Pre-LCI to LCI Xenon AHL Conversion: Resetting and Coding ALC Modules

Adaptive Light Control modules, also known as Stepper Motor Controllers (SMC), are coded to operate specifically for the vehicle and side they are installed in. Thus, installing used ALC modules could result in directional aiming in the opposite direction of steering travel than is expected. Recoding them into their new position first requires that they be reset; otherwise, recoding them may have no effect.

The procedures described herein were conducted with NCS Expert Tool version 4.0.1 running under Windows 7 x64. Vehicle was a 2008 335i Sport Sedan AT with FRM2 module standard, firmware version FRM2_E89.C09. The LSMC and RSMC modules coded had firmware version SMCDS_LI.CO7 and SMCDS_RE.CO7 respectively.

Resetting ALC (SMC) Modules

1. Launch NCS Expert Tool, and from the menu bar choose File -> Load Profile menu...

🕬 No pro	ofile loaded - NCS	S-Expertentool	
File V	View Help		
Loa	ad profile		
Edi	dit profile		
Sav	ave profile	CHASSIS:	Nrci-No.:
Sav	ive profile to	FG	
Exit	tit	GM	
		SA	
		VN	

...select the "Expertmode Profile" or "ExpertmodusExpertmodus (Werkseinstellung)" (depending on what "expert" profiles you have available or installed), then click on **OK**.

Choose profile	×
Default profile CAR&KEY MEMORY Expertenmodus (OFFEN) Expertenmodus (Werkseinstellung) Fisterprofile NCS Dummy profile	
OK Cancel	

These "expert" profiles should <u>not</u> have the "FSW-/PSW-Manipulate with FSW_PSW.MAN" option enabled; if necessary, edit the profile to disable this option to prevent errors from occurring during the reset procedures (save the profile under a unique name).



2. Click on the FG/ZCS/FA button (or press [F1])...

🙀 Expertenmodus (Werkseinstellung) - NCS-E	xpertentool				
<u>File View H</u> elp					
	CHASSIS:			Nrcl-No.:	
	FG				
	FA				
F1	F2	F3	F4	F5	F6
		1.			
FG/ZCS/FA	CHASSIS	Choose ECU			
Ready					CAP NUM SCRL

...then the **ZCS/FA f. ECU** button ([F3]).

🕬 Expertenmodus (Werkseinstellung) - NCS-E	xpertentool				
File View Help					
	CHASSIS:			Nrcl-No.:	
	FG				
	FA				
F1	F2	F3	F4	F5	F6
Enter ZCS	Enter V0/FA	ZCS/FA f. ECU		Open file	Back
Ready					CAP NUM SCRL

3. Select the "E89" chassis, click on OK...

Choose CH/	ASSIS	×
E53 E60 E65 E70		•
E83 E85 E89 K1X		
K24 KH2 M12		н
R50 R56 RR1		~
	OK Cancel	

...select "CAS", "FRM", or "NFRM" ECU (it doesn't matter which), then **OK**.

ОК	Cancel				
2S-Expertentool					
	OK	OK Cancel	OK Cancel	OK Cancel	OK Cancel

This preloads the VIN into NCS Expert Tool so it won't need to be manually entered for follow-on operations. NCS Expert is now ready to process ECUs.

4. Click on the **Back** button ([F6])...

Expertenmodus (Werkseinstellung) - NCS-Expertentool								
File View Help								
	CHASSIS:	E90 (E89)		Nrcl-No.:	017605ii			
	FG	an the same of the state of the same of						
	FA	E90_#1207&KASW%0300*VB73\$1CA\$20	5\$249\$2AB\$2VB\$2XA\$3					
F1	F2	F3	F4	F5	F6			
Enter ZCS	Enter V0/FA	ZCS/FA f. ECU		Open file	Back	\supset		
Ready					CAP N			

...then Process ECU button ([F3]).

