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Bulletin MSG30-2903-INST

# Installation and Start-Up Manual

# Plugin Module for PCM (Pump control module)

Effective: September 1st 2019

Supersedes: -

Firmware PCM: PCM\_TC41\_07\_00\_00\_01\_504 and higher

Plugin Module Version: 01\_17\_504



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#### **1** Plugin Modules - Introduction

Plugin modules are prescaled J1939 interfaces which can be added into IQAN applications. Plugin modules are distributed by Parker and are made available online.

- Iqan.se/store
- parker.com/ep2

They are provided as plugin module files (.idmx) which are installed using the library manager. When a plugin module has been installed it will be available in the add menu of the system layout view. Once it has been added to a project it can be connected to a J1939 bus. A plugin module has the same properties as J1939 modules plus a number of custom properties. It also has a property that defines which master module controls the plugin module (it can only be used by one master module). A plugin module has inputs and outputs just like a physical module. To use them they have to be added using the Add button in the block diagram under System Layout. When doing so a new channel is added to the application of the master module. This channel is either a Module Input Channel (MIC) or a Module Output Channel (MOC). If a plugin module is updated with a new version in IQANdesign it will be updated also in existing projects when they are opened (after a user confirmation). A project containing a plugin module can be used in IQANdesign even if the plugin module is not installed. This is accomplished by saving a copy of the plugin module within the project file.

#### 2 Plugin Installation

Download the latest PCM Plugin version from the internet. Open the Library Manager in IQAN Design under Tools.



#### Toggle to tab Plugin Modules.

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				Add Catego	orv
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<	Ш			> Close	

Add Category and name it as per your choice.

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Library Manager Here you can install new solution libraries and plugin modules as well as rearrange the ones you have previously installed. Note that the ones that are installed with IQANdesign are read only and cannot be changed.							
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						Delete		
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					4	dd Category		
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						CIUSE		



Select the just downloaded Plugin Module file on your directory.

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previously installed. Note be changed.	that the ones that are insta	lled with IQAI	Ndesign are read only	and cannot
Diversity to a state				
Name	Description	Version	Author	Add
eP2 Plugin	Plusis for DCL ( module			Replace
PCM Plugin	Plugin for PCM module	01_01_501		Delete
				Add Category



#### NOTICE

Please mind the Plugin Module version shown either in the library manager or the system layout.

The Plugin appears in the Add button dialog for usage in the IQAN system layout.



Install as much as needed plugin modules by drag and drop and name them as per your choice. Connect them with the commanding IQAN Master module.

Enter plugir	n password	x					
?	Enter plugin password The plugin module "PCM" is protec by a password. Please enter the correct password to open it.	cted					
<u>E</u> nter pas	Enter password						
	OK Cancel						



#### NOTICE

The Password to implement the Plugin module is "**PCM**" (case sensitive!).

#### NOTICE

4 Plugin modules / 4 PCMs are the maximum amount per BUS.





#### **3** Plugin Configuration

r.

The Plugin appears empty in the system layout. The corresponding masters module input channels (MIC) and module output channel (MOC) need to be connected by using the Add button or by using the right mouse dialog at the corresponding pin. All pins at the left side are inputs to the master (and outputs from the PCM). The pins at the right side are outputs from the master (inputs to the PCM).

	CAN		
Module Output Channel	CAN	1.12 1.12 1.13 1.14 1.15 1.15 1.15 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.1	Module Input Channel

Check the connection to the corresponding master module.



#### Add a Initialization function group.

System Layout	Application: MD4-10 application Show - Close 🛞	
MD4-10 (MD4-10[0]) PCM-1 (PCM Plugin[46])	G Channels 🛱 Solutions 🔗 Externals	
Application Logic	Toputs/Outputs	2
MD4-10 application (MD4-10[0]) External functions	Calculation 12 ×	
Channels <ul> <li>Diagnostics</li> </ul>	Miscellaneous 7 V	
Measure groups Adjust items Adjust groups	CAN 12 ~ Safety 5 ~	
> Logs Telematics groups	Structure 3 ^	ł.
<ul> <li>O User Interface</li> </ul>	Initialization	
MD4-10 display pages Images Gradients PDF documents Languages	Comment	
v 🖉 Security		
Root		1

