

PowerXL™

DA1 Variable Frequency Drives

Access to Parameter Level 2 and 3 - Parameter Lock - RESET



Level 2	1 – Fundamental – No previous experience necessary 2 – Basic – Basic knowledge recommended 3 – Advanced – Reasonable knowledge required 4 – Expert – Good experience recommended
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Danger! - Dangerous electrical voltage!

- Disconnect the power supply of the device.
- Ensure that devices cannot be accidentally restarted.
- Verify isolation from the supply.
- Cover or enclose any adjacent live components.
- Follow the engineering instructions (AWA/IL) for the device concerned.
- Only suitably qualified personnel in accordance with EN 50110-1/-2 (VDE 0105 Part 100) may work on this device/system.
- Before installation and before touching the device ensure that you are free of electrostatic charge.
- The functional earth (FE, PES) must be connected to the protective earth (PE) or the potential equalization. The system installer is responsible for implementing this connection.
- Connecting cables and signal lines should be installed so that inductive or capacitive interference does not impair the automatic control functions.
- Suitable safety hardware and software measures should be implemented for the I/O interface so that an open circuit on the signal side does not result in undefined states.
- Deviations of the mains voltage from the rated value must not exceed the tolerance limits given in the specification, otherwise this may cause malfunction and/or dangerous operation.
- Emergency stop devices complying with IEC/EN 60204-1 must be effective in all operating modes. Unlatching of the emergency-stop devices must not cause a restart.
- Devices that are designed for mounting in housings or control cabinets must only be operated and controlled after they have been properly installed and with the housing closed.
- Wherever faults may cause injury or material damage, external measures must be implemented to ensure a safe operating state in the event of a fault or malfunction (e.g. by means of separate limit switches, mechanical interlocks etc.).
- Frequency inverters may have hot surfaces during and immediately after operation.
- Removal of the required covers, improper installation or incorrect operation of motor or frequency inverter may destroy the device and may lead to serious injury or damage.
- The applicable national safety regulations and accident prevention recommendations must be applied to all work carried on live frequency inverters.
- The electrical installation must be carried out in accordance with the relevant electrical regulations (e. g. with regard to cable cross sections, fuses, PE).
- Transport, installation, commissioning and maintenance work must be carried out only by qualified personnel (IEC 60364, HD 384 and national occupational safety regulations).
- Installations containing frequency inverters must be provided with additional monitoring and protective devices in accordance with the applicable safety regulations. Modifications to the frequency inverters using the operating software are permitted.
- All covers and doors must be kept closed during operation.
- To reduce the hazards for people or equipment, the user must include in the machine design measures that restrict the consequences of a malfunction or failure of the frequency inverter (increased motor speed or sudden standstill of motor). These measures include:
 - Other independent devices for monitoring safety related variables (speed, travel, end positions etc.).
 - Electrical or non-electrical system-wide measures (electrical or mechanical interlocks).
 - Never touch live parts or cable connections of the frequency inverter after it has been disconnected from the power supply. Due to the charge in the capacitors, these parts may still be alive after disconnection. Consider appropriate warning signs.

Disclaimer

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General

By default, variable frequency drives of the series **PowerXL™ DA1** are configured in a way, that they are applicable for a plurality of applications without any change. In addition it is possible to carry out application dependent settings by changing parameter values.

The parameters are divided into 10 groups (P0 ... P9). There are three different access levels:

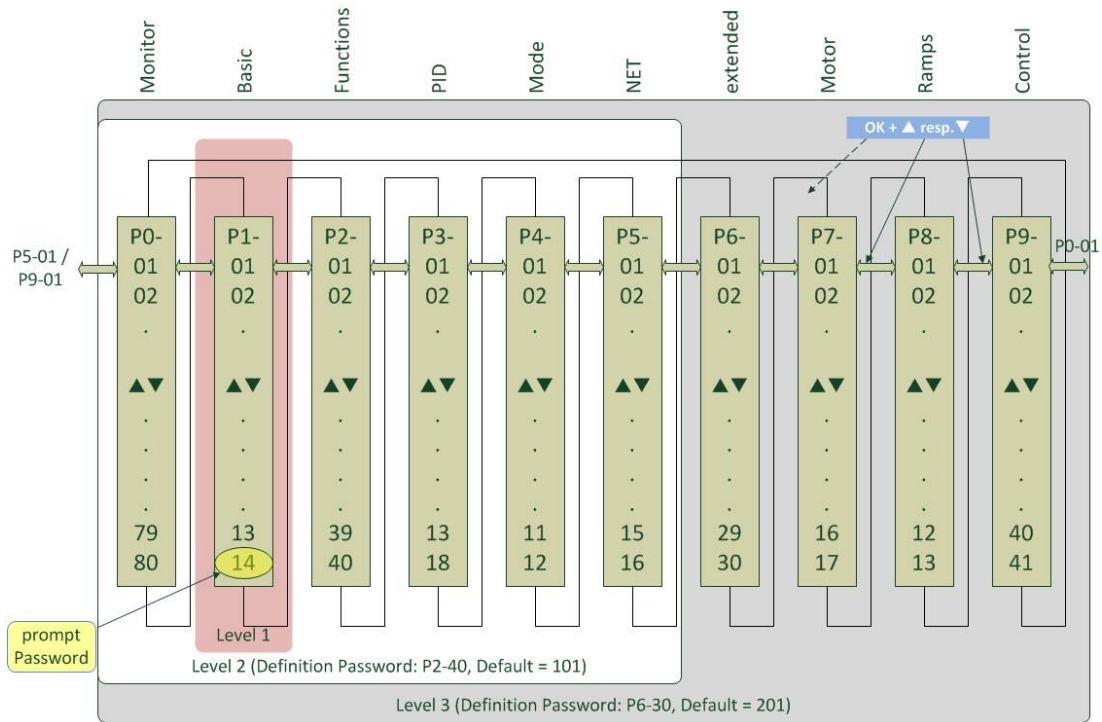
- Level 1: “Basic” for the most common parameters (= group P1)
- Level 2: “extended” for further parameters and display values (groups P0 ... P5)
- Level 3: “advanced” for all parameters and display values (= groups P0 ... P9)

This Application Note describes:

- the access to level 2 and level 3
- how to mask out parameters inside the menu
- the possibility, to prevent a change of parameter values
- how to restore the factory settings (default)

Level 2 and 3 (Menu + Monitor)

By default only the Basic-Menu (Level 1) is accessible. It contains those parameters, which are used most. The menus “extended” (Level 2) and “advanced” (Level 3) are not visible at a first glance. Access is possible via parameter „Password“ (P1-14).



Password (P1-14)

Entering the password enables the access to the parameters and display values of “Level 2” and “Level 3”. The prompted value must be equal to

- the value of P2-40 to get access to level 2
- the value of P6-30 to get access to level 3

PNU	Parameter	Name	Range	Default
320.0	P1-14	Password	0...9999	101 resp. 201

Password Level2 (P2-40)

This parameter defines the password to get access to level 2. The value of P2-40 has to be prompted in P1-14 (see below).

PNU	Parameter	Name	Range	Default
320.1	P2-40	Password Level2	0...9999	101

Access to level 2

- Press button **OK** for 2 s, to access the parameter level
- The display shows the parameter, which was used at last.
- Select parameter P1-14 with ▲ and ▼
- Press **OK** to change value with ▲ and ▼ to the „Password Level 2“ set with P2-40. (Default: 101)

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- Press **OK** to acknowledge
- Now the extended parameter set (parameters and display values of P0 ... P5) are available.

Quit level 2

- Set P1-14 to a value, which is different from the „Password Level2“ set with P37 and also from the “Password Level3” (P6-30).
- Press **OK** to acknowledge
- Only the parameters of group P1 are accessible now.

Change „Password Level2“

- Select P2-40 (Level 2 or Level 3 has to be accessible)
- Press **OK** to change value with ▲ and ▼
- Press **OK** to acknowledge
- When accessing level 2 next time, the new „Password Level2“ has to be prompted at P1-14.

Password Level3 (P6-30)

This parameter defines the password to get access to level 3. The value of P6-30 has to be prompted in P1-14 (see below).

PNU	Parameter	Name	Range	Default
320.2	P6-30	Password Level3	0...9999	201

Access to level 3

- Press button **OK** for 2 s, to access the parameter level
- The display shows the parameter, which was used at last.
- Select parameter P1-14 with ▲ and ▼
- Press **OK** to change value with ▲ and ▼ to the „Password Level 3“ set with P6-30. (Default: 201)
- Press **OK** to acknowledge
- Now the extended parameter set (parameters and display values of P0 ... P9) are available.

