



Technical Info | Programming Note

Analogue setpoint settings

Series 6

Document	ti_dr_pn-analogue-setpoint-settings-00010_en
Index	00010
Language	EN
Version	00

Imprint

KEB Automation KG
Suedstraße 38, D-32683 Barntrup
Germany
Tel: +49 5263 401-0 • Fax: +49 5263 401-116
E-Mail: info@keb.de • URL: <https://www.keb-automation.com>

ti_dr_pn-analogue-setpoint-settings-00010_en
Version 00 • Edition 21/07/2025

Table of Contents

1 Preface 4

2 General 5

3 Parameter description 6

 3.1 Analogue setpoint specification..... 6

 3.2 Setpoint hysteresis..... 7

 3.3 Function example 7

 3.4 Speed blanking window 8

1 Preface

The Programming Notes extend or supplement the description of individual functions or parameters in the programming manuals. They are only valid with the respective programming manual. Some of the described functions are very special and exclusively intended for certain applications. Persons who are not familiar with these special functions should not change the described parameters.

The use of our devices in the target products is beyond of our control and therefore exclusively the responsibility of the machine manufacturer, system integrator or customer.

This document is not legally part of the certified device documentation. The functions described in the current KEB documentation must always be given priority. The enclosed documents correspond to conditions valid at printing. Misprint, mistakes and technical changes reserved.

2 General

Function

This Technical Information extends the description of individual functions in programming manuals.

Validity

Series	COMBIVERT F6 / S6
Hardware	Control board COMPACT
Software	Version 2.11.2

This Technical Information is only valid in conjunction with the relevant programming manual.

Description of the

This document supports the conversion of applications realised with F5 to device series 6.

3 Parameter description

The following chapters describe the enhancements to software version 2.11.

3.1 Analogue setpoint specification

The target speed can be specified in the same way by including the limits. The input and reference value are defined in parameter [vl15 analogue set speed configuration](#).

vl15	analogue set speed configuration			0x230F
Bit	Function	Value	Plain text	Remark
0	activate	0	analogue ref setting off	In vl speed, this parameter can be used to redirect from vl20 / vl21 to analogue pre-set.
		1	analogue ref setting on	
1..4	calc source	0	Ref	The signed value of ru48 analogue REF display determines the analogue setpoint value.
		2	Ref 0 limited	The signed value of ru48 analogue REF display determines the analogue setpoint value.
		4	absolute value Ref	The signed value of ru48 analogue REF display determines the analogue setpoint value.
		10	Aux	The signed value of ru49 analogue AUX display determines the analogue setpoint.
		12	Aux 0 limited	The value of ru49 analogue AUX display, which is limited to zero, determines the analogue setpoint.
		14	absolute value Aux	The absolute value of ru49 analogue AUX display determines the analogue setpoint.
5..8	reference	0	0 to velocity max amount	The reference value for the analogue setpoint is vl velocity max amount (vl05 vl or vl07).
		32	velocity min to velocity max amount	An analogue value of zero corresponds to vl velocity min amount (vl04 or vl06), 100% analogue value corresponds to velocity max amount (vl05 vl or vl07).
		64	0 to max motor speed (0x6080)	The reference value for the analogue setpoint is 0x6080 max motor speed.
9..11	velocity min / max choice	0	use forward and reverse limits	For positive analogue values, the reference values are vl05 and vl04. If the analogue value is negative, the reference values vl05 and vl06 (vl04 and vl06 are only effective for the velocity min to velocity max amount setting. With the setting 0 to max motor speed, these bits have no influence).
		512	use only forward limits	The reference value for the analogue setpoint is always vl05 regardless of the sign of the analogue value and, if applicable, vl04.

The input for the calculation can be the value of REF or the AUX.

This value can be taken directly signed, as an absolute value or limited to 0.

3.2 Setpoint hysteresis

Normally, the "zero point hysteresis" from the AN parameters is used to suppress small offsets and interference around the zero point.

If the speed setpoint is to be specified with a unipolar voltage, this cannot be used. If, for example, the speed is specified with a voltage of 0...10V, the hysteresis should act around the speed zero point and not around the analogue value equal to zero.

Parameter [vl16 analogue set speed hysteresis](#) suppresses the speed range around zero.

Index	Id text	Name	Function
0x2310	vl16	analogue set speed hysteresis	If the analogue target value is less than half the hysteresis value, "analogue target velocity" is set to zero. If the speed is zero, it remains at this value until the pre-set exceeds the hysteresis value.

3.3 Function example

The following calculation depends on the reference ([max velocity](#) or [min / max velocity](#) or [max motor speed](#)) and the direction of rotation.

Example:

AUX has been programmed so that 0...10V at AN1 input causes 0...200% AUX.