#### Add a Initialization function group.

🖌 🕄 System Layout	Function group: Initialization Show - Add  Property	Value
MD4-10 (MD4-10[0]) PCM-1 (PCM Plugin[46])	Name Description	SA PCM
	3 SA Mastel Unit	Not use
V MD4-10 application (MD4-10[0])	Transmitrate PD 🛞 Mode selector	Not use
External functions	Transmitrate PD 🐵 🗸 🗸 🖉	{46}
> Channels	Timeout PDO1 i (B)	46
🔁 Diagnostics	Timeout PDO2 i 📵	
Measure groups		
✓ Adjust items		
Integer parameter		
Adjust groups		
> Logs		
Telematics groups		

Create integer parameters for source adress, transmit rates and timeouts. Optionally set defaults and further connect them to the adjust items of the Plugin Module. Connect the just created integer parameter to the corresponding properties of the plugin module.

Module: PCM-1 (PCM Plu	gin[46])	Show - Add (	•	Property	Value
Block Diagram CAN				🕫 Name	PCM-1
	PC	JM-1	^	Description	
	Gu Process PD01 Q.,ov,felx,PJ Drou,Jr,felx,PJ Presu,vr,felx,PJ Ordoumer,B,PJ Ordoumer,B,PJ Ordoumer,B,PJ Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU Desl,DA,O,RJU DESL,DA,O,RJU DESL,DA,O,RJU DESL,DA,O,RJU DESL,DA,O,RJU	Setpoints PD01 to Quep.ReC Texump.ReC Texump.ReC Section.Rec Section.Rec Commands PD02 to Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,pp.ReC Pd0,p		Enabled Master Source address Timeout [ms] Timeout PD01 [ms] Transmitrate_PD02_PL0 Timeout_PD02 [ms]	Yes MG4-10 (MD4-10(9)) - MD4-10 module SAPCM - Integer parameter channel (P) Not used Transmittee POO, 1 (m) - Integer parameter channel (P) Transmittee POO, 2 (m) - Integer parameter channel (P) Timonit POO (1 (m)) - Integer parameter channel (P)
	Ove Warnings PDO2	Man_upstroke_PLo O Man_downstroke_PLo O Application SD01 ora			





#### NOTICE

Source adress is unique to a controller at a J1939 Bus. Please consider when using mulitple PCMs. Optional source adresses are 165, 166, 167.

Add the necessary channels to the plugin module pins with the right mouse click dialog or the add button.

