Type Approval Certificate Extension

This is to certify that Certificate No. 08/20008(E4) for the undernoted products is extended and renumbered as shown.

This certificate is issued to:

PRODUCER	Saia-Burgess Controls AG
PLACE OF PRODUCTION	Bahnhofstrasse 18 CH 3280 Murten Switzerland
DESCRIPTION	Programmable Logic Controller
TYPE	PCD1, PCD2, PCD3 and PCD7

Note 1: Each product designation may be followed by "Zxx", where "xx" are digits for customers specific product design (Logo, colours, pre-configured IO modules).

Note 2: "x" "xx" and "xxx" in type designation are digits to express products with variant equipment of components.

Including the following modules:

Series PCD1 Programmable Controller

		FW
PCD1.M110	Base unit with Bus for 4 I/O modules	V08x
PCD1.M120	Base unit with Bus for 4 I/O modules	V08x
PCD1.M125	Base unit with Bus for 4 I/O modules	V0Fx
PCD1.M130	Base unit with Bus for 4 I/O modules	V08x
PCD1.M135	as PCD1.M125 but with socket for CR2032 lithium battery	V0Fx
PCD1.M137	Base unit with Bus for 4 I/O modules	V3.1xx
PCD1.M0160E0	Base unit 18 integrated I/Os, no I/O slots, with Ethernet TCP/IP and S-Monitoring functionalities by default	1.1x.xx
PCD1.M2020	Base unit, 18 integrated I/Os, 2 free I/O slots	1.1x.xx
PCD1.M2120	Base unit, 18 integrated I/Os, 2 free I/O slots, with Ethernet TCP/IP	1.1x.xx
PCD1.M2160	Base unit, 18 integrated I/Os, 2 free I/O slots, with Ethernet TCP/IP and expanded memory	1.1x.xx

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TYPES (continued)

Series PCD1 Programmable Controller

		FW
PCD1.M2110R1	Base unit, 24 integrated I/Os, 1 free I/O slot, with Ethernet TCP/IP, for room automation applications	1.1x.xx
PCD1.T240	with Bus for 4 I/O modules	xE0

Series PCD2 Programmable Controller

		FW
PCD2.M110	Base unit for 8 I/O modules	V09x
PCD2.M120	Base unit for 8 I/O modules	V09x
PCD2.M127	Base unit for 8 I/O modules, programmable with Step 7	V3.1xx
PCD2.M150	Base unit for 8 I/O modules	V0Fx
PCD2.M157	Base unit for 8 I/O modules, programmable with Step 7	V3.1xx
PCD2.M170	Base unit for 8 I/O modules	V0Fx
PCD2.M177	Base unit for 8 I/O modules, programmable with Step 7	V3.1xx
PCD2.M480	Base unit for 8 I/O modules	1.0x.xx
PCD2.M487	Base unit for 8 I/O modules, programmable with Step 7	1.3xx
PCD2.M5440	Base unit for 8 I/O modules, with RS232 and RS485, without Ethernet TCP/IP	1.1x.xx
PCD2.M5540	Base unit for 8 I/O modules, with RS232 and RS485, with Ethernet TCP/IP	1.1x.xx
PCD2.M5547	similar to PCD2.M5540, but programmable with Step 7	1.0x.xx

Extension Modules

PCD2.C10x	unit for 8 I/O modules	n/a
PCD2.C15x	unit for 4 I/O modules	n/a
PCD2.C2000	unit for 8 I/O modules	n/a
PCD2.C1000	unit for 4 I/O modules	n/a

Digital Input Modules

PCD2.E11x	8 inputs 24V DC sink/source	n/a
PCD2.E16x	16 inputs 24V DC sink/source	n/a
PCD2.E61x	8 inputs 24V DC opto isolated	n/a
PCD2.E500	6 inputs 115-230VAC opto isolated	n/a
PCD2.E520	6 inputs 24VAC opto isolated	n/a
PCD2.E523	6 inputs 48VAC opto isolated	n/a

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TYPES (continued)