聯 Expertenmodus (Werkseinstellung) - NCS-E	xpertentool					x
File View Help						
	CHASSIS:	E90 (E89)		Nrcl-No.:	017605ii	
	FG	ይማኛው ሐምር አምር መስ ት				
	FA	E90_#1207&KASW%0300*VB73\$1CA\$	205\$249\$2AB\$2VB\$2XA\$3			
	Get coded:					
	KOMBI,TCUM,2MULF,DWAS,	DWAI,AMPT,IHK,NFRM,DSC,LSMC,RSMI	C,EKP,2URAD,2JBBF,62BMO,RLS,FZD,ABG,F	AS,EGS,CAS		
	JOBNAME = SG_CODIEREN					
F1	F2	F3	F4	F5	F6	
FG/ZCS/FA	CHASSIS	Process Car	Process ECU			
Ready					CAP NUM SC	CRL:

5. Select the Stepper Motor Control module that needs to be reset (either "LSMC" or "RSMC") from the ECU list, then **OK**.

DSC DWAI DWAS EGS EKP FAS FZD IHK KOMBI LSMC NFRM RLS RSMC TCUM					
	ОК	Cancel			
vertenmodus (Werkseinstellung View Help) - NCS-Expertentool				
	CHASSIS: FG FA	E90 (E89) √ጆታላጅ፣ ላንድንድንድን ሽ E90_#1207&KASW X03001/B73\$1[C4	205\$249\$2AB\$2VB\$2XA\$3	Nrcl-No.:	017605ii
	Get coded:		—— ECU selec	cted	
	Get coded: LSMC JOBNAME = SG_CODIERE SMCDS_LI.C04, A_SMCKW	N 7LIPO, FRM_87.PPC	—— ECU selec	sted version	
	Get coded: LSMC JOBNAME = SG_CODIERE SMCDS_LI.C04, A_SMCKy	N /LIPD, FRM_87.PR(—— ECU selec	ted version	
	Get coded: LSMC JOBNAME = SG_CODIERE SMCDS_LIC04, A_SMCKX	N ZLIPO, FRM_87.PRC	ECU selec	version	F6

The name of the ECU and its firmware version is read from the vehicle and displayed.

6. Verify the ''JOBNAME" is "SG_CODIEREN" ("Write Coding")...

매월 Expertenmodus (W	Expertenmodus (Werkseinstellung) - NCS-Expertentool							
File View Help								
		CHASSIS:	E90 (E89)		Nrcl-No.:	017605ii		
		FG	V.9.6 737349 7598528					
		FA	E90_#1207&KASW%0300*VB73\$1CA\$2	05\$249\$2AB\$2VB\$2XA\$3				
		Get coded:						
		LSMC						
		JOBNAME = SG_CODIEREN	>					
		SMCDS_LI.CO4, A_SMCKWL.I	PO, FRM_87.PRG					
F	1	F2	F3	F4	F5	F6		
Change S	G/SGET	Change Job	Execute Job	Reading ECU	Basic functions	Back		
кеаду						CAP NUM SCRL		

...click on Execute Job ([F3])...

Expertenmodus (Werkseinstellung) - NCS-Expertentool									
File View Help									
	CHASSIS:	IASSIS: E90 (E89) Nrci-No.: 017605ii							
	FG	9.9.8.7.7.669.69.8020 							
	FA	E90_#1207&KASW%0300*VB73\$1CA\$20	05\$249\$2AB\$2VB\$2XA\$3						
	Get coded:								
	LSMC								
	JOBNAME = SG_CODIEREN								
	SMCDS_LI.CO4, A_SMCKWL	IPO, FRM_87.PRG							
F1	F2	F3	F4	F5	F6				
Change SG/SGET	Change Job	Execute Job	Reading ECU	Basic functions	Back				
Ready					CAP NUM SCRL ,,;				

... and wait for the status to go from "Coding active" to "Coding ended".

🖗 Expertenmodus (Werkseinste	llung) - NCS-Expertentool					
File View Help						
	CHASSIS-	E90 (E89)				
	EC.	1.4.1.1 (1.9.1.1.4.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.				
	Få	5 1947, 2245 Card C	D 7041 C 4 400 A0 10404 D 40			
	FA	E 90_#12076KAS W 403001	B73\$1LA\$205\$243\$2A83			
					Nrcl-No.:	017605ii
			√87354° , and a m ,			
			E90_#1207&KASW%0300*VB73\$1CA\$2	05\$249\$2AB\$2VB\$2XA\$3		
	Get coded:					
	LSMC					
	Coding active					
	JOBNAME = SG	Get coded:				
	SMCDS_U C	BEMC				
		Coding ended				
		JOBNAME = SG_CODIEREN				
		SMCDS LLCO4.A SMCKWLIP). FBM 87.PBG			
	F1	F2	F3	F4	F5	F6
	Change SG/SGET	Change Job	Execute Job	Reading ECU	Basic functions	Back
Ready						CAP NUM SCRL

The module is now reset to factory settings.