block blagram	CAN				
			РС	M_1 - eP2145	
			1/5 Process PDO1	Setpoin	ts PDO1 0/4
		Q_out_fdbk_PLi:PCM	-O Q_out_fdbk_PLi		Q_setp_PLo (
	_		O Tora in fdbk		Torq_setp_PLo (
			OPress out fd (+) Add	Channel Ins	ess_setp_PLo (
			O Spd_fdbk_pr	CL D I	pd_fdbk_PLo (
			OQ_negative_I Vere	te Ctri+Dei	PDO2 0/9
			07 Statu 🖂 Rem	nove Shift+Del	J_mode_PLo
			O Mode_active		ble_OUT_PLo
			O Enbl_out_act	ame F2	Ible_PID_PLo
			O Enbl_PID_act 📑 Prop	perties Alt+Enter	nos ON PLO
			O Displ_PID_ac	To Channel Chill C	re_1_ON_PLo
			OPress_PID_ac	To Channel Ctrl+G	e_2_ON_PLo
			OT_lim_active_PLI	Man_up	stroke_ON_PLo
			O Spd_comp_active_PLi	Man_do	wnstroke_ON
ck Diagram CAN					
				0	
		PC	M_1 - eP2145	Q Process PD01	
	_	PC	M_1 - eP2145	Process PDO1	J
	out fdbk Di	PC 15 Process PD01	M_1 - eP2145 Setpoints PDO1 ea	Process PDO1  Process PDO1  Qout_fdbk_PL  Torq_in_fdbk	.i PLi
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<b>E</b> Q	Lout_fdbk_PLi	PC 15 Process PDD1 iPCM — Q Q.out.fdbk,PLi O Torg.in.dbk,PLi O Pres.out.fdbk,PLi	M_1 - eP2145 Setpoints PDO1 or Q_sep_Plo Torq_sep_Plo Pres_sep_Plo Set this Plo		J PLI K_PLI
<b>E</b> Q	Lout_fdbk_PLi	PC 16 Process PD01 iPCM — O Q.out.fdbk.PLi O Tora.In.fbk.PLi O Sod.dbk.Pnp.dr.PLi O Sod.dbk.Pnp.dr.PLi	M_1 - eP2145 Setpoints PD01 or Query PLO Torquery PLO Pressuery PLO Sed Jobs PLO Commands PD02 or	Q       Process PD01       Image: Control of the second seco	i PLI k_PLI s_filt_PLI
<b>E</b> Q	Lout_fdbk_PLi	IS Process PDO1 IS Process PDO1 ISPCMO.Q.out.fdbk.PLi Orac.ut.dbk.PLi Orac.ut.dbk.PLi Orac.dbk.Pli O.G.ngstrab.ePDi ar Status PDO2	M_1 - eP2145 Setpoints PD01 04 C_sep_Pic Pers.sep_Pic Sep_febc_Pic Commands PD02 09 Commonds PD02	Q       Process PD01       Image: Control of the second seco	.i PLi k_PLi p_filt_PLi j
<b>E</b> Q	Lout_fdbk_PLi	Is Process PD01 is Process PD01 Oracit/dik/Pli Oracit/dik/Pli Oracit/dik/Pli Oracit/dik/Pli Oracit/dik/Pli Oracit/dik/Pli Oracit/dik/Pli or Status PD02 OMdeckrugmts, Pli	M_1 - eP2145 Setpoints PD01 or Querp.Ro Press.exp.Ro Souther,Ro Commands PD02 or Common.ords.PD02 Common.ords.PD02 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Common.ords.PD0 Co	Process PD01  Process PD01  Torq_in_fdbk_Pl  Press_out_fdbh Spd_fdbk_pnm Q_negative_Pl Status PD02  Pl Status PD02	i PLi k_PLi b_filt_PLi i
<b>E</b> Q	Lout_fdbk_PLi	IFC	M_1 - eP2145 Setpoints PD01 or C_HIP_PRC Tom_HIP_PRC Pers.HIP_PRC SoftBickBicC Commands PD02 or Commonds PD02 Entrol_HIP_PRC Entrol_HIP_PRC DIPLOPRC	Q       Process PD01       Image: Content of the process of the proces of the process of the proces of the process of the pro	J PLI k_PLI s_filt_PLI J tate_PLI
Ε α	Lout_fdbk_PLi	IPCC Is Process PD01 IPCC Quit fdbk PLI Oraulus disk PL Oraulus disk PL	M_1 - eP2145 Setpoints PD01 or twps.Pic Prot.wps.Pic Prot.wps.Pic Commands PD02 Gentlet, mode Pic Entrals, DD, Pic Entrals, DD, Pic Protecture, DD, Pic Pic Protecture, DD, Pic Protecture, DD, Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic Pic	Q       Process PD01       Q_out_fdbk_PI       G_Torq_in_fdbk_I       G_Press_out_fdbl       G_onegative_PL       Status PD02       G_Enbl_out_active_s       G_Enbl_out_active_S	.i PLi 
<b>E</b> Q	Lout_fdbk_PLi	IPC 14 Process DOD IPCM	M_1 - eP2145 Setpoints PD01 pr Guray Pac Transmission Commands PD02 pr Commands PD02 pr Commands PD02 pr Commands PD02 pr Commands PD02 pr Drag amp, OH200 Pract, amp, OH200 Drag, amp, Drag, am	Q Process PD01 Quart (dbk, Pt Quart (dbk, Pt Grag_in_(dbk,) Spd_(dbk,pnp Quart (dbk,pnp Quart (dbk,pnp) Status PD02 Mode_active_s EnbLout_active EnbLout_act	.i PLi s_filt_PLi i tate_PLi e_PLi e_PLi
<b>E</b> Q	Lout_fdbk_PLi	IPCC 15 Process PDO 15 Process PDO POL out/dbk/PDI Ora_in/stik.PU Ora_in/stik.PU Ora_in/stik.PU Oragener.PU or Status PDO2 Oragener.PU Oragener.PU Oragener.PU Oragener.PU Oragener.PU Oragener.PU Oragener.PU Oragener.PU Oragener.PU Oragener.PU Oragener.PU Oragener.PU Oragener.PU Oragener.PU Oragener.PU Oragener.PU Oragener.PU Oragener.PU Oragener.PU Oragener.PU Oragener.PU Oragener.PU Oragener.PU Oragener.PU Oragener.PU Oragener.PU	M_1 - ef2145 Setpoints PD01 av Cure, Re C Persue, Re C Persue, Re C Persue, Re C Commander PD02 av Commander PD02 av Commander PD02 av Commander PD02 av Commander PD02 av Commander PD02 av De1 av PB02 av De1	Q       Process PD01       G. out_fdbk_Pl       Fress_out_fdbk_pmp       G. negative_PL       Status PD02       Hode_active_S       EnbLout_activ       EnbLPD_activ       DispLPID_activ	J PU J filt_PU J tate_PU e_PU e_PU e_PU
