| | |
|---|---|
| Index | 4001h |
| Name | Motor current |
| Object code | ARRAY |
| Data type | SIGNED16 |
| Category | optional (manufacturer-specific) |

ENTRY DESCRIPTION

| | |
|---|---|
| Sub-index | 00h |
| Description | Highest sub-index supported |
| Access | const |
| PDO mapping | No |
| Value range | 02h |
| Default value | 02h |

| | |
|---|---|
| Sub-index | 01h |
| Description | Native motor current [mA] (gives the current value without offset correction) |

| | |
|---|---|
| Sub-index | 02h |
| Description | Corrected motor current [mA] (gives the current value with offset correction) |

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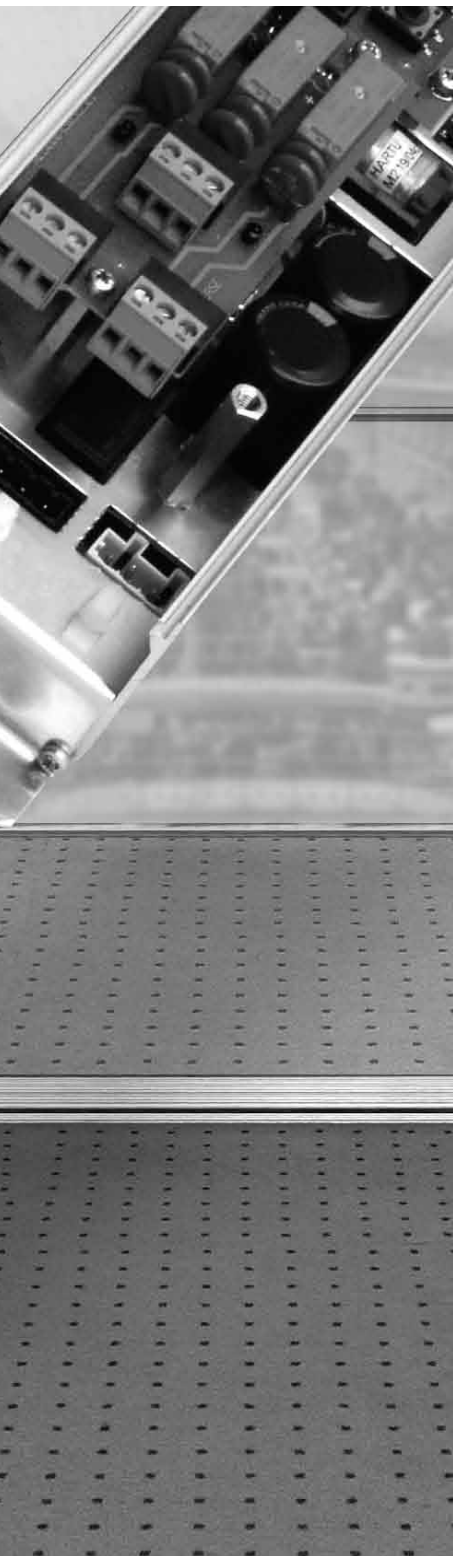

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