7. If the other module needs to be reset, click on **Change SG/SGET**...

9월 Expertenmodus (Werkseinstellung) - NCS	S-Expertentool					
File View Help						
	CHASSIS:	E90 (E89)		Nrcl-No.:	017605ii	
	FG	Newsersta midel				
	FA	E90_#1207&KASW%0300*VB73\$1CA\$205	5\$249\$2AB\$2VB\$2XA\$3			
	Get coded:	Get coded				
	LSMC					
	Coding ended	Coding ended				
	JOBNAME = SG_CODIEREN	JOBNAME = SG_CODIEREN				
	SMCDS_LI.C04, A_SMCKWLIP0, FRM_87.PRG					
F1	F2	F3	F4	F5	F6	
Change SG/SGET	Change Job	Execute Job	Reading ECU	Basic functions	Back	
Ready					CAP NUM SCRL	

...then repeat steps 5 and 6.

Correcting Directional Aiming of SMC Modules

1. From the menu bar choose *File -> Load Profile* menu...

印刷 Expertenmodus (Werkseinste	ellung) - NCS-Expertentool				
<u>File</u> <u>V</u> iew <u>H</u> elp					
Load profile					
Edit <u>p</u> rofile					
Save <u>p</u> rofile	CHASSIS:	E90 (E89)	Nrcl-No.:	017605ii	
Save profile <u>t</u> o	FG	いままではないないので			
Exit	FA	E90_#1207&KASW%0300*VB73\$1CA\$205\$249\$2AB\$2VB\$2VA\$9			

...select the "Expertmode" profile or "NCS Dummy profile" (depending on what "expert" profiles you have available or installed), then click on **OK.**

Choose profile	X
Default profile CAR&KEY MEMORY Expertenmodus (OFFEN) Expertenmodus (Werkseinstellung) Fisterprofile	
NCS Dummy profile	
OK Cancel	

2. Click on Process ECU ([F3]).

略 NCS Dummy profile - NCS-Expertentool					
File View Help					
	CHASSIS:	E90 (E89)		Nrcl-No.:	017605ii
	FG	P. LEY CO. BARMAN EN. 181.181			
	FA	E90_#1207&KASW%0300*VB73\$1CA	\$205\$249\$2AB\$2VB\$2XA\$3		
	Get coded.				
	KOMBI,TCUM,2MULF,DWAS,	DWALAMPT,IHK,NFRM,DSC,LSMC,RSM	1C,EKP,2URAD,2JBBF,62BMO,RLS,FZD,ABG	i,FAS,EGS,CAS	
	JOBNAME = CODIERDATEN_	LESEN			
L					
F1	F2	F3	F4	F5	F6
FG/ZCS/FA	CHASSIS	Process Car	Process ECU	Car/Key Memory	
Ready					CAP NUM SCRL

3. Select the Stepper Motor Control ECU that needs to be corrected ("LSMC" or "RSMC"), then OK.

Choose ECU			x
DSC DWAI DWAS			•
EGS EKP FAS FZD			
IHK KOMBI LSMC NFRM RLS			E
RSMC TCUM			-
	ОК	Cancel	

8. Verify that the "JOBNAME" is "CODIERDATEN_LESEN" ("Read Coding")...

略 NCS Dummy profile - NCS-Expertentoo	ł				
File View Help					
	CHASSIS:	E90 (E89)		Nrcl-No.:	017605ii
	FG	10年1月17年5月1日代			
	FA	E90_#1207&KASW%0300*VB73\$1CA\$20	5\$249\$2AB\$2VB\$2XA\$3		
	Get coded:				
	RSMC				
	JOBNAME = CODIERDATEN_LE	SEN			
	SMCDS_RE.C04, A_SMCKWR.I	PO, FRM_87.PRG			
F1	F2	F3	F4	F5	F6
	12				1
Change SG/SGET	Change Job	Execute Job	Reading ECU	Basic functions	Back
Ready					CAP NUM SCRL 2

...click on Execute Job ([F3])...