<b>E</b> 0	Lout_fdbk,PLf	PC 19 Process PD01 19 CM	M_1 + cel2145 Setpoints PDO1 w Currents AC Bestweether Commands PDO2 Commands PDO2 Command	Q           Process PD01           Q_out_fdbk_Pl           G Torq_in_fdbk_           Press_out_fdb           G Spd_fdbk_pmp           Q_out_fdbk_Pmp           Q_out_fdbk_Pmp           Q_out_fdbk_Pmp           Q_out_fdbk           G Q_out_fdbk           G Q_out_fdbk           G Bub_out_active_S           G Enb_out_active           G Enb_PD_active           G Press_PD_active	J PLJ S_FII_PLJ J tate_PLJ e_PLJ e_PLJ ve_PLJ ve_PLJ
ε α	Lout_fdbk_PL	IPC Is Process DOD IPCMO. Q. ouf./dok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.RU Oracidok.R	M_1-eP2145 Setpoints PD01 ar Curey Pac Tomare Pac Commands PD02 ar Commands PD0	Q Process PDO1 Q.out_idbk_PI Torq.in_idbk_U Press_oit_idbk G. Press_oit_idbk G. Q.negative_PI Status POO2 G. Mode_active_s G. EnbL/PD_active G. DinpL/PD_activ G. DinpL/PD_activ G. DinpL/PD_active G. T_IJm_active_F	.) PLI filt_PLI j tate_PLI e_PLI e_e_PLI ve_PLI PLI
<b>E</b> 0	Lout_fdbk_PL	Lis Process DOD Lis Process DOD Process DOD O Q out/dbk/Rii O Train/stik/Ri O Train/stik/Ri O Train/stik/Ri O Train/stik/Ri O Satis PDO2 Market Satis O Satis PDO2 O Satis PD	M_1-ef2145 Setpoints PD01 or Currence, Rec Procure, Rec Commander PD02 or Commander PD02 or Commander PD02 or Commander PD02 or Double Commander PD02 Double Commander PD02 D	Q           Process PO01           If Q, out, fdbk, PI           If Torq, In, fdbk, I           Press, out, fdbh           If Spd_fdbk, pmp	: PLI PLI j_fil_PLI j tate_PLI e_PLI e_PLI ve_PLI VL tive_PLI
٩	2_out_fdbk_PL	Lip Process PD01 Lip CM	M_1 + ef2145 Setpoints PDO1 wi Carso 30-0 Testscore 30-0 Setting 10-0 Setting 10-	Q Process PDO1 Q_out_fdbk_PI Torq_in_fdbk, Press_out_fdbk Spd_fdbk_pre Q_negative_PI Status PDO2 Mode_active_S Enbl_out_activ Displ_PD_oth Press_PD_oth T_Im_active_F Spd_comp_active Spd_comp_active_SPD_oth Warnings PDO2	L PU K_PU J Mt_PU J tate_PU e_PU e_PU e_PU V V V V V V V V V V V V V V V V V V V
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(E) Q	Lout_fdbk_PL	Lis Process DOD Lis Process DOD Directory of the Second Second Second Second Second Second Second Second Organization Second	M_1-ef2145 Setpoints PD01 at Currence, Pace Procure, Pace Commander PD02 at Commander PD02 at Commander PD02 at Commander PD02 at Commander PD02 at Deutume, ORDec Deutume, ORDec D	Q           Process PO01           If Q, out, fdbk, PI           If Torq, In, fdbk, I           Press, out, fdbh           If Spd_fdbk, pmp           Q, out, fdbk, PI           If Spd_fdbk, pmp           If Spd_comp, add           Warnings PDO2           If WNR: Q, sept           If WNR: If To pmp	ا ــــــــــــــــــــــــــــــــــــ
	Lout_fdbk_PL	LiPCM	M_1 + eP2145 Setpoints PD01 _st	Q           Process PD01           Q_out_fidbLPI           Torq_in_fidbL           Press_out_fidb           G Press_out_fidbL           G Press_out_fidbL           G Angative_FL           Status PO02           Mode_active_SL           EnbL_out_active           G DipLPD_oth           G Yadrows FP           Warnings PD02           Warnings PD02           Warnings PD02           Warnings PD02           Warnings PD02           Warnings PD02           WRN: Pro_set           G WRI: Pro_set           Warnings PD02           WRI: PRD_pG           WRI: PRD_SET	ا ، ، ، ، ،
E Q	Lout_fdbk_PL	In Process PDD Is Process PDD Is Could dok (R) Oracle Market Oracle Market O	M_1 - eP2145 Setpoints PD01 ar Guay Pac Dourse Pac Commod Set 2007 ar Commod Set 2007 ar Degume, OHAD Degume, Degume, D	Q Process PDO1 Q.out_idbk_PI Fress_oit_dbk Press_oit_dbk Press_oit_dbk Press_oit_dbk G. Q.negative_PI Status PDO2 Mode_active_JS EnbL_PID_activ G. DispLPID_activ G. DispLPID_activ G. DispLPID_activ G. DispLPID_activ G. Spd_comp_act Warnings PDO2 G. WiNI: Castp_D G. WINI: Castp_D G. WINI: Castp_D G. WINI: Castp_D G. WINI: PinD_pG G. WINI: PinD_pG G	2 J (1) K_PU K_PU J State_PU C_PU C_PU C_PU V V V V V V V V V V V V V