Digital Output Modules		FW
PCD2.A2xx	4 relay outputs 230V / 2A with VDR/RC prot.	n/a
PCD2.A220	6 relay outputs 230V / 2A	n/a
PCD2.A250	8 relay outputs 48V / 2A	n/a
PCD2.A300	6 transistor outputs 24V/2A	n/a
PCD2.A400	8 transistor outputs 24V/0.5A	n/a
PCD2.A410	8 transistor outputs 24V/0.5A, opto isolated	n/a
PCD2.A46x	16 transistor outputs 24V/0.5A	n/a
PCD2.B100	combined inputs/outputs, 24V / 24V / 0.5A	n/a

Analogue Input/Output Modules		
PCD2.W10x	4 analog inputs (0...10V, ±10V, 0...20mA, ±20mA)	n/a
PCD2.W11x	4 analog inputs (Pt100, Ni100, Pt1000, Ni1000)	n/a
PCD2.W2xx	8 analog inputs (0...10V, 0...20mA, Pt1000)	n/a
PCD2.W3xx	8 analog inputs (0V…10V, 0…20mA, Pt/Ni100, Pt1000)	02x
PCD2.W3x5	7 analog inputs with galvanic separation (0…10V, 0…20mA, ±10V)	02x
PCD2.W4xx	4 analog outputs (0...10V, 0...20mA)	02x
PCD2.W5xx	4 analog in/outputs (0...10V, 0...20mA)	02x
PCD2.W525	4 analog inputs / 2 analog outputs (0...10V, 0...20mA)	03x
PCD2.W6xx	4 outputs (0V…10V, ±10V, 0…20mA)	02x
PCD2.W6x5	6/4/6 analog outputs with galvanic separation (0…10V, 0…20mA, ±10V)	02x
PCD2.W7x0	1/2analog weighing systems for up 4 resp. 6 weighing cells	02x
PCD2.W745	4 analog inputs for sensor types RTD Thermocouple	02x

Combined Digital/Analogue Modules		
PCD2.G400	I/O modules combined from: .W200/.W400.A400.E110	n/a
PCD2.G410	4 I/O modules combined from: .E610, .A200, .W410, W2xx	n/a

Motion Control and Counting Modules		
PCD2.H1xx	Counter module 20/100kHz	n/a
PCD2.H150	Serial synchronous interface (SSI) module	n/a

Modem Modules		
PCD2.T813	Analogue modem 33.6 kbps	2.0x
PCD2.T850	Digital modem ISDN-TA	2.0x

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TYPES (continued)

Serial Interface Modules

		FW
PCD7.F1xx	Interface (RS422/485, RS232, 20mA CL opto isolated, RS485 opto	n/a
PCD7.F1xxS	isolated), including new S-versions with smaller form factor, e.g.:	
PCD7.F110	Interface RS422/485	
PCD7.F110S	Interface RS422/485, smaller form factor	
PCD7.F121	Interface RS232	
PCD7.F121S	Interface RS232, smaller form factor	
PCD7.F150	Interface RS485, opto isolated	
PCD7.F150S	Interface RS485, opto isolated	
PCD7.F180	Interface MP-Bus	
PCD7.F180S	Interface MP-Bus, smaller form factor	
PCD2.F2100	RS422/RS485 & optional PCD7.F1xx	020
PCD2.F2210	RS232 & optional PCD7.F1xx	020
PCD2.F2810	Belimo MP-Bus & optional PCD7.F1xx	020

Communication Modules

PCD2.F5xx	Real Time Clock (RTC), 7-segment display, serial ports, Interface for display PCD7.D160	
PCD2.T500	MP-Bus (Belimo)	
PCD7.F700	PROFIBUS FMS	
PCD7.F750	PROFIBUS DP master module	V1.1
PCD7.F77x	PROFIBUS DP slave module	
PCD7.F80x	LON module	V006
PCD7.F65x	Ethernet module	V044
PCD7.F7400	CAN communication extension module	n/a
PCD7.F7500	Profibus DP Master communication extension module	V01x

Memory Modules

PCD2.R6000	Base module with slot for SD flash memory cards (up to 4 modules in I/O slots 0 to 3 on a CPU)	n/a
PCD7.R4xx	Flash memory backup module	n/a
PCD7.R5xx	Flash memory Backup module	n/a

Bus Components for RS485 Networks

		FW
PCD7.T1xx	Repeater RS485, Converter RS232 & RS485, Termination Box	n/a

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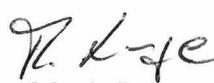
TYPES (continued)

Text Terminals

PCD7.D16x	Terminal, direct mounting on PCD1/PCD2	V02
PCD7.D170	Terminal via serial interface RS232	V02
PCD7.D202	Terminal via serial interface RS232 (w/ display PC2004LR)	V011
	Terminal via serial interface RS232 (w/o display PC2004LR)	V012
PCD7.D250	Terminal via serial interface RS232	V011
PCD7.D23x	Graphics Terminal with single knob control or function keys	V040

Accessoires

PCD7.D3100e	Embedded display module	V0.xx
PCD2.K010	Bus extension connector	n/a
PCD2.K1xx	Extension cable PCD3 to PCD3, PCD2 to PCD2	n/a

Series PCD3.M2 Programmable Controller

PCD3.M2030V6	Compact PLC with 512 kByte user program memory, 20 dig. IN, 12 dig. OUT, 4 analog IN, 2 anaolg OUT; expandable to max. 102 I/O	1.1x.xx
PCD3.M2130V6	Same as M2030, but with Ethernet TCP/IP	1.1x.xx
PCD3.M2137V6	Same as M2130, but programmable with Siemens Step 7	1.1x.xx
PCD3.M2230A4Tx (x=1, 3, 5)	Compact PLC with 512 kBytes user program memory, 8 dig. IN, 2 dig. OUT, 4 analog IN, 1 Telecom port for PSTN ($\rightarrow$ T1), ISDN ($\rightarrow$T3) or GSM/GPRS ($\rightarrow$T5); expandable to max. 78 I/O	1.1x.xx
PCD3.M2330A4Tx	Same as PCD3.M2230A4Tx, but with Ethernet TCP/IP	1.1x.xx
PCD3.M3020 .M3120 .M3230 .M3330	PLC with 128/256/256 kBytes of user memory. Backup with internal Flash memory, USB port for PG5. Max. 64/1023/1023 digital I/O, 2 interrupt inputs, web-server; RS 485 for Profi-S-Net or S-Bus PCD3.M3120 with Ethernet TCP/IP	1.1x.xx
PCD3.R010	Battery Module for PCD3.M3xx	

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TYPES (continued)

Series PCD3.M5 Programmable Controller		FW
PCD3.M5340	PLC with 512 Kbytes of user memory, max. 1023 digital I/O, 2 interrupts input	1.1x.xx
.M5440	Run/Stop switch. Web server; Backup option with PCD7.R500 Flash	
.M5540	Card Data protection 1..3 years with lithium battery. USB port for PG5; RS232, RS485 for Profi-S-Net and RS485 for S-Bus, .M5340 with switchable RS485/RS422, .M5340/.M5540 is with Ethernet TCP/IP	
PCD3.M5447	Similar to .M5440, but programmable with Siemens Step 7	1.1x.xx
.M5547	Similar to .M5540 but programmable with Siemens Step 7	
PCD3.M6240	Similar to .M5440, but with CAN interface	1.1x.xx
.M6340	Similar to .M5540, but with CAN interface	1.1x.xx
.M6347	Similar to .M6340, but programmable with Siemens Step 7	1.1x.xx
PCD3.M3 Battery Print	Holder for Lithium Battery and LED for CPU status	

RIO Head Stations		
PCD3.T660	PCD3 Ethernet RIO Head station (similar to PCD3.M3330)	1.1x.xx
PCD3.T665	PCD3 Ethernet RIO Head Station (strip down version of PCD3.M3330), 32kB program memory, 256 kB on-board-file system	1.1x.xx
PCD3.T666	PCD3 Ethernet RIO Head Station (strip down version of PCD3.M3330), 128kB program memory, 512kB on-board-file system, onboard RS485 interface	1.1x.xx
PCD3.T667	Same as .T66x, compatible with Siemens Step 7	n/a
PCD3.T76x	Profibus DP RIO Head Station with 4 I/O module slots, Profibus DP/ Profi-S-Net	V1.0xx
PCD3.T26x	connection and integral web server, 24VDC supply	V035

Extension Modules		
PCD3.C100	Extension housing with 4 I/O module sockets	n/a
PCD3.C110	Extension housing with 2 I/O module sockets	n/a
PCD3.C200	Similar to PCD3.C100, with 24VDC power supply	n/a

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TYPES (continued)

<u>Digital Input/Output modules</u>   <u>FW</u>

PCD3.E11x	8 inputs, 24 VDC, sink/source	n/a
PCD3.E16x	16 inputs, 24 VDC, sink/source	n/a
PCD3.E61x	8 inputs, 24 VDC opto isolated	n/a
PCD3.E500	6 inputs, 115-230 VAC, opto isolated	n/a
.E520	6 inputs, 24VDC, opto isolated	n/a
.E523	6 inputs, 48VDC, opto isolated	n/a
.A2xx	4 relay outputs 230VAC/2A with VDR/RC protection	n/a
.A220	6 relay outputs 230VAC/2A	n/a
.A251	8 relay outputs 48VDC/2A (6x make, 2x changeover)	n/a
PCD3.A300	6 transistor outputs 24VDC/2A	n/a
PCD3.A400	8 transistor outputs 24VDC/0.5A	n/a
PCD3.A410	8 transistor outputs 24VDC/0.5A, opto isolated	n/a
PCD3.A46x	16 transistor outputs, 24VDC/0.5A	n/a
PCD3.A810	4 relay outputs (2 change over, 2 make contacts)	n/a
PCD3.A860	2/2 2 relay outputs, 2 dig. inputs	V010
PCD3.B100	8 combined inputs/outputs, 24V / 24V / 0,5A	n/a

<u>Analogue Input/Output Modules</u>

PCD3.W10x	4 analogue inputs (0..10V, ±10V, 0..20mA, ±20mA)	n/a
.W11x	4 analogue inputs (Pt100, Ni100, Pt1000, Ni1000)	n/a
.W2xx	8 analogue inputs (0..10V, 0..20mA, Pt1000)	n/a
.W3xx	8 analogue inputs (0..10V, 0..20mA, Pt/Ni100, Pt1000)	V02x
.W3x5	7 analogue inputs with galvanic separation (0..10V, 0..20mA)	V02x
.W4xx	4 analogue outputs (0..10V, 0..20mA)	V02x
.W5xx	4 analogue in/outputs (0..10V, 0..20mA)	V02x
.W525	4 analogue inputs / 2 analogue outputs (0..10V, 0..20mA)	V03x
.W6xx	4 analogue outputs (0..10V, ±10V, 0..20mA)	V02x
.W6x5	6/4/6 analogue output with galvanic separation (0..10V, 0..20mA, ±10V)	V02
PCD3.W7x0	1/2 analogue weighing systems for up to 4 resp. 6 weighing cells	V02x
.W800	Analogue manual control module with	V01x
	-3 outputs 0-10 V with manual control	
	-1 output 0-10 V without manual control	

<u>Memory Modules and Flash Cards</u>

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PCD3.Rxxx	Flash Memory Backup module	n/a
TYPES (continued)		

Counting and Motion Control Modules | | FW

PCD3.H1xx	Counter module 20 / 100 kHz	n/a
PCD3.H150	Absolute encoder module with serial synchronous interface (SSI) and 4 outputs 24 VDC/0.5A	n/a
PCD3.H210	Module for one stepper motor axis	n/a
PCD3.H310	Module for 1 servomotor axis, encoder input, 24 VDC/100 kHz, setpoint output ± 10 V (12 Bit)	n/a
PCD3.H311	Module for 1 servomotor axis, encoder input, 5 VDC/100 kHz, setpoint output ± 10 V (12 Bit)	n/a

Serial Interface Modules

PCD3.F1xx	Module (RS 422/RS 485, RS 232, 20mA CL opto isolated, RS485 opto isolated), containing PCD7.F1xx or .F1xxS modules	n/a
.F1xxR500	F1xx Serial Interface module with Flash memory for user program backup	
PCD3.F210	RS422/RS485 & optional PCD7.F1xx	V020
PCD3.F221	RS232 & optional PCD7.F1xx	V020
PCD3.F281	Belimo MP-Bus & optional PCD7.F1xx	V020

Plugs and Cables

PCD3.K010	Extension plug PCD3 to PCD3	n/a
PCD3.K1xx	Extension cable PCD3 to PCD3 and PCD2 to PCD2	n/a

VARIO Plus Modules

PCD7.L97x	VARIO-Plus reduced	n/a
PCD7.L98x	VARIO-Plus standard	n/a
PCD7.L99x	VARIO-Plus extended	n/a

Series PCS1 Compact Controller | | **FW**

		Booter: V0A4
PCS1.C8xx	Base unit including 36 Digital + Analogue I/O, 4 N.O + 4 SPDT Relay outputs (totally 44 data points)	V0F0
PCS1.C6xx	Base unit as PCS1.C8xx with less amount of I/O (30 data points)	V0F0
PCS1.C4xx	Base unit as PCS1.C8xx with less amount of I/O (19 data points)	V0F0

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ADDITIONAL TESTS

Dry Heat Test (55°C/16hrs.)
Change of Temperature Immunity (0-70°C) acc. IEC 60068-2-14
Cold Test (-25°C/2hrs) for PCD1.M125, PCD1.M135, PCD1.M2xxx, PCD3 WAC and PCD3 Compact.

APPLICATION

Marine, offshore and industrial use. Suitable for process control systems in environmental categories ENV1 and ENV2 as defined in Lloyd's Register's Test Specification No. 1: 1990 including change notice 1. The PCD7.D23x, PCD3, PCD2.M5xxx and the PCS1 families are in compliance with test requirements as defined in Test Specification No. 1 : 2002.

OTHER CONDITIONS

Type approval of products according to Test Specification No. 1 is essentially a Type Approval of hardware. Examination of software aspects is restricted to functional operation as demonstrated in the Performance Test.

Functional arrangements of modules are to comply with LR Rules for Ships Part 6, Chapter 1. Additional requirements for essential services and safety critical systems are given in LR Rules for Ships Part 6, Chapter 1, Section 2.11.

"This Certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid certificate."

The attached Design Appraisal Document No. HDS/ETS 28363-13 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

All other details remain as the previous Certificate No. 08/20008(E4) to which this extension should be attached.

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Marine Design Appraisal Document

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Date
19 June 2013

Please quote this reference number on all future communications
HPC1220450/28363-13/ML/LK

THE LLOYD'S REGISTER'S TYPE APPROVAL SYSTEM, 2002
ISSUED TO: SAIA-BURGESS CONTROLS AG, SWITZERLAND
FOR: PROGRAMMABLE LOGIC CONTROLLER PCD
TYPE APPROVAL CERTIFICATE NO. 08/20008 (E5)

The additional undernoted documents have been reviewed for compliance with the requirements of the Lloyd's Register's Type Approval System, 2002 and this Design Appraisal Document forms part of the Certificate.

ADDITIONAL APPROVAL DOCUMENTATION

Form LR6606	Approval Services – Request for Quotation	08.11.2012
Form 2502	Request for Marine Service	15.11.2012
12002-MP_TATR_ PCD1M2XXX	Type Approval Test Report	18.09.2012
CH-10524	ISO 9001:2008 Certificate issued by IQNET	13.12.2012
P+P26/504 EN04	Technical Data Saia PCD1 platform	06.2012
26/875_EN04	Hardware Manual of the PCD1.M2_	23.09.2011
20120730-LRS_TAC_Rev.01	List of certified modules for 08-20008-E4	16.03.2013
1 2446 6071 Bl.1 c	Part List – Processor module PCD1.M_	12.12.2011
1 2446 6143	Part List – Processor module PCD1.M0160xx	23.10.2012
463671860_Index d	Part List – Printed Circuit Board PCD1.M2020	05.11.2012
1 2446 6146	Part List – Processor module PCD1.M2110Rx	24.08.2012
463671180_Index k	Part List – Printed Circuit Board PCD1.M2120	05.11.2012
HPC1220450	Works Inspection report	16.04.2013
Unnumbered	Official Confirmation of Module Similarity	30.07.2012

FINAL ACCEPTANCE OF ACTUAL ITEM(S) DEPEND(S) ON SATISFACTORY SURVEY AND TESTING

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Form 6438MARREF (2012.12)