

Programowanie serwonapędów SD6

firmy Stober Antriebstechnik



Konfiguracja parametrów w programie DriveControlSuite

dla parametryzowania podstawowego wizzardu

komunikacji CANOpen z panelem Proface



Na początku należy wybrać odpowiedni driver z wizzardu:

| Drive controller Properties Drive controller Option modules Device control Axis 1 Series Designation Series Description Axis 3 St6 ServoCompact Series Description Axis 4 St6 ServoCompact Series SofoA02 4/3 A, 0.75 kW 1-phase 4 logical axes SofoA04 2.3/ 1.7.A, 0.75 kW 3-phase 4 logical axes SofoA04 2.3/ 1.7.A, 0.75 kW 3-phase 4 logical axes SofoA04 2.3/ 1.7.A, 0.75 kW 3-phase 4 logical axes SofoA04 2.3/ 1.7.A, 0.75 kW 3-phase 4 logical axes SofoA04 2.3/ 1.7.A, 0.75 kW 3-phase 4 logical axes SofoA04 2.3/ 1.7.A, 0.75 kW 3-phase 4 logical axes SofoA14 10/6 A, 4.0 kW 3-phase 4 logical axes SofoA14 10/6 A, 4.0 kW 3-phase 4 logical axes SofoA2 42/14 A, 11 kW 3-phase 4 logical axes SofoA3 2.2 kW 3-phase 4 logical axes SofoA3 85 / 60 A, 45 kW 3-phase 4 logical axes SofoA3 4.4/30 A, 22 kW 3-phase 4 logical axes SofoA3 85 / 60 A, 45 kW 3-phase 4 logical axes SofoA3 85 / 60 A, 45 kW 3-phase 4 logical axes SofoA3 85 / 60 A, 45 kW 3-phase 4 logical axes SofoA3 85 / 60 A, 45 kW 3-phase 4 logical axes |
|--|
| Axis 1 Series Designation Axis 2 Sl6 Servolnverter SD6 ServoDrive SC6 ServoCompact Axis 3 SC6 ServoCompact Type Technical data Supply Axes SD6A02 4/3 A, 0.75 kW 1-phase 4 logical axes SD6A04 2.3 / 1.7 A, 0.75 kW 1-phase 4 logical axes SD6A04 2.3 / 1.7 A, 0.75 kW 3-phase 4 logical axes SD6A04 2.3 / 1.7 A, 0.75 kW 3-phase 4 logical axes SD6A04 4.3 / 1.7 kW 3-phase 4 logical axes SD6A04 2.3 / 1.7 A, 0.75 kW 3-phase 4 logical axes SD6A04 4.3 / 1.7 kW 3-phase 4 logical axes SD6A04 2.3 / 1.7 A, 0.75 kW 3-phase 4 logical axes SD6A04 2.3 / 1.7 kW 3-phase 4 logical axes SD6A04 2.3 / 1.7 A, 0.75 kW 3-phase 4 logical axes SD6A04 4.3 / 1.7 kW 3-phase 4 logical axes SD6A04 2.3 / 1.7 A, 0.75 kW 3-phase 4 logical axes SD6A04 4.3 / 1.7 kW 3-phase 4 logical axes SD6A04 2.3 / 1.7 A, 0.75 kW 3-phase 4 logical axes SD6A14 10 / 6.4 , 4.0 kW 3-phase 4 logical axes SD6A14 10 / 6.4 , 4.0 kW 3-phase 4 logical axes SD6A24 22 / 14.4, 11 kW 3-phase 4 logical axes SD6A26 32 / 20 A, 15 kW 3-phase 4 logical axes SD6A38 85 / 60 A, 45 kW 3-phase 4 logical axes SD6A38 85 / 60 A, 45 kW 3-phase 4 logical axes SD6A38 85 / 60 A, 45 kW 3-phase 4 logical axes SD6A38 85 / 60 A, 45 kW 3-phase 4 logical axes Description V 6.4-A 20.12.2018 |
| Axis 2 Axis 3 Axis 4 Sob ServoDrive Sob ServoCompact Type Technical data Supply Axes SobA02 4/3 A, 0.75 kW phase 4 logical axes SobA04 2.3/1.7 A, 0,75 kW phase 4 logical axes SobA04 2.3/1.7 A, 0,75 kW phase 4 logical axes SobA04 2.3/1.7 A, 0,75 kW phase 4 logical axes SobA04 2.3/1.7 A, 0,75 kW phase 4 logical axes SobA04 2.3/1.7 A, 0,75 kW phase 4 logical axes SobA14 10/6 A, 40 kW phase 4 logical axes SobA14 10/6 A, 40 kW phase 4 logical axes SobA24 22/14 A, 11 kW phase 4 logical axes SobA3 44/30 A, 22 kW phase 4 logical