

4.5. Group 5: ASTAT configuration

4.5.1. Description

This group of information shall be included in the design phase, and shall be known before the wiring scheme is made. The parameters will determine the function of Process interface DATX 110 and Cabin interface DATX 120(121).

4.5.1.1. Rated current

It is only allowed to use current values from the catalogue list: 25, 50, 100, 200, 355, 500, 600, 630, 850, 1000, and 1100. And 660 / 710 for low height high capacity version with parallel 330/355 Amp thyristor modules. And 1200/1260 for two parallel 600/630 A thyristor modules. And 2000 for two parallel 1000 A thyristor modules. And 2200 for two parallel 1100 A thyristor modules.

For parallel thyristor modules jumper S1 of board DAPC 100 must be in position 3-4. For single thyristor module in position 1-2.

4.5.1.2. Type of control system

From release 10_054 it is not needed to give this information.

4.5.1.3. Shared motion

The shared motion function allows the ASTAT to act as one hoist motion and one travel motion or as two hoists or two travels:

Connect a switch to DI no. 7 of the Cabin I/O DAPM 100, 101.

With the switch **open** following situation will be:

- Parameter set 1 or 2 is selected.
- Board DATX 110, DI no. 4 will finally decide with of these two sets, 1 or 2, that is used.
- Open DATX 110 DO no. 8, "Shared motion selected".
- Command which DI and AI, which should be read.
- NB! The DI is only receptive for changes when the Master switch is in zero position.

With the switch **closed** following situation will be:

- Parameter set 3 or 4 is selected.
- Board DATX 110, DI no. 4 will finally decide with of these two sets, 3 or 4 that is used.
- Close DATX 110 DO no. 8, "Shared motion selected".
- Command which DI and AI, which should be read.
- NB! The DI is only receptive for changes when the Master switch is in zero position.

Outside the system must be done (based on the DO):

- Operate contactors for the main circuit
- Brake lifter contactors must be selected as a wired "AND" of the DO Brake-lifter contactor and the DO Shared motion selected.
- Operate change over relays for the speed feedback

Comments:

- Rotor contactors can operate for both the selected and not selected motors.
- For the auxiliary hoist in Shared motion, there are no Pre limit switches included, only Stop limit switches.
- For the creation of the application software it is considered the not addressed DIs could be in any state.
- Motion no. 1 uses parameter set no. 1 as first (=normal) parameter set and no. 2 as second parameter set. Digital input no. 4 on the process I/O board DATX 110 will switch over to the second parameter set for this motion that is parameter set number 2.

- Motion no. 2 uses parameter set no. 3 as first (=normal) parameter set and no. 4 as second parameter set. Digital input no. 4 on the process I/O board DATX 110 will switch over to the second parameter set for this motion that is parameter set number 4.

Parameter setting of parameter **05.03**:

- Parameter sets number 1 and number 2 must be the same. Either 12 or 22.
- Parameter sets number 3 and number 4 must be the same. Either 12 or 22.

4.5.1.4. Type of Limit switch

During normal service the limit switch H slows down the motion in direction A (\equiv Up/right), and limit switch HH stops it. In direction B (\equiv Down/left) L slows down, and LL stops.

4.5.1.4.1. Four switches

Considers traditional limit switches HH, H, L and LL. There are settings of parameter **05.04** to either totally bypassing the limit switches or to keep using them, but suppressing the evaluation of impossible combinations of the four switches.

4.5.1.5. Shall an input be used or not?

ASTAT contains a foreseen maximum number of input signals, and has of this reason for most motions more input signals when required.

Parameters **05.05 - 05.08** (USE_PTC1 etc...) shall be set to 0 if there is no PTC connected.

Parameters **05.09 - 05.20** (USE_DI05 etc...) shall be set to 0 if there is no signal connected.

Parameters **05.21 - 05.24** (USE_ROT1 etc...) shall be set to 0 if there is no live DADT 100 connected to board DATX 130 plug -X1 etc inside DARA 1001 or DARA 1010.

4.5.1.6. Rotor feedback information

Only applicable for DARA 1001 and DARA 1010.

Set parameters **05.21 - 05.24** to 1 if a motor's rotor is connected to it, and it is desired to monitor the rotor.