NCS Dummy profile - NCS-Expertentool						
File View Help						
	CHASSIS:	E90 (E89)		Nrol-No.:	017605ii	
	FG	ward and the second				
	FA	E90_#1207&KASW%0300*VB73\$1CA\$20	5\$249\$2AB\$2VB\$2XA\$3			
	Get coded:					
	RSMC	RSMC				
	JOBNAME = CODIERDATEN_LESEN					
	SMCDS_RE.C04, A_SMCKWR.IP0, FRM_87.PRG					
F1	F2	F3	F4	F5	F6	
Change SG/SGET	Change Job	Execute Job	Reading ECU	Basic functions	Back	
Ready					CAP NUM SCRL	

... and wait for the status to go from "Coding active" to "Coding ended".

The Stepper Motor Control settings should now be loaded into the trace file named "FSW_PSW.TRC", located within the "C:\NCSEXPER\WORK" directory.



9. In Windows Explorer, navigate to the "C:\NCSEXPER\WORK" directory, deleting the file "FSW_PSW.MAN" if it already exists...

...copy the "FSW_PSW.TRC" file...

🚱 🕞 🗸 📕 « Blackcon	nb (C:) 🕨 NCSEXPER	WORK	👻 🍫 Search W	'ORK	٩
Organize 👻 🧾 Open	· → Burn N	ew folder		• == •	
☆ Favorites	Name	*	Date modified	Туре	Size
📃 Desktop	ABLAUF.TRC		6/16/2014 5:28 PM	TRC File	1 k
🗼 Downloads	ASW.TRC		6/16/2014 5:28 PM	TRC File	1 1
🖳 Recent Places	ASW1.TRC		6/16/2014 5:28 PM	TRC File	1
	ASW2.TRC		6/16/2014 5:28 PM	TRC File	1
🥽 Libraries	EMPTY.TXT		9/9/1999 10:19 AM	Text Document	0 k
Documents	fa.trc		6/16/2014 5:28 PM	TRC File	1
J Music	FSW_PSW.	Open		TRC File	230 k
Pictures	NETTODA [®]	Edit		TRC File	4 k
🛃 Videos	SYSDATEN	Con with Missorft C	acurity Econoticle	TRC File	1 k
		Open with	ecunty Essentials		
🍓 Homegroup		Open with			
		Add to archive			
🖳 Computer		Add to "FSW_PSW.rar			
🕌 Blackcomb (C:)	8	Compress and email			
👝 Merom (E:)	8	Compress to "FSW_PS	W.rar" and email		
		Zip and Share (WinZip) Express)		
🗣 Network	L. L	WinZip	•		
		Restore previous versi	ons		
		Send to	•		
		Cut			
		Сору			
		Create shortcut		1	
		Delete			
		Pename			
		Nename			
	•	Properties			•
FSW_PSW.TRC TRC File	FSW_PSW.TRC Date modified: 6/16/2014 5:28 PM Date created: 3/16/2014 3:32 PM TRC File Size: 229 KB				

...and paste it within the same directory...

					- 🗆 🗙
🚱 🔍 🗸 📕 « Blackcor	mb (C:) 🕨 NCSEXPER 🕨 V	VORK	👻 🍫 Search V	WORK	٩
Organize 👻 Include in	n library 🔻 Share with		New folder	:==-	
☆ Favorites	Name	<u>^</u>	Date modified	Туре	Size
🧮 Desktop	ABLAUF.TRC		6/16/2014 5:28 PM	TRC File	11
🐌 Downloads	ASW.TRC		6/16/2014 5:28 PM	TRC File	1)
📃 Recent Places	ASW1.TRC		6/16/2014 5:28 PM	TRC File	11
	ASW2.TRC		6/16/2014 5:28 PM	TRC File	11
🥽 Libraries	EMPTY.TXT		9/9/1999 10:19 AM	Text Document	01
Documents	fa.trc		6/16/2014 5:28 PM	TRC File	11
🎝 Music	FSW_PSW.TRC		6/16/2014 5:28 PM	TRC File	230 H
Pictures	NETTODAT.TRC		6/16/2014 5:28 PM	TRC File	4
😸 Videos	SYSDATEN.TRC		6/16/2014 4:52 PM	TRC File	11
vi Homegroup III Computer		View Sort by)		
🏭 Blackcomb (C:)		Group by	· · ·		
👝 Merom (E:)		Refresh			
年 Network		Customize th	is folder		
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		Share with	•		
		New	+		
		Properties			
	•		III		•
9 items					