axes SobA38 85/60 A, 45 kW phase 4 logical axes SobA38 85/60 A, 45 kW phase 4 logical axes SobA38 85/60 A, 45 kW phase 4 logical axes SobA38 85/60 A, 45 kW phase 4 logical axes SobA38 85/60 A, 45 kW phase 4 logical axes SobA38 85/60 A, 45 kW phase 4 logical axes SobA38 85/60 A, 45 kW phase 4 logical axes SobA38 85/60 A, 45 kW phase 4 logical axes SobA38 85/60 A, 45 kW phase 4 logical axes SobA38 85/60 A, 45 kW phase 4 logical axes SobA38 85/60 A, 45 kW SobA38 85/60 A, 45 kW SobA38 85/60 A, 45 kW SobA39 85/60 A |
| Axis 3 SD6 ServoCompact SC6 ServoCompact Type Technical data Supply Axes SD6A02 4/3 A, 0.75 kW 1-phase 4 logical axes SD6A04 2.3/1.7 A, 0.75 kW 3-phase 4 logical axes SD6A04 2.3/1.7 A, 0.75 kW 3-phase 4 logical axes SD6A04 2.3/1.7 A, 0.75 kW 3-phase 4 logical axes SD6A04 2.2/14A, 11 kW 3-phase 4 logical axes SD6A16 16/10 A, 75 kW 3-phase 4 logical axes SD6A24 2.2/14A, 11 kW 3-phase 4 logical axes SD6A34 44/30 A, 22 kW 3-phase 4 logical axes SD6A38 85/60 A, 45 kW 3-phase 4 logical axes SD6A38 85/60 A, 45 kW 3-phase 4 logical axes SD6A38 85/60 A, 45 kW 3-phase 4 logical axes SD6A38 85/60 A, 45 kW |
| Axis 4 Type Technical data Supply Axis 4 Type Technical data Supply Axis 4 Type Technical data Supply Axis 4 SD6A02 4/3 A, 0.75 kW SD6A04 2.3/1.7 A, 0.75 kW SD6A14 10/6 A, 40 kW SD6A24 22/14 A, 11 kW SD6A24 22/14 A, 11 kW SD6A35 70/50 A, 37 kW SD6A36 70/50 A, 37 kW SD6A38 85/60 A, 45 kW SD6A38 85/ |
| Type Technical data Supply Axes SD6A02 4/3 A, 0.75 kW 1-phase 4 logical axes SD6A02 2.3 / 1.7 A, 0.75 kW 1-phase 4 logical axes SD6A04 2.3 / 1.7 A, 0.75 kW 3-phase 4 logical axes SD6A04 2.3 / 1.7 A, 0.75 kW 3-phase 4 logical axes SD6A04 2.3 / 1.7 A, 0.75 kW 3-phase 4 logical axes SD6A04 2.3 / 1.7 A, 0.75 kW 3-phase 4 logical axes SD6A04 2.3 / 1.7 A, 0.75 kW 3-phase 4 logical axes SD6A04 2.3 / 1.7 A, 0.75 kW 3-phase 4 logical axes SD6A14 10 / 6.7 A, 40 kW 3-phase 4 logical axes SD6A24 22 / 14 A, 11 kW 3-phase 4 logical axes SD6A26 32 / 20 A, 15 kW 3-phase 4 logical axes SD6A34 44 / 30 A, 22 kW 3-phase 4 logical axes SD6A38 85 / 60 A, 45 kW 3-phase 4 logical axes SD6A38 85 / 60 A, 45 kW 3-phase 4 logical axes SD6A38 85 / 60 A, 45 kW 3-phase 4 logical axes V 0.44 A 20.12.2018 Description |
| Type Technical data Supply Axes SD6A02 4/3 A, 0.75 kW 1-phase 4 logical axes SD6A04 2.3/1.7 A, 0.75 kW 3-phase 4 logical axes SD6A04 2.3/1.7 A, 0.75 kW 3-phase 4 logical axes SD6A04 2.3/1.7 A, 0.75 kW 3-phase 4 logical axes SD6A04 2.3/1.7 A, 0.75 kW 3-phase 4 logical axes SD6A04 2.3/1.7 A, 0.75 kW 3-phase 4 logical axes SD6A04 2.3/1.7 A, 0.75 kW 3-phase 4 logical axes SD6A04 2.3/1.7 A, 0.75 kW 3-phase 4 logical axes SD6A14 10/6 A, 4.0 kW 3-phase 4 logical axes SD6A24 22/14 A, 11 kW 3-phase 4 logical axes SD6A36 32/20 A, 15 kW 3-phase 4 logical axes SD6A36 70/50 A, 37 kW 3-phase 4 logical axes SD6A38 85/60 A, 45 kW 3-phase 4 logical axes SD6A38 85/60 A, 45 kW 3-phase 4 logical axes SD6A38 85/60 A, 45 kW 3-phase 4 logical axes SD6A38 85/60 A, 45 kW 3-phase 4 logical axes SD6A38 85/60 A, 45 kW 3-phase 4 logical axes V V 6.4- |