Quit level 3

- Set P1-14 to a value, which is different from the „Password Level2“ set with P37 and also from the “Password Level3” (P6-30).
- Press **OK** to acknowledge
- Only the parameters of group P1 are accessible now.

Change „Password Level3“

- Select P6-30 (Level 2 or Level 3 has to be accessible)
- Press **OK** to change value with ▲ and ▼
- Press **OK** to acknowledge
- When accessing level 3 next time, the new „Password Level3“ has to be prompted at P1-14.

Masking Parameters

By default all parameters and display values are visible, once level 3 is accessed. The user has the possibility to mask out single parameters, which are not visible inside the menu then. He can create his own menu with the parameters, which are relevant for his application.

The masking can only be done with the parameter software DrivesConnect and NOT by using the keypad of the device.

Procedure

- Remove the respective hook in the column “Visible” in the parameter software DrivesConnect.
- Transfer parameter set to the device
- The deselected parameter is not visible inside the menu of the device any longer. In the example below P3-03 follows P3-01, because P3-02 is masked out.
- In case a parameter set is copied to another device, the respective parameter remains deselected.
- If the parameter needs to be visible again, the respective hook has to be set by using the parameter software DrivesConnect. The parameter set needs to be transferred to the device afterwards.

Example DrivesConnect:

not visible inside the menu

PNU	Description	Value	Range	Default	Visible
P3-01	PID Proportional Gain	1.0	0.1 ... 30.0	1.0	<input checked="" type="checkbox"/>
P3-02	PID Integral Time Constant	1.0 s	0.0 ... 30.0 s	1.0 s	<input type="checkbox"/>
P3-03	PID Differential Time Constant	0.00 s	0.00 ... 1.00 s	0.00 s	<input checked="" type="checkbox"/>

Parameter Lock

Variable frequency drives of the series DA1 offer the possibility to protect parameters from being changed.

Parameter Lock (P2-39)

To protect parameters from being changed, P2-39 has to be set to „1“. To prevent, that any user can unlock the parameters, the access to level 2 and to level 3 should also be locked (see above: “Quit level 2” and “Quit level 3”).

The parameter lock causes:

- that all parameters, except P1-14 (Password) and P2-39 (Parameter Lock), are protected against changes.
- that all parameters can be selected and their actual values are visible.
- that during an attempt of a change, this will not be accepted. In this case „L“ is shown on the left hand side of the display (= locked).

PNU	Parameter	Name	Range	Default
625.0	P2-39	Parameter Lock	0 = parameters not locked 1 = parameters locked	0 = not locked

Lock parameters

- Release extended menu with P1-14 (see above: „Access to level 2“ or “Access to level 3”).
- Select P2-39 and set it to „1“.
- Possibly change P2-40 (Password Level 2) and P6-30 (Password level 3), that access to the extended menu cannot be achieved by using the default (known) password (see above: “Change Password Level 2” and “Change Password Level 3”).
- Quit extended menu and lock access (see above: „Quit level 2“ and “Quit level 3”).

Unlock parameters

- Release extended menu with P1-14 (see above: „Access to level 2“).
- Select P2-39 and set it to „0“.
- The parameters are now unlocked.

RESET device

In some situations it can make sense to restore parameters to the original settings. This is done via keypad and can only be achieved when the drive is disabled (no START signal).

In default the factory settings are restored. It is also possible to restore an application specific parameter set on RESET. P6-29 determines which parameter set will be restored.

Performing a RESET

- Press ▲ and ▼ on the keypad at the same time and hold them.
- Press STOP for about 2 s in addition.
- The display shows
 - „P-dEF“ (Parameter default) in case factory settings are restored
 - “U-dEF” (user defined) in case an application specific parameter set is restored.
- Release buttons.
- Acknowledge by pressing STOP.

Save Parameters (P6-29)

P6-29 determines which parameter set will be restored.

Possible settings:

- 0 = deactivated
- 1 = The actual parameter values are stored and will be restored on next RESET (display: „USr-PS“).
- 2 = The application specific parameter set, stored with P6-29, will be reset to factory default (display „USr-cL“)

PNU	Parameter	Name	Range	Default
977.0	P6-29	Save Parameters	0 = deactivated 1 = actual parameter set 2 = factory settings	0