In case the speed feedback is made with tachometer or pulse encoder, a rotor is supervised in case the corresponding parameter is set to 1. Each time the motion is started, the "next" rotor is selected for supervision.

Example: **05.21 = 1, 05.22 = 0, 05.23 = 1, 05.24 = 0**. At first start rotor of motor 1 is supervised, at second start rotor of motor 3 is supervised, at third start rotor of motor 1 is supervised In case the pointed out rotor fails, the motion continues.

In case the feedback is the rotor frequency, parameters **05.21 - 05.24** only the same rotor as used for the speed feedback can be used for supervision. The other must be off. In case the pointed out rotor fails, the motion stops.

Example: **05.25 = 2. 05.21** must be 0, **05.22** can be 0 or 1, **05.23** must be 0, **05.24** must be 0.

Set parameter **05.25** to define which of the motors that is active as speed feedback for Rotor feedback. 1 for first input to DATX 130, 2 for second, 3 for third and 4 for fourth input to DATX 130. Value has no importance if other speed feedback is used.

4.5.1.7. Thermistor action

PTC inputs PTC3 and PTC4 can be used for trip (normal setting) or warning while PTC1 and PTC2 are only for trip.

With parameter **05.26 = 0**, a high resistance value for PTC3 or PTC4 only gives a flashing indication. With parameter **05.26 = 1**, a high resistance value for PTC3 or PTC4 gives a trip (same result as for PTC1 or PTC2).

4.5.1.8. Different parameter sets

It is only allowed to change parameter sets under the conditions given by parameter **01.03**, MACROMODE. Basically there is a selection between two parameter sets with DI no.4 of the process I/O, but it can be extended to four parameter sets with a parameter **05.27** (STA2_PA2).

05.27 = 0 No restriction			
DI no.3 = 0	DI no.3 = 1	DI no.4 = 0	DI no.4 = 1
Operator station no. 1 active	Operator station no. 2 active	Parameter set no. 1 used	Parameter set no. 2 used

05.27 = 1 05.27 = 1 is not possible for Shared motion. 05.27 = 1 is not possible for duty with master switch connected direct to DARA, i. e. 02.01 = 5 .			
DI no.3 = 0	DI no.3 = 0	DI no.3 = 1	DI no.3 = 1
DI no.4 = 0	DI no.4 = 1	DI no.4 = 0	DI no.4 = 1
Parameter set no. 1 used	Parameter set no. 2 used	Parameter set no. 3 used	Parameter set no. 4 used

Process I/O digital input no.3 can be used in two ways:

- 1) To select between operator stations
- 2) To make the selection between parameter sets 1 or 2 (Low sets family) or parameter sets 3 or 4 (High sets family)-selection within the family is done by Process I/O digital input no.4.

With **05.27 = 0**, a high value (=110 V) on DI no.3 on process I/O board DATX 110 will use DI no.3 to select between operator station number two out of number one and number two.

With **05.27 = 1**, a low value (=0 V) on DI no.3 on process I/O board DATX 110 will use parameter sets 1 and 2. The selection between Sets 1 and 2 is made with DI no.4.

With **05.27 = 1**, a high value (=110 V) on DI no.3 on process I/O board DATX 110 will use parameter sets 3 and 4. The selection between Sets 3 and 4 is made with DI no.4.

4.5.1.9. Prevention of motion at Crane On

Sometimes a hydraulic pump for emergency brakes is started at the same time as the crane motions are powered. It can take a few seconds to build up the pressure and lift the brake shoes. During that period the motors must not be used. It is possible to prevent motion during that time.

Parameter **05.33** is used. The normal setting 650 ms covers all configurations with only ASTAT itself concerned.

4.5.1.10. Fast stop

It can be useful to stop a motion in a controlled way by electrical braking independent of the position of the master switch. Example: In an operation with two hoists one hoist stops of any reason. Of safety reasons the other "healthy" hoists should stop at the same time, and the driver can after that deselect the faulty hoist and restart with only the "healthy".

The activation signal to stop is given to DI 17, same as used for parallel bridge supervision. Of this reason the Fast stop function is not available for parallel bridges

Parameter **05.36** is used to set up Fast stop function.