| SD6A02 4 / 3 A, 0.75 kW 1-phase 4 logical axes SD6A04 2.3 / 1.7 A, 0.75 kW 3-phase 4 logical axes SD6A06 4.5 / 3.4 A, 1.5 kW 3-phase 4 logical axes SD6A14 10 / 6 A, 4.0 kW 3-phase 4 logical axes SD6A16 16 / 10 A, 7.5 kW 3-phase 4 logical axes SD6A24 22 / 14 A, 11 kW 3-phase 4 logical axes SD6A26 32 / 20 A, 15 kW 3-phase 4 logical axes SD6A34 44 / 30 A, 22 kW 3-phase 4 logical axes SD6A36 70 / 50 A, 37 kW 3-phase 4 logical axes SD6A38 85 / 60 A, 45 kW 3-phase 4 logical axes SD6A38 85 / 60 A, 45 kW 3-phase 4 logical axes |
| SD6A04 2.3 / 1.7 A, 0,75 kW 3-phase 4 logical axes SD6A06 4.5 / 3.4 A, 1.5 kW 3-phase 4 logical axes SD6A14 10 / 6 A, 4.0 kW 3-phase 4 logical axes SD6A16 16 / 10 A, 7.5 kW 3-phase 4 logical axes SD6A24 22 / 14 A, 11 kW 3-phase 4 logical axes SD6A26 32 / 20 A, 15 kW 3-phase 4 logical axes SD6A34 44 / 30 A, 22 kW 3-phase 4 logical axes SD6A36 70 / 50 A, 37 kW 3-phase 4 logical axes SD6A38 85 / 60 A, 45 kW 3-phase 4 logical axes Firmware Date V 6.4-A 20.12.2018 |
| SD6A06 4.5 / 3.4 A, 1.5 kW 3-phase 4 logical axes SD6A14 10 / 6 A, 4.0 kW 3-phase 4 logical axes SD6A16 16 / 10 A, 7.5 kW 3-phase 4 logical axes SD6A24 22 / 14 A, 11 kW 3-phase 4 logical axes SD6A26 32 / 20 A, 15 kW 3-phase 4 logical axes SD6A34 44 / 30 A, 22 kW 3-phase 4 logical axes SD6A36 70 / 50 A, 37 kW 3-phase 4 logical axes SD6A38 85 / 60 A, 45 kW 3-phase 4 logical axes Firmware Date V 6.4-A 20.12.2018 |
| SD6A14 10 / 6 A, 4.0 kW 3-phase 4 logical axes SD6A16 16 / 10 A, 7.5 kW 3-phase 4 logical axes SD6A24 22 / 14 A, 11 kW 3-phase 4 logical axes SD6A26 32 / 20 A, 15 kW 3-phase 4 logical axes SD6A34 44 / 30 A, 22 kW 3-phase 4 logical axes SD6A36 70 / 50 A, 37 kW 3-phase 4 logical axes SD6A38 85 / 60 A, 45 kW 3-phase 4 logical axes SD6A38 85 / 60 A, 45 kW 3-phase 4 logical axes V 6.4-A 20.12.2018 Description |
| SD6A16 16/ 104, 7.5 kW 3-phase 4 logical axes SD6A26 22/14A, 11 kW 3-phase 4 logical axes SD6A26 32/20A, 15 kW 3-phase 4 logical axes SD6A34 44/30A, 22 kW 3-phase 4 logical axes SD6A36 70/50A, 37 kW 3-phase 4 logical axes SD6A38 85/60A, 45 kW 3-phase 4 logical axes Firmware Date V 6.4-A 20.12.2018 |
| SD6A26 32 / 20 A, 15 kW 3-phase 4 logical axes SD6A36 32 / 20 A, 15 kW 3-phase 4 logical axes SD6A36 70 / 50 A, 27 kW 3-phase 4 logical axes SD6A36 70 / 50 A, 37 kW 3-phase 4 logical axes SD6A38 85 / 60 A, 45 kW 3-phase 4 logical axes Firmware Date V 6.4-A 20.12.2018 V 6.4-A |
| SD6A34 44/30 A, 22 kW 3-phase 4 logical axes SD6A36 70/50 A, 37 kW 3-phase 4 logical axes SD6A38 85/60 A, 45 kW 3-phase 4 logical axes Firmware Date V 6.4-A 20.12.2018 |
| SD6A36 70 / 50 A, 37 kW 3-phase 4 logical axes SD6A38 S5 / 60 A, 45 kW 3-phase 4 logical axes Firmware Date Description V 6.4-A 20.12.2018 V 6.4-A |
| SD6A38 85 / 60 A, 45 kW 3-phase 4 logical axes Firmware Date Description V 6.4-A 20.12.2018 V 6.4-A |
| Firmware Date Description V 6.4-A V 6.4-A V 6.4-A |
| • V 6.4-A 20.12.2018 V 6.4-A |
| |
| © V 6.5-B 09.11.2020 |
| |
| |
| |
| |
| |
| OK Cread |