"calc source" = 10: Aux

"reference" is 0: 0 to velocity max amount

"velocity min / max choice" is "use only forward limits". This means that only the speed limits for clockwise rotation are considered for the calculation.

AN1 = 0V => AUX = 0% => analogue setpoint speed = 0 revolutions.

AN1 = 2.5V => AUX = 50% => analogue setpoint speed = $0.5 \cdot \text{vl05 vl velocity max amount}$.

AN1 = 7.5V => AUX = 150% => analogue setpoint speed = $1.5 \cdot \text{vl05 vl velocity max amount}$.

The speed limitation by [vl04...vl07](#) remains effective. The speed setpoint cannot leave the range from [min velocity](#) to [max velocity](#). This means that the voltage range above 5V has no effect on the speed setpoint.

The resulting analogue speed, which is not yet limited with [vl04...vl07](#), is displayed in [vl23 analogue target velocity](#).

Index	Id text	Name	Function
0x2317	vl23	analogue target velocity	Display of the analogue preset target speed Resolution: 1/8192 rpm = 0.000122 rpm

The maximum motor speed is displayed in the pr parameters.

Index	Id text	Name	Function
0x6080	Profiles	max motor speed	Displays the maximum motor speed (resolution 1 rpm).

3.4 Speed blanking window

This function is only active in the "Operation enabled" status and in "velocity mode". The function is not active during "Fault Reaction active".

The "Blanking Window" can be used to blank out setpoint ranges if continuous operation in the selected speed range could cause resonances.

This means that the "vl velocity setpoints" are faded out at the ramp generator input. The input value is always set to the upper or lower limit of a window, depending on the direction from which the setpoint comes before the ramp generator.

The value of the ramp generator output has no influence on the selection of the upper or lower limit.

The ramp generator output runs through the blanking windows according to the set ramp.

The window limits must be entered with a sign.

For negative values, the larger value must be entered as the lower limit.

The first blanking window is parameterised with vl30, the second window with vl31.

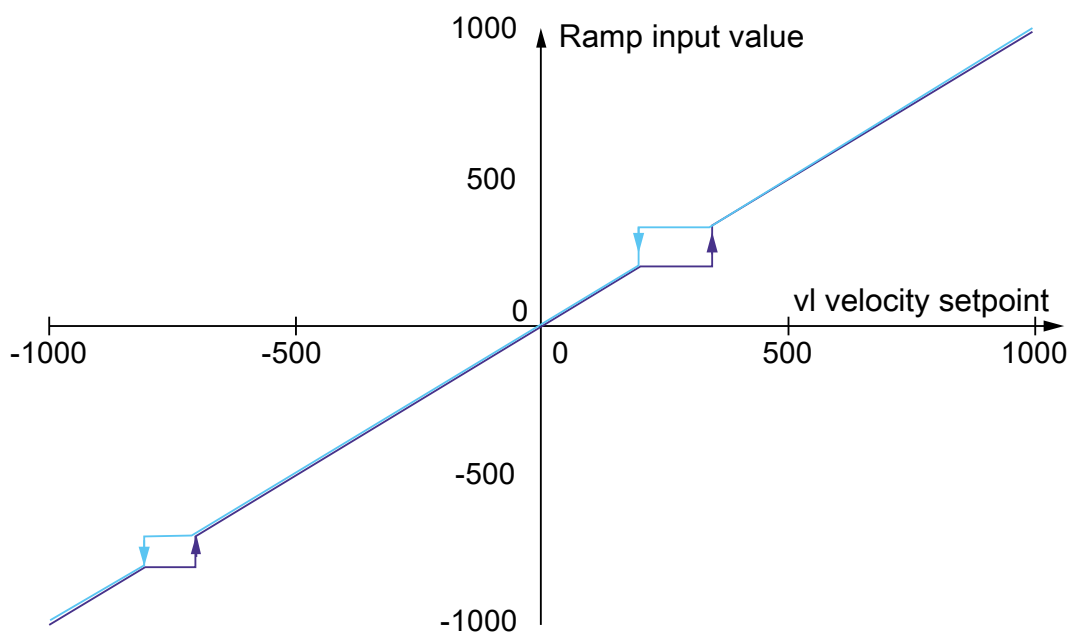


Fig. 1: Blanking window

NOTICE! In ru84 and ru05, the setpoint is displayed after passing through the blanking windows.

With analogue specification, the setpoint value always fluctuates slightly. This means that it is random which direction the setpoint is coming from.

If the window is moved or subsequently activated, it is random which of the two limits is used.



Automation with Drive

www.keb-automation.com

KEB Automation KG • Suedstraße 38 • D-32683 Barntrup • Tel: +49 5263 401-0 • E-Mail: info@keb.de