All channels are generated in the top level function group of the corresponding master application.

<ul> <li>System Layout</li> </ul>	Application: MD4-10 application Show 🗸 🖂	Property	Value
MD4-10 (MD4-10[0]) PCM-1 (PCM Plugin[46])		& Name	MD4-10 application
<ul> <li>Application Logic</li> </ul>	∧ Initialization	Description	
<ul> <li>MD4-10 application (MD4-10[0])</li> <li>Initialization</li> <li>External functions</li> <li>Channels</li> </ul>	C.out.fdbk.PLiPC	Cycle time [ms]	50
Diagnostics			
Measure groups < Adjust items Integer parameter			

Unconnected output pins (right side) will internally use default values to the PCM (CAN Message).

Channel	Default			
Pump_series_PLo	0 (P2)			
Pump_size_PLo	1 (P2075)			
Valve_type_PLo	0 (Code EC)			

NO_pulses_rev_PLo	36 pulses/rev.	
Gearbox_ratio_pmp_in_PLo	1.00	
BWL_spd_fdbk_PLo	50	
Valve_output_manual_PLo	25 %	
Press_sensor_always_PLo	False	
Leak_comp_displ_PLo	False	
Spd_fdbk_ANA_PLo	False	
Valve_press_comp_inactive_PLo	False	
T_upramp_displ_PLo	0 ms	
T_downramp_displ_PLo	0 ms	
T_upramp_press_PLo	0 ms	
T_downramp_press_PLo	0 ms	
Valve1_delay_on_PLo	0 ms	
Valve1_delay_off_PLo	0 ms	
Valve2_delay_on_PLo	0 ms	
Valve2_delay_off_PLo	0 ms	
Fdbk_volt_min_PLo	2500 mV	
Fdbk_volt_max_PLo	4300 mV	
Valve_zero_point_PLo	0 %	
P_gain_displ_PLo	150	
I_gain_displ_PLo	200	
D_gain_displ_PLo	50	
I_lim_displ_PLo	20	
I_window_in_frozen_displ_PLo	0,5	
I_window_out_reset_displ_PLo	15	



D_window_in_inactive_displ_PLo	0	
P_gain_press_PLo	40	
I_gain_press_PLo	150	
D1_gain_press_PLo	200	
I_lim_press_PLo	20	
I_window_in_frozen_press_PLo	2	
I_window_out_reset_press_PLo	50	
D1_window_in_inactive_press_PLo	0	
D1_window_handover_press_PLo	1000	
D2_gain_press_PLo	200	
D2_gradient_window_PLo	1000	
D2_error_window_PLo	50	
Displ_setp_idle_PLo	0	
Press_setp_idle_PLo	15	



The channels appear in the application root for further usage. Only matching channel formats and ranges can be connected to the just created plugin channels.



