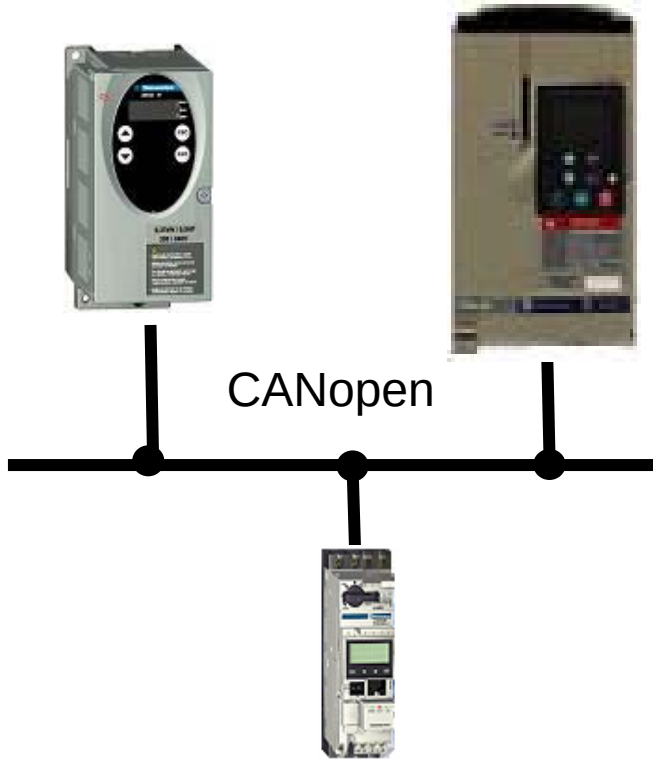
Management explicit exchanges SDO

SDOs allow the management of the explicit data between the Master, in our case the M340 and the slave using of request READ_var / WRITE_var