🔵 🗢 📙 « Blackco	omb (C:) NCSEXPER WORK	👻 🍕 🔜 « Blackco	omb (C:) NCSEXPER WORK	👻 🍫 Search V	VORK	
ganize 🔻 🖉 Ope	en 🔻 Burn New folder	Оре	en 🔻 Burn New folder			
' Favorites	Name	Date mo	Name	Date modified	Туре	Size
Desktop	ABLAUF.TRC	6/16/20ttop	ABLAUF.TRC	6/16/2014 5:28 PM	TRC File	
🗼 Downloads	ASW.TRC	6/16/20/nloads	ASW.TRC	6/16/2014 5:28 PM	TRC File	
Recent Places	ASW1.TRC	6/16/20ent Places	ASW1.TRC	6/16/2014 5:28 PM	TRC File	
	ASW2.TRC	6/16/201	ASW2.TRC	6/16/2014 5:28 PM	TRC File	
Libraries	EMPTY.TXT	9/9/199ies	EMPTY.TXT	9/9/1999 10:19 AM	Text Document	
Documents	fattre	6/16/200ments	faire	6/16/2014 5:28 PM	TRC File	
🕽 Music 📢	FSW_PSW - Copy.TRC	6/16/2015	FSW_PSW.MAN	6/16/2014 5:28 PM	TRC File	
Pictures	FSW_PSW.TRC	6/16/200res	FSW_DSW.TRC	6/16/2014 5:28 PM	TRC File	
Videos	NETTODAT.TRC	6/16/20:bs	NETTODAT.TRC	6/16/2014 5:28 PM	TRC File	
	SYSDATEN.TRC	6/16/201	SYSDATEN.TRC	6/16/2014 4:52 PM	TRC File	
Homegroup		egroup				
Computer		puter				
🕌 Blackcomb (C:)		ckcomb (C:)				
Merom (E:)		rom (E:)				
Network						
	4		4	m		

...rename the copied file from "FSW_PSW - Copy.TRC" to "FSW_PSW.MAN"...

...then click on **Yes** to allow the file name extension to be changed.

Rename	Real Real State Light No. 1 and
	If you change a file name extension, the file might become unusable. Are you sure you want to change it?
	<u>Y</u> es <u>N</u> o

The way NCS Expert Tool is designed and how the profile used is setup, all ECU codings are loaded into the file "FSW_PSW.TRC" whereas all coding modifications that are to be written to an ECU are read from the file "FSW_PSW.MAN", regardless of which ECU is being processed.

- 4. Open the "FSW_PSW.MAN" file with a text editor (e.g. WordPad).
- 5. Bring up the "Find" window and search for either the text "KL_POSIT_RECHTS_LI" if coding the LSMC, or "KL_POSIT_RECHTS_RE" if coding the RSMC.

🔄 🔚 🦻 🦿 = FSW_PSW.MAN - WordPad	
Home View	0
KL_ANSCHLAG_OPT_RE wert_03 KL_ANSCHLAG_WEICH_RE wert_04 KL_MAX_WINKEL_MIN_RE wert_02 KL_MAX_WINKEL_PL_RE wert_04 KL_NUL_LAGE_SENSOR_RE wert_03 KL_POSIT_RECHTS_RE wert_01	Find Find Find what: KL_POSIT_RECHTS_RE Find Next Match whole word only Match gase

6. The indented line immediately below the setting is the current value of that setting, with the following two values:

wert_01 = Positive signal moves headlight left
wert_02 = Positive signal moves headlight right

Change the value displayed to the other value; for example, if the current value is **wert_01**, then change the value to **wert_02**. It is recommended that the formatting conventions be strictly adhered to, although it has not be tested if functionally would be adversely affected if any formatting styles were altered (e.g. using lower case letters for the setting names or removing the indent).