W kolejnym kroku wybieramy kartę komunikacji CA6A:

| Properties Drive cont | a constant | | | | |
|-----------------------|--|--|---|--|--|
| | roller Option modules | Device control | | | |
| Communication module | | | Graphic Description | | |
| CA6A (CANopen) | | | | | |
| EC6A (EtherCAT) | | | | | |
| None | | | | | |
| PN6A (PROFINET) | | | CANOper | | |
| Terminal module | | | Graphic Description | | |
| IO6A (IO6) | | | | | |
| None | | | | | |
| RI6A (RI6) | | | | | |
| | | | | | |
| Safety module | | | Graphic Description | | |
| SE6A (Extended) | | | | | |
| ST6A (STO) | | | t <u>STO</u> | | |
| | | | | | |
| | CA6A (CANopen) EC6A (EtherCAT) None PN6A (PROFINET) ferminal module IO6A (IO6) None RI6A (RI6) XI6A (XI6) sefety module SE6A (Extended) ST6A (STO) | CA6A (CANopen) EC6A (EtherCAT) None PN6A (PROFINET) ferminal module IO6A (IO6) None RI6A (RI6) XI6A (XI6) iafety module SE6A (Extended) ST6A (STO) | CA6A (CANopen) EC6A (EtherCAT) None PN6A (PROFINET) ferminal module IO6A (IO6) None RI6A (RI6) XI6A (XI6) SE6A (Extended) SE6A (Extended) ST6A (STO) | | |





Następnie wybieramy komunikacje (rx) (tx):

| Properdes Drive conduct | ler Option modules Device contro | ol |
|---|----------------------------------|---------------------|
| Device control | Version | Graphic Description |
| CiA 402 (2) | 9 | |
| Drive Based (1) | 9 | |
| | | Drive Based |
| Received process data Rx | Version | Graphic Description |
| CANopen Rx+Tx (3) | 6 | |
| CANopen Rx+Tx (3) | 9 | |
| EtherCAT Rx (1) | 7 | |
| No transmission (0) | 4 | CANODER |
| PROFINET Rx (2) | 8 | |
| Transmitted process data Tx | Version | Graphic Description |
| EtherCAT Tx (1) | 6 | |
| A 1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 | 0 | |
| INO transmission (0) | | |

Wybieramy również aplikację Drive Based w kolejnym kroku.

| 🚏 T1 : Drive controller | 1 | | × |
|---|---|--|---------------------|
| Drive controller | Properties Application | Motor | |
| Axis 1 Axis 2 Axis 3 Axis 4 | Application CiA 402 (7) CiA 402 HiRes Motion (8) Drive Based (3) Drive Based (3) Drive Based Synchronous (6) | мотог Version 11 11 18 24 15 | Graphic Description |
| | | | |
| | | OK Cancel | |



W kolejnych krokach wybieramy aplikację do sterowania komendowego czyli Command:



Następnie przechodzimy do konfiguracji komunikacji CANopen: Ustawiamy wartości jak poniżej lub dopasowujemy do swojego sterownika.

CANopen

| A213 Fieldbus scaling | 0: Integer without poir $$ | | | | | |
|------------------------------|-----------------------------------|--|--|--|--|--|
| A82 CAN baud rate | 5: 250 kBit/s 🗸 A83 Bus address 1 | | | | | |
| A203 Guard time | 2 ms | | | | | |
| A204 Life time factor | 3 | | | | | |
| A210 Producer heartbeat time | 200 ms | | | | | |
| Controller | | | | | | |
| RxPDO | TxPDO Diagnostics SDO | | | | | |
| ↓ | | | | | | |

