Appendix A

Process Conductivity Sensor

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Lab Conductivity

12mm diameter epoxy body designs are available for Lab and Portable use. They feature graphite or platinum ring measuring surfaces. Available cell constants are k = 0.1, k= 1.0 and k= 10.0 Optional custom cell K values can be provided.

All of these conductivity cells can be supplied with or without ATC elements for automatic temperature compensation.

Process Conductivity

Several types of conductivity sensors are available to meet your process conductivity measuring requirements.

Wide ranging inductive toroidal, non-contacting sensors in polypropylene bodies as well as optional PEEK or Kynar (PVDF).

316SS Boiler conductivity sensors are can be used up to 200 degrees C and 250 psig.

316SS Sanitary Conductivity

Conductivity Accessories

A comprehensive selection of N Conductivity tandard solutions a available. ChoSose from a varie of popular mixed salt PPM or uS (Microsiemen) solutions for you individual calibration requireme

NIST certificates are available f processing fee.

Low cost transmitters, fittings a other accessories are also availa for your conductivity sensing needs.

and Resistivity sensors are designed to fit into 1",1.5" and 2" Tri-Clover type fittings.

12mm diameter epoxy body conductivity cells with graphite measuring surfaces can be mounted into 1/2" or 3/4" tees.

Platinum ring or plate designs, as well as titanium are available for special applications.

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Appendix B

A Overview of All LAD Instructions Sorted According to English Mnemonics (International)

English Mnemonics	German Mnemonics	Program Elements Catalog	Description
---| |---	---| |---	Bit logic Instruction	Normally Open Contact (Address)
---|/|---	---|/|---	Bit logic Instruction	Normally Closed Contact (Address)
---( )	---( )	Bit logic Instruction	Output Coil
---(#)---	---(#)---	Bit logic Instruction	Midline Output
==0 ---| |---	==0 ---| |---	Status bits	Result Bit Equal 0
>0 ---| |---	>0 ---| |---	Status bits	Result Bit Greater Than 0
>=0 ---| |---	>=0 ---| |---	Status bits	Result Bit Greater Equal 0
<=0 ---| |---	<=0 ---| |---	Status bits	Result Bit Less Equal 0
<0 ---| |---	<0 ---| |---	Status bits	Result Bit Less Than 0
<>0 ---| |---	<>0 ---| |---	Status bits	Result Bit Not Equal 0
ABS	ABS	Floating point Instruction	Establish the Absolute Value of a Floating-Point Number
ACOS	ACOS	Floating point Instruction	Establish the Arc Cosine Value
ADD_DI	ADD_DI	Integer Math Instruction	Add Double Integer
ADD_I	ADD_I	Integer Math Instruction	Add Integer
ADD_R	ADD_R	Floating point Instruction	Add Real
ASIN	ASIN	Floating point Instruction	Establish the Arc Sine Value
ATAN	ATAN	Floating point Instruction	Establish the Arc Tangent Value
BCD_DI	BCD_DI	Convert	BCD to Double Integer
BCD_I	BCD_I	Convert	BCD to Integer
BR ---| |---	BIE ---| |---	Status bits	Exception Bit Binary Result
----(CALL)	----(CALL)	Program control	Call FC SFC from Coil (without Parameters)
CALL_FB	CALL_FB	Program control	Call FB from Box
CALL_FC	CALL_FC	Program control	Call FC from Box
CALL_SFB	CALL_SFB	Program control	Call System FB from Box