4.5.2. Parameters

Description	MIN	MAX	NORM	SET	IDENTITY	English text
Rated current of the Thyristor module. In case of Parallel bridge combination, I _e is the sum of the two units together. Unit: A.	25	2200	25	D	0501	IN_ASTAT
Parameter to set whether the configuration shall be 11 for "Hoist without Shared Motion", 12 for "Hoist with Shared Motion", 21 for "Travel without Shared Motion", or 22 for "Travel with Shared Motion".	11, 12, 21, 22	11, 12, 21, 22	11	D	0503	DRI_TYPE

Description	MIN	MAX	NORM	SET	IDENTITY	English text
Type of limit switch for movements. 1: Classic based on four switches. 0: Override limit switches, block fault detection (only for rescue purpose) 3: Classic based on four switches, block fault detection	0	3	1	D	0504	L_SW_TYP
1 if a PTC is connected, else 0.	0	1	0	D	0505	USE_PTC1
1 if a PTC is connected, else 0.	0	1	0	D	0506	USE_PTC2
1 if a PTC is connected, else 0.	0	1	0	D	0507	USE_PTC3
1 if a PTC is connected, else 0.	0	1	0	D	0508	USE_PTC4
DATX 110 DI 5. Set to 1 if used, else to 0. Pre limit switch A	0	1	1	D	0509	USE_DI05
DATX 110 DI 6. Set to 1 if used, else to 0. Pre limit switch B	0	1	1	D	0510	USE_DI06
DATX 110 DI 7. Set to 1 if used, else to 0. Stop limit switch A	0	1	1	D	0511	USE_DI07
DATX 110 DI 8. Set to 1 if used, else to 0. Stop limit switch B	0	1	1	D	0512	USE_DI08
DATX 110 DI 9. Set to 1 if used, else to 0. Hoist + remote I/O: T- or TM-relay 1 Hoist without remote I/O: T- or TM-relay Travel + remote I/O: T- or TM-relay 1 Travel without remote I/O: T- or TM-relay 1	0	1	1	D	0513	USE_DI09
DATX 110 DI 10. Set to 1 if used, else to 0. Hoist + remote I/O: Brake lifter 1 Hoist without remote I/O: Brake lifter Travel + remote I/O: Brake lifter 1 Travel without remote I/O: Brake lifter	0	1	1	D	0514	USE_DI10
DATX 110 DI 11. Set to 1 if used, else to 0. Hoist + remote I/O: T- or TM-relay 2 Hoist without remote I/O: Master switch direction A Travel + remote I/O: T- or TM-relay 2 Travel without remote I/O: Master switch dir. A	0	1	1	D	0515	USE_DI11
DATX 110 DI 12. Set to 1 if used, else to 0. Hoist + remote I/O: Brake lifter 2 Hoist without remote I/O: Master switch direction B Travel + remote I/O: Brake lifter 2 Travel without remote I/O: Master switch dir. B	0	1	1	D	0516	USE_DI12
DATX 110 DI 13. Set to 1 if used, else to 0. Hoist + remote I/O: Overload contact Hoist without remote I/O: Overload, contact Travel + remote I/O: T- or TM-relay 3 Travel without remote I/O: T- or TM-relay 2	0	1	1	D	0517	USE_DI13
DATX 110 DI 14. Set to 1 if used, else to 0. Hoist + remote I/O: Brake lifter 3 Hoist without remote I/O: Master switch, step 2 Travel + remote I/O: Brake lifter 3 Travel without remote I/O: Master switch, step 2.	0	1	1	D	0518	USE_DI14
DATX 110 DI 15. Set to 1 if used, else to 0. <u>Set to 2 if used to change between parameter set 1 and 2 in installations without remote I/O.</u> Hoist + remote I/O: Overspeed switch Hoist without remote I/O: Overspeed switch Travel + remote I/O: T- or TM-relay 4 Travel without remote I/O: -	0	2	1	D	0519	USE_DI15
DATX 110 DI 16. Set to 1 if used, 0 if not used. <u>Set to 2 if used as external synchronisation of electrical shaft of Follower in a M-F combination.</u> Hoist + remote I/O: Brake lifter 4 Hoist without remote I/O: Master switch, step 3 Travel + remote I/O: Brake lifter 4 Travel without remote I/O: Master switch, step 3	0	2	1	D	0520	USE_DI16