PLC Management of the request

READ_VAR
request

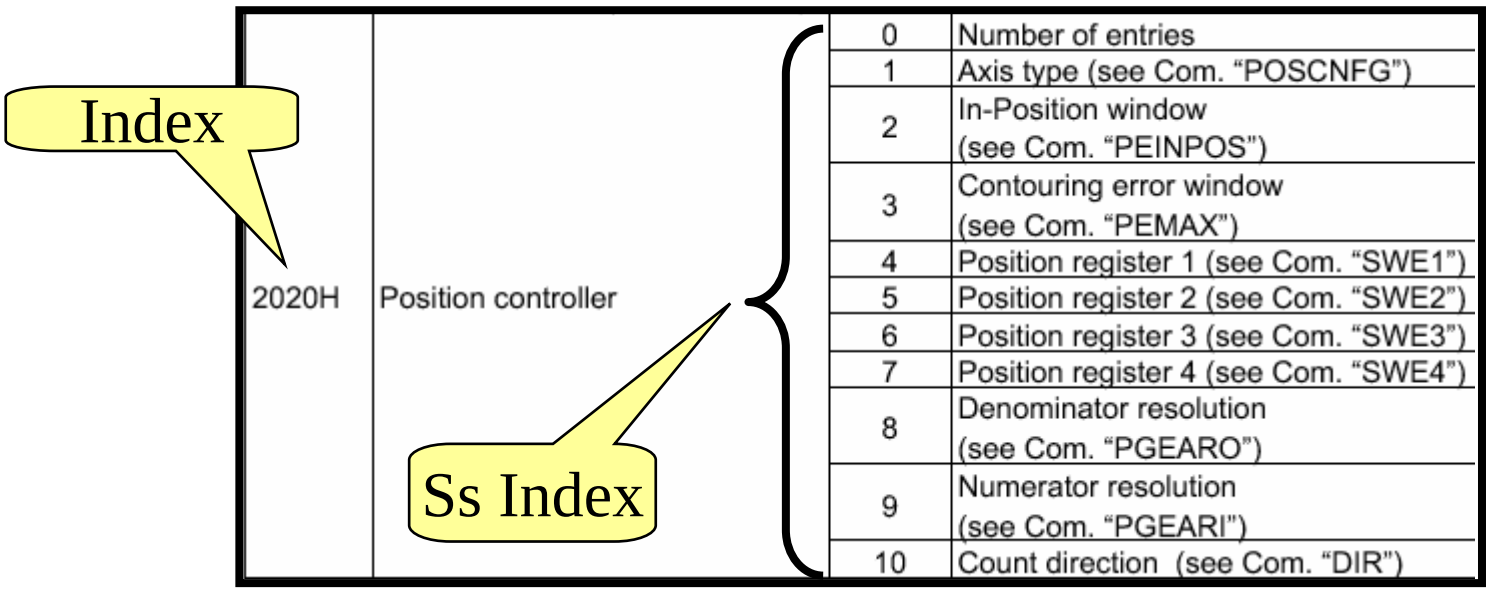
WRITE_VAR
request



Management explicit exchanges SDO

INDEX / Ss INDEX Concept .

- All requests on CANopen are defined with an INDEX / Ss INDEX .
- Here is an example on a CANopen device ‘ LEXIUM 15x ‘
  - INDEX : Define the function wished .
    - Ex : 2022 => Position data for the ‘ position ’ mode .
      2020 => Position Controller
  - Ss INDEX: Define the object in the function .



2020H	Position controller	0	Number of entries
		1	Axis type (see Com. “POSCNFG”)
		2	In-Position window (see Com. “PEINPOS”)
		3	Contouring error window (see Com. “PEMAX”)
		4	Position register 1 (see Com. “SWE1”)
		5	Position register 2 (see Com. “SWE2”)
		6	Position register 3 (see Com. “SWE3”)
		7	Position register 4 (see Com. “SWE4”)
		8	Denominator resolution (see Com. “PGEARO”)
		9	Numerator resolution (see Com. “PGEARI”)
		10	Count direction (see Com. “DIR”)

Management explicit exchanges SDO

- Syntax to program a SDO (Write_Var) :

```
If write_SDO then
        buffer_gest_write[2] := 50;     (*Time-out*)
        buffer_gest_write[3] := 4;      (*Longueur*)
        (*buffer_sent[0] := 200;*)

        WRITE_VAR (ADR := ADDM('0.0.2.2'),
                OBJ := 'SDO',
                NUM := 16#00001005,
                NB := 2,
                EMIS := buffer_sent,
                GEST := buffer_gest_write) ;

        write_SDO := false;
end_if;
```

Parameters	descriptions
ADDM('0.0.2.node')	Address of the exchange destination **0.0 :** processor slot in the rack (0) **2** : channel (always 2 for CANopen) 2: Device adress.
'SDO'	SDO object type (always **SDO** in capitals)
Subindex / index:	Double word or immediate value identifying the CANopen SDO index or subindex:
NodeID	Word or value identifying the destination device on the CANopen bus
%MWi:L	Table of words containing the data to be sent (minimum length = 1)
%MWk:4	Exchange management parameters

Management explicit exchanges SDO

- Syntax to program a SDO (Read_Var) :

```
IF read_SDO      then
       buffer_gest_read[2] := 50;(*Time-out*)
       buffer_rec[0]:=0;

       READ_VAR
              (ADR := ADDM('0.0.2.2'),
              OBJ := 'SDO',
              NUM := 16#00001005,
              NB := 2,
              GEST := buffer_gest_read,
              RECP => buffer_rec) ;



              read_SDO := false;
              END_IF;
```

Parameters	descriptions
ADDM('0.0.2.node')	Address of the exchange destination **0.0 :** processor slot in the rack (0) **2** : channel (always 2 for CANopen) 2: Device adress.
'SDO'	SDO object type (always **SDO** in capitals)
Subindex / index:	Double word or immediate value identifying the CANopen SDO index or subindex:
NodeID	Word or value identifying the destination device on the CANopen bus
%MWk:4	Exchange management parameters
%MWi:L	Table of words containing the data to be received (minimum length = 1)

Management explicit exchanges SDO

- Performances :
  - For all the processors we can manage :

    16 messages in Input / Output by scan time of the MAST task**.**

  - For CANopen message channel (SDO) we are limited to :

    1 message in Input / Output by scan time of the MAST task.