🖉 🔚 🄊 🍋 = FSW_PSW.MAN - WordPad	
Home View	0
KL_ANSCHLAG_OPT_RE wert_03 KL_ANSCHLAG_WEICH_RE wert_04 KL_MAX_WINKEL_MIN_RE wert_02 KL_MAX_WINKEL_PL_RE wert_04 KL_NUL_LAGE_SENSOR_RE wert_03 KL_POSIT_RECHTS_RE wert_02	Find Find \$3 Find what: KL_POSIT_RECHTS_RE Match whole word only Cancel Match gase

7. Save the file.

8. Switch back to NCS Expert Tool, click on Change Job ([F2])...

略 NCS Dummy profile - NCS-Expertentool						
File View Help						
	CHASSIS:	E90 (E89)		Nrcl·No.:	017605ii	
	FG	しまたであたった (な)				
	FA	E90_#1207&KASW%0300*VB73\$1CA\$20	05\$249\$2AB\$2VB\$2XA\$3			
	Get coded:					
	RSMC					
	Coding ended					
	JOBNAME = CODIERDATEN_LESEN					
	SMCDS_RE.C04, A_SMCKWR.IPO, FRM_87.PRG					
N.						
F1	F2	F3	F4	F5	F6	
Change SG/SGET	Change Job	Execute Job	Reading ECU	Basic functions	Back	
Ready					CAP NUM SCRL 2	

...select "SG_CODIEREN" ("Write Codings"), then **OK**...

Choose Job	
JOB_ERMITTELN INFO CODIERINDEX_LESEN ID_LESEN	
SG_CODIEREN CODIERDATEN_LESEN FGNR_LESEN AE_INDEX_LESEN FA_READ	Ξ
FA_WRITE AIF_LESEN SG_RESET SG_CODIEREN_OHNE_FG_AEI AE_INDEX_AUFTRAG	Ŧ
OK Cancel	

...click on Execute Job ([F3])...

M NCS Dummy profile - NCS-Expertentool						
File View Help						
	CHASSIS:	E90 (E89)		Nrcl-No.:	017605ii	
	FG	a brada territa ne estates				
	FA	E90_#1207&KASW%0300*VB73\$1CA\$205\$	3249\$2AB\$2VB\$2XA\$3			
	Get coded					
	RSMC					
	JOBNAME = SG_CODIEREN					
	SMCDS_RE.C04, A_SMCKWR.IPD, FRM_87.PRG					
F1	F2	F3	F4	F5	F6	
Change SG/SGET	Change Job	Execute Job	Reading ECU	Basic functions	Back	
Ready					CAP NUM SCRL	

... and wait for status to change from "Coding active" to "Coding ended".

The Stepper Motor Control module should now be "coded" correctly.

9. If the other Stepper Motor Control module needs to be coded, select Change SG/SGET...

98 Expertenmodus (Werkseinstellung) - NCS·	Expertentool					
File View Help						
	CHASSIS:	E90 (E89)		Nrcl-No.:	017605ii	
	FG	in perfection of the state of the				
	FA	E90_#1207&KASW%0300*VB73\$1CA\$2	E90_#1207&KASW%0300°VB73\$1CA\$205\$249\$2AB\$2VB\$2XA\$3			
	Get coded:					
	RSMC					
	Coding ended					
	JOBNAME = SG_CODIEREN					
	SMCDS_LI.C04, A_SMCKWLIPD, FRM_87.PRG					
F1	F2	F3	F4	F5	F6	
Change SG/SGET	Change Job	Execute Job	Reading ECU	Basic functions	Back	
Ready					CAP NUM SCRL	

...then repeat steps 3 through 8.

10. Verify ALC correction. Position vehicle in a darkened location, start the engine, turn on the light switch to the AUTO position (left-most), place the transmission in DRIVE (while applying the brakes of course), then turn the steering wheel in both directions.