#### NOTICE

All channels of type real and integer are internally limited both for minimum and maximum. Inputs outside the specified range will be disregarded.

For reference of the matching type please see the CAN protocol in the PCM installation manual



## (HY30-2902-INST) or the help dialog in the bottom right corner.

Application: MD4-10 applice Show 🗸 🛛 🕂 Add 🔶	)	Property	Value
^ Initialization	^	& Name Description	NO_pulses_rev_MC_PLi:PCM Plug
PCM feedback - Inputs to Master		Module output channel (MOC)	<b></b>
NO_pulses_rev_MC	≡	NO_pulses_rev_MC_PLi: Feedback on NO_pulses_rev_MC_CAN, Range:0-250 pulses/rev	
Q_out_fdbk_PLi:PC		The value type of this channel is	Integer.

#### 3.1 Transmit Rate – Master

The transmit rates Transmitrate\_PDO1\_PLo and Transmitrate\_PDO2\_PLo needs to be set between 10 an 100ms in an even number.



#### RECOMMENDATION

Recommendation: Fill in a multiplier of the sending Master cycle time.



#### NOTICE

An input above 100ms will be interpreted as 100ms. An input below 10 ms will be interpreted as 10ms.

#### 3.2 Timeout – Master

The Timeouts Timeout\_PDO1\_PLi and Timeout\_PDO2\_PLi need to be set at least twice the adjusted PCM transmitrate (Transmitrate PDO1\_out,Transmitrate PDO2\_out)

	PDO1	PDO2
Min. timeout - Master [ms]*	20	40
Max. timeout - Master [ms]*	150 (default)	200 (default)

#### 3.3 **Plugin Module start-up**

PDO2 should be sent continuously (selecting control type, mode selection, Enables, etc.).

PDO1 should be sent in operational mode (Ctrl type PLo > 2) only.

SDO1-SDO8 can only be sent in setting mode only.

When starting up a PCM the SDO1 needs to be sent at least once with correct application values to set the internal scaling and other internal parameters according to the connected pump.

This is only possible when the pump is in setting mode. (Enbl out PLo=false, Enbl PID PLo=true  $\rightarrow$  PDO2)



#### NOTICE

The wired digital ins (Enable inputs) need to be set accordingly or need to be true.



### NOTICE

Internal scaling values are stored internally in the nonvolatile memory so that they are preserved during power off.

Furthermore **SDO4** needs to be sent for the correct scaling of the displacement sensor.



#### NOTICE

the Input for parameter Fdbk\_volt\_min\_PLo, Fdbk\_volt\_max\_PLo and Valve zero adjust PLo needs to be taken from each pump individually using the below shown pump tag attached to each pump.



SDO2, SDO3, SDO6, SDO7, SDO8 needs to be sent only when applicable in the application.

#### NOTICE

All SDO are sent with the write SDO<sup>\*1</sup>\_write\_PLo command.

<sup>\*1</sup> = 1...4

#### 3.4 **Plugin Module Operational**

After all configuration parameter are set (SDO1-SDO8), PDO2 is used to switch to operational mode (Ctrl type PLo = 1 or 2) and the set points can be sent with PDO1.



### Position notification regarding Machinery Directive 2006/42/EC:

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- ISO 13849-1:2015
- SS-EN ISO 4413:2010

so that the machines in which the products are incorporated meet the essential health and safety requirements.

Confirmations for components to be proven component, e. g. for validation of hydraulic systems, can only be provided after an analysis of the specific application, as the fact to be a proven component mainly depends on the specific application.

#### Dr. Hans Haas

General Manger Pump & Motor Division Europe

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MSG30-2902-INST/UK