Następnie przechodzimy do RxPDO:



| Received process | data RxPDO | | | | | |
|---------------------------|------------|------------|---|-----------|--------|------|
| A221[0] COB-ID | 513 | o d | hannel active | | | |
| A221[1] Transmission type | 254 | | | | | |
| | Coordinate | | Name | Data type | Length | |
| A225[0] 1. mapped Paramet | er A180 | | Control byte device: 0000 0101 bin | BYTE | 1 | |
| A225[1] 2. mapped Paramet | er I210 | | Control word application: 0000 0000 0000 0000 bin | WORD | 2 | |
| A225[2] 3. mapped Paramet | er 1.340 | | Command: 4 | SINT | 1 | |
| A225[3] 4. mapped Paramet | er | | - | - | 0 | |
| A225[4] 5. mapped Paramet | er | | - | - | 0 | |
| A225[5] 6. mapped Paramet | er | | - | - | 0 | |
| | | | Resulting data length | | 4 | Byte |
| A222[0] COB-ID | 769 | 😡 🖸 | Channel active | | | |
| A222[1] Transmission type | 254 | | | | | |
| | Coordinate | | Name | Data type | Length | |
| A226[0] 1. mapped Paramet | er 1.J42 | | Position: 0,00 ° | DINT | 4 | |
| A226[1] 2. mapped Paramet | er 1.J43 | | Velocity 1: 1050 °/s | REAL | 4 | |
| A226[2] 3. mapped Paramet | er 🗌 | | | - | 0 | |
| A226[3] 4. mapped Paramet | er | | - | - | 0 | |
| A226[4] 5. mapped Paramet | er | | - | - | 0 | |
| A226[5] 6. mapped Paramet | er | | - | - | 0 | |
| | | | Resulting data length | | 8 | Byte |
| A223[0] COB-ID | 2147484672 | • c | Channel inactive | | | |
| A223[1] Transmission type | 254 | | | | | |

Kolejno TxPDO

Transmitted process data TxPDO

| A229[0] COB-ID | 385 | Channel active | | |
|----------------------------|------------|---|-----------|--------|
| A229[1] Transmission type | 254 | | | |
| A229[2] Inhibit time | 0 100 us | | | |
| A229[3] Event timer | 0 ms | | | |
| | Coordinate | Name | Data type | Length |
| A233[0] 1. mapped Paramete | er E06 | V-reference motor: <offline></offline> | REAL | 4 |
| A233[1] 2. mapped Paramete | er E200[0] | Status byte device: <offline></offline> | BYTE | 1 |
| A233[2] 3. mapped Paramete | er | • | - | 0 |
| A233[3] 4. mapped Paramete | er | • | - | 0 |
| A233[4] 5. mapped Paramete | er | • | - | 0 |
| A233[5] 6. mapped Paramete | er | | - | 0 |
| | | Resulting data length | | 5 Byte |
| A230[0] COB-ID | 2147484289 | Channel inactive | | |
| A230[1] Transmission type | 254 | | | |
| A230[2] Inhibit time | 0 100 us | | | |
| A230[3] Event timer | 0 ms | | | |
| | Coordinate | Name | Data type | Length |

Zakładka Diagnostic służy do sprawdzenia poprawności komunikacji.



| Diagnostics | | | | | | |
|---|---------------------------------|-------------------------|------------|--|--|--|
| A246 CANopen NMT-S | tate | <offine></offine> | \bigcirc | | | |
| A83 Bus address 1 | | | | | | |
| A245 CAN diagnostic | | 0000 0100 0000 0110 bin | | | | |
| Bit 0: NMT state | | | | | | |
| 🥥 Bit 1: NMT state | Opera | ational | | | | |
| 🥥 Bit 2: NMT state | | | | | | |
| Bit 3: Warning leve | 1 | | | | | |
| Bit 4: Bus-off | | | | | | |
| Bit 5: SDO channel | 1 tog | gle bit | | | | |
| Bit 6: SDO channel 1 memory utilization | | | | | | |
| Bit 7: PDO channel | Bit 7: PDO channel 1 toggle bit | | | | | |
| Bit 8: PDO channel | 1 mer | nory utilization | | | | |
| Bit 9: Red LED (Err | or) | | | | | |
| 🥥 Bit 10: Green LED (| (Run) | | | | | |
| Bit 11: PDO SYNC I | pehavi | or error | | | | |
| Bit 12: Reserved | | | | | | |
| Bit 13: Reserved | | | | | | |
| Bit 14: Reserved | | | | | | |
| Bit 15: Reserved | | | | | | |
| | | | | | | |

Zaprogramowaną aplikację możemy przetestować przed podłączeniem do właściwego sterownika HMI. W tym celu przechodzimy do zakładki Control/Stats words i zadajemy wartości sterujące obserwując statusy. Jedna z nich przedstawiona jest poniżej:

| Status display Energy supply Braking resistor | Device control: Control/status byte | | |
|---|---|--|---|
| > Motor | A 180 Control byte device 0000 0 101 bin | E200[0] Status byte device <offline></offline> | E201 Status word 2 <offline></offline> |
| Brake | Bit 0: Additional enable signal | Bit 0: Enabled | Bit 0: E79[0] Operational state |
| > Encoder | Bit 1: Confirmation | Bit 1: Fault | Bit 1: E79[1] Operational state |
| > Axis model | Bit 2: /Ouick stop | Bit 2: Ouick stop | Bit 2: E79[2] Operational state |
| > Referencing | Bit 3: Avia selection bit 0 | Bit 3: Active axis bit 0 | Bit 3: E08[0] Brake doeed |
| Jog control panel | | | |
| Drive Based device control | Bit 4: Axis selection, bit 1 | Bit 4: Active axis, bit 1 | Bit 4: PO9[0] Brake engaged |
| Drive Based application | Bit 5: Axis disable | Bit 5: Axis in E84 is active | Bit 5: 1.197 Ref value ready |
| Command operating mode | Bit 6: Unconditional brake release | Bit 6: A918 Local mode | Bit 6: 1.I188 Jog mode |
| > Data sources | Bit 7: Handshake bit | Bit 7: Handshake bit | Bit 7: 1.1805 Actual value HW-Limit switch positive |
| > Analog inputs: Scaling | A 181 Control byte 2 device 0000 0000 bin | E200[1] Status byte device <offline></offline> | Bit 8: 1.1806 Actual value HW-Limit switch negative |
| Additional functions | Bit 0: Remote maintenance | Bit 0: Switch on disabled | Bit 9: 1.186 In reference |
| Jog Motion core | Bit 1: Pestart | Bit 1: Warning | Bit 10: STO |
| > Control cascade | | O PLD. Manuag | G Bit 11: SS1 |
| > Terminals | Bit 2: Reserved | Bit 2: Message | |
| ✓ Control/status words | Bit 3: Reserved | Bit 3: A170[0] Acknowledge remote service | |
| Application: Control/status word | Bit 4: Reserved | Bit 4: A926 Limitation | Bit 13: Reserved |
| Device control: Control/status byte | Bit 5: Reserved | Bit 5: Reserved | Bit 14: Reserved |
| User: Control/status word | Bit 6: Reserved | Bit 6: Reserved | Bit 15: Reserved |
| Command: Control/status byte | Bit 7: Reserved | Bit 7: Reserved | |
| Received process data RxPDO | | | |
| Transmitted process data TxPDO | | | |
| Diagnostics | | | |
| PLL synchronization | | | |

Jeżeli wszystko działa kolejnym etapem jest przygotowanie odpowiedniego przewodu do komunikacji sieciowej oraz wgrać odpowiedni plik EDS do oprogramowania GP-ProEX 3.6 firmy Proface oraz przystąpić do twotzenia aplikacji na panel HMI. Informacje o wgraniu pliku i schemat przewodu można znaleźć pod linkiem: CANopen Addon Manual

Wybieramy nowy projekt. Wybieramy nasz model panelu. Wchodzimy w zakładkę CAN.





| She we had a concern | | | 2 100 1011 | (2:00.001.001) |
|--|----------|------------|-------------------|----------------|
| 🖄 Image Unit Window | viscreen | | [30c 1211 | (%QB.0.01.001) |
| | | | 🛛 🖉 [30c i210 | (%QW.0.01.002) |
| Logic Screens | | | 🖉 [30c i215 | (%QW.0.01.003) |
| - INIT | | | | |
| - The second sec | INIT | (Untitled) | 🥏 💋 🖉 | (%QD.0.01.004) |
| | | | 🥥 [30c i216 | (%QB.0.01.005) |
| MAIN | | | 🦳 🦃 [30c j217 | (%QB.0.01.006) |
| | MAIN | (Untitled) | | (, |
| Function Block | | | | |
| 🚱 I/O | | | | |
| | STD4S | (Untitled) | | |
| | CAN | (Untitled) | | |
| | | | | |
| | | | | |

Następnie CAN open Driver. Za pomocą Catalog manager możemy wgrać plik EDS naszego falownika. Następnie klikając na Setting możemy wejść w ustawienia. Powinno pojawić się następujące okno.

| Network configuration | and the starting strangency the starting strangence of the starting to the starting st |
|--|---|
| CANopen master driver Version: 0002.0000 | Baudrate: 250kbps Node ID: 127 |
| Image ID 🔺 Product name | Mandatory Alias Rev. Key |
| I "xDS 5000" | 0000.0005 mds5000_KP_endless |
| - The second sec | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| Add slave Delete sla | ve Copy slave |
| Flat view | |
| Image Product name | Vendor |
| HTB 1C0 DM9LP | Proface |
| CANopen Slave AGP3000 | Proface |
| "xDS 5000" | STOEBER ANTRIEBSTECHNINK GmbH & Co. / Kieselbronner Str. 12 / 75177 Pforzheim / Germany / http://www.stoeber.de / mail@stoeber.de |
| | |

Klikamy na Master configuration. Wybieramy opcje jak poniżej na zdjęciu.