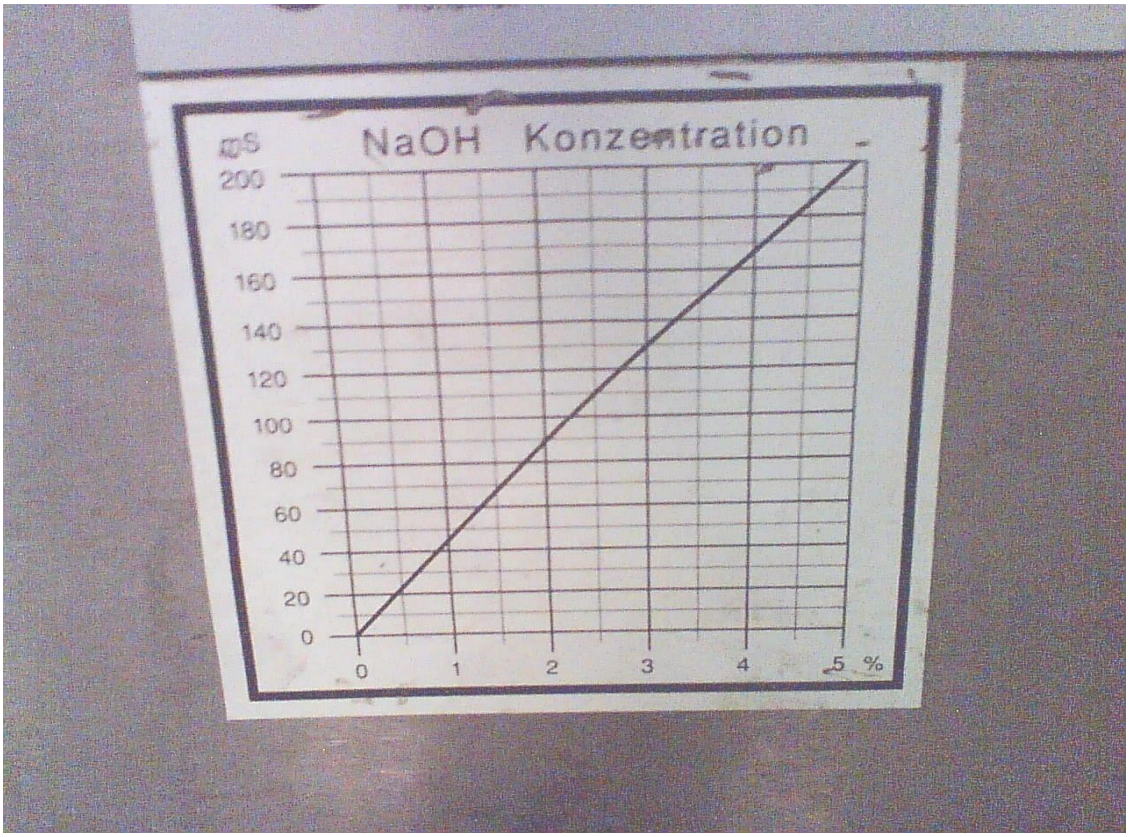
English Mnemonics	German Mnemonics	Program Elements Catalog	Description
CALL_SFC	CALL_SFC	Program control	Call System FC from Box
----(CD)	----(ZR)	Counters	Down Counter Coil
CEIL	CEIL	Convert	Ceiling
CMP >=D	CMP >=D	Compare	Compare Double Integer (==, <>, >, <, >=, <=)
CMP >=I	CMP >=I	Compare	Compare Integer (==, <>, >, <, >=, <=)
CMP >=R	CMP >=R	Compare	Compare Real (==, <>, >, <, >=, <=)
COS	COS	Floating point Instruction	Establish the Cosine Value
----(CU)	---(ZV)	Counters	Up Counter Coil
DI_BCD	DI_BCD	Convert	Double Integer to BCD
DI_R	DI_R	Convert	Double Integer to Floating-Point
DIV_DI	DIV_DI	Integer Math Instruction	Divide Double Integer
DIV_I	DIV_I	Integer Math Instruction	Divide Integer
DIV_R	DIV_R	Floating point Instruction	Divide Real
EXP	EXP	Floating point Instruction	Establish the Exponential Value
FLOOR	FLOOR	Convert	Floor
I_BCD	I_BCD	Convert	Integer to BCD
I_DI	I_DI	Convert	Integer to Double Integer
INV_I	INV_I	Convert	Ones Complement Integer
INV_DI	INV_DI	Convert	Ones Complement Double Integer
---(JMP)	---(JMP)	Jumps	Unconditional Jump
---(JMP)	---(JMP)	Jumps	Conditional Jump
---(JMPN)	---(JMPN)	Jumps	Jump-If-Not
LABEL	LABEL	Jumps	Label
LN	LN	Floating point Instruction	Establish the Natural Logarithm
---(MCR>)	---(MCR>)	Program control	Master Control Relay Off
---(MCR<)	---(MCR<)	Program control	Master Control Relay On
---(MCRA)	---(MCRA)	Program control	Master Control Relay Activate
---(MCRD)	---(MCRD)	Program control	Master Control Relay Deactivate
MOD_DI	MOD_DI	Integer Math Instruction	Return Fraction Double Integer
MOVE	MOVE	Move	Assign a Value
MUL_DI	MUL_DI	Integer Math Instruction	Multiply Double Integer
MUL_I	MUL_I	Integer Math Instruction	Multiply Integer
MUL_R	MUL_R	Floating point Instruction	Multiply Real
---(N)---	---(N)---	Bit logic Instruction	Negative RLO Edge Detection