| Master configuration | |
|--|--|
| CANopen master driver | Baudrate: 250kbps |
| Version: 0002.0000 | Node ID: 127 |
| Network settings Error Control Overview Advanced | Object Configuration |
| Network-wide configuration | On Error Control Event of a mandatory slave |
| Baud rate 250 kbps | Stop all nodes |
| SYNC transmission | Reset all nodes |
| Apply | Treat the slave individually |
| Global heartbeat timing (ms) 128 | Global SYNC period |
| Apply | Transmission of SYNC messages is synchronized to scan cycle |
| NMT inhibit time (1/10ms) | |
| Help | OK Cancel |

Klikając na Slave configuration wchodzimy w ustawienia dla falownika. Możemy wybrać z listy parametry do zmapowania.



| 🔊 s | lave configuration | A CONTRACTOR OF | | | | - C X | | | | | | | |
|-----|---|--|--|-----------------------------------|-------|---|--|--|--|--|--|--|--|
| | Current node *xD Mai | DS 5000" nufacturer: STOEBER ANTRIEBSTECHNIN | (GmbH _Co. | / Kieselbro | onner | Node ID: 1 Str. 12 / 75177 Pforzhein | | | | | | | |
| | Parameters Advanced Error Control Advanced Object Configuration Available objects Object filter | | | | | | | | | | | | |
| | + Index 0x2065 0x2066 0x2067 0x208A 4 | Parameter A101 Dummy-Byte A102 Dummy-Wort A103 Dummy-Doppelwort A138 IGB Motionbus Zeit | Type Unsigned8 Unsigned16 Unsigned32 Unsigned32 | Access RWW RWW RWW RO | • | Communication area Manufacturer area Profile area | | | | | | | |
| | Configured objects | Map Unmap 000 [28c8.00] E200 Device Status Byte (BYTEx [30c9.00] I201 Motion Status-Byte (BYTEx1] [30c8.00] I200 Posi-Statuswort (WORDx1) [30cb.00] I200 Posi-Statuswort (WORDx1) [30cb.00] I203 Istposition (DWORDx1) [30cb.00] I203 Istposition (DWORDx1) [30d3.00] I211 Motion Command-Byte (BYTE [30d3.00] I211 Motion Command-Byte (BYTE [30d2.00] I210 Posi-Steuenwort (WORDx1) [30d7.00] I215 v-Faktor (WORDx1) [30d5.00] I213 Zielposition (DWORDx1) [30d8.00] I216 Acc-Faktor (BYTEx1) [30d9.00] I217 Dec-Faktor (BYTEx1) | Setting Identity Device type Vendor ID Product code Restore None | | * | Ox O 		 192 ☐ Revision number | | | | | | | |
| | Help | | | | | OK Cancel | | | | | | | |

Jeżeli klikniemy na kanał możemy zmienić jego parametr komunikacji na np. cykliczny.



| O configuration | |
|--|---------------------------------|
| PDO Communication Parameter | |
| Transmission types | Resulting PDO transmission type |
| Acyclic synchronous | SYNC cycle rate |
| Cyclic synchronous | 1 |
| Asynchronous event | Event timer (ms) |
| Asynchronous event (depending on Device profile) | Inhibit time (1/10 ms) |
| Help | OK Cancel |

Kolejna zakładka konfiguracji slave

| Slave configuration | | |
|---|-----------------------------|-----------------------------------|
| Current node | | |
| "xDS 5000" | | Node ID: 1 |
| Manufacturer: STOEBER ANTRIEBS | TECHNINK GmbH _Co. / Kiesel | bronner Str. 12 / 75177 Pforzhein |
| Parameters Advanced Error Control Advanced Object | t Configuration | |
| Select Error Control Protocol | | |
| Use HeartBeat | O Use NodeGuard | |
| | | |
| Producer heartbeat time (ms) 128 | A V | |
| ID Product name | Alias | Consumer heartbeat (ms) |
| | | |
| | | |
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| | | |
| Help | | OK Cancel |
| | | |



Następnie tworzymy do zmapowanych parametrów zmienne w programie GP-ProEX, które póżniej przypiszemy do zmiennych wyświetlanych na ekranie.

| CAN open Driver (ID:#0) | | |
|-------------------------|----------------|--|
| ame Variable | IEC Address | |
| xDS 5000" @ID:1 | | |
| □ O TPDO0 | | |
| 28c e200 | (%IB.0.01.000) | |
| 30c i201 | (%IB.0.01.001) | |
| 30c i200 | (%IW.0.01.002) | |
| [30c i203] | (%ID.0.01.003) | |
| - ⊙ TPDO1 | | |
| 🗏 🛛 RPDO0 | | |
| 🤣 [20Ł a180 | (%QB.0.01.004) | |
| 30c i211 | (%QB.0.01.005) | |
| [30c i210] | (%QW.0.01.006) | |
| 30c i215 | (%QW.0.01.007) | |
| 🕀 📀 RPDO1 | | |
| 🧭 [30c i213 | (%QD.0.01.008) | |
| 30c i216 | (%QB.0.01.009) | |
| 🥙 [30c i217 | (%QB.0.01.010) | |

Zmienna A180 jest wyświetlana w postaci cyferblatu. Konfiguracja poniżej.

| 🎒 Data Display | × |
|----------------|--|
| Parts ID | Basic Display Color/Alam Operation Process Data Entry |
| Comment | Display Data Numeric Display Numeric Display Display Display Date/Time Display Date/Time Display Date/Time Display Date/Time Date/Time Display Date/Time |
| | Monitor Word Address >>Extended a180 Callow Input |
| Vo Shape | Data Type 8 Bit Bin |
| | |
| | |
| | |
| | |
| | Include in Operation Log |
| Help (H) | OK (0) Cancel |

Format wyświetlania na 8 znaków można zmienić w zakładce Display, zmieniając parametr Total Display Digts na 8.

Załączenie Enalbe w słowie A180 za pomocą przycisku wygląda nastepująco.



| 🧉 Switch/Lamp | 100 | |
|--------------------|---|---|
| Parts ID | Switch Feature Switch Common | Lamp Feature Color Label |
| Comment Comment | Switch Feature Multi-function List Bit Switch | Bit Switch Word Switch Screen Change Special Switch Selector Switch Bit Address >>Extended a180.X[0] Image Image Selector Switch Bit Address >>Extended Copy from Lamp Copy to Lamp Bit Action Bit Invert Image Image |
| | Add Add Copy and Add | Include in Operation Log |
| Help (<u>H</u>) | | OK (0) Cancel |

Przykład ekranu jest poniżej.

| a180 | 12345678 control byte. (Eng). |
|-------|--|
| 1/211 | 12040 command |
| 1/210 | 122 1 |
| 1213 | 123 45 position |
| i216 | 12345 acc ABCD RUN |
| i 217 | <mark>12345</mark> dec + · · · · · · · · |
| e200 | 12345678 status byte |
| i 201 | 12345678 motion status |
| i 200 | 1234567890123456 posi status |
| i 203 | 123.45 current position * |
| | |



Jeżeli chcemy sterować więcej niż jednym falownikiem to w ustawieniach komunikacji CAN zmieniamy parametr A83 na numer kolejnego z dodanych falowników.

Następnie przechodzimy do ustawień panelu, podobnie jak wcześniej wchodzimy w ustawienia komunikacji CAN, dodajemy następny slave, konfigurujemy jego parametry, oraz nadajemy ID zgodne z tym w DS6.

| 🕻 Netwo | ork co | onfi | guration | | | | | | | - | | × |
|-----------|-----------------------------------|--------------|---------------------------|------------|-----------|-----------------------|----------------------------|--------------------------------|-----------------|-------------|-----------|-------|
| CA Vei | Nope rsion: | en m | aster driver 0002.0000 | | | Baudrate: Node ID: | 25(12 | Okbps 7 | | Master | configur | ation |
| Image | ID | | Product name | Mandatory | Alias | Rev. | Key | 1 | | | | |
| | 1 | | "SD6" | | | 0000.23112 9 | D6_STOBER_Drive_Based_V63A | | | | | |
| | 2 | ~ | "SD6" | | | 0000.23112 | SDG | _STOBER_Drive_Ba | ased_V6 | 3A | | |
| Add s | 5 6 7 8 9 10 11 | | Delete sla | ve Co | opy slave |] | | Durandar | | Slave o | configura | ation |
| | 12 13 | | I ree view | Vender | | | _ | Catalog kev | PFHT | 3 001E | | |
| image | 14 15 16 | | DM9LP | Pro-face | | | | Product name Product number | HTB 1 FEFB | C0 DM | 9LP | |
| | 17 18 19 | | Slave AGP3000 | Pro-face | | | Vendor name Pro-face | | | | | |
| | 20 21 | | | STOEBER AN | TRIEBSTE | CHNIK GmbH & | Co | Revision number | 0000.0 | 005 | | |
| ٤. | 22 23 24 | | | | | | > | File revision Order code | 001.00 HTB 1 |)1 C0 DM | 9LP | |
| Help | 25 26 27 28 29 30 | | Hide device catal | 29 | | | - | | ОК | | C | ancel |
| | 31 | \mathbf{v} | | | | | | | | | | |

Jeżeli dokonaliśmy konfiguracji slave to pozostałe ustawienia, jak przypisywanie zmiennych do słów operacyjnych w programie GP-Pro czy konfiguracja kanału wysyłania zmiennym w falowniku(POSITool) wykonujemy analogicznie jak w początkowo opisanym falowniku.