English Mnemonics	German Mnemonics	Program Elements Catalog	Description
NEG	NEG	Bit logic Instruction	Address Negative Edge Detection
NEG_DI	NEG_DI	Convert	Twos Complement Double Integer
NEG_I	NEG_I	Convert	Twos Complement Integer
NEG_R	NEG_R	Convert	Negate Floating-Point Number
---| NOT |---	---| NOT |---	Bit logic Instruction	Invert Power Flow
---(OPN)	---(OPN)	DB call	Open Data Block: DB or DI
OS ---| |---	OS ---| |---	Status bits	Exception Bit Overflow Stored
OV ---| |---	OV ---| |---	Status bits	Exception Bit Overflow
---(P)---	---(P)---	Bit logic Instruction	Positive RLO Edge Detection
POS	POS	Bit logic Instruction	Address Positive Edge Detection
---(R)	---(R)	Bit logic Instruction	Reset Coil
---(RET)	---(RET)	Program control	Return
ROL_DW	ROL_DW	Shift/Rotate	Rotate Left Double Word
ROR_DW	ROR_DW	Shift/Rotate	Rotate Right Double Word
ROUND	ROUND	Convert	Round to Double Integer
RS	RS	Bit logic Instruction	Reset-Set Flip Flop
---(S)	---(S)	Bit logic Instruction	Set Coil
---(SAVE)	---(SAVE)	Bit logic Instruction	Save RLO into BR Memory
---(SC)	---(SZ)	Counters	Set Counter Value
S_CD	Z_RUECK	Counters	Down Counter
S_CU	Z_VORW	Counters	Up Counter
S_CUD	ZAEHLER	Counters	Up-Down Counter
---(SD)	---(SE)	Timers	On-Delay Timer Coil
---(SE)	---(SV)	Timers	Extended Pulse Timer Coil
---(SF)	---(SA)	Timers	Off-Delay Timer Coil
SHL_DW	SHL_DW	Shift/Rotate	Shift Left Double Word
SHL_W	SHL_W	Shift/Rotate	Shift Left Word
SHR_DI	SHR_DI	Shift/Rotate	Shift Right Double Integer
SHR_DW	SHR_DW	Shift/Rotate	Shift Right Double Word
SHR_I	SHR_I	Shift/Rotate	Shift Right Integer
SHR_W	SHR_W	Shift/Rotate	Shift Right Word
SIN	SIN	Floating point Instruction	Establish the Sine Value
S_ODT	S_EVERZ	Timers	On-Delay S5 Timer
S_ODTS	S_SEVERZ	Timers	Retentive On-Delay S5 Timer
S_OFFDT	S_AVERZ	Timers	Off-Delay S5 Timer
---(SP)	---(SI)	Timers	Pulse Timer Coil
S_PEXT	S_VIMP	Timers	Extended Pulse S5 Timer
S_PULSE	S_IMPULS	Timers	Pulse S5 Timer
SQR	SQR	Floating point Instruction	Establish the Square

English Mnemonics	German Mnemonics	Program Elements Catalog	Description
SQRT	SQRT	Floating point Instruction	Establish the Square Root
SR	SR	Bit logic Instruction	Set-Reset Flip Flop
---(SS)	---(SS)	Timers	Retentive On-Delay Timer Coil
SUB_DI	SUB_DI	Integer Math Instruction	Subtract Double Integer
SUB_I	SUB_I	Integer Math Instruction	Subtract Integer
SUB_R	SUB_R	Floating point Instruction	Subtract Real
TAN	TAN	Floating point Instruction	Establish the Tangent Value
TRUNC	TRUNC	Convert	Truncate Double Integer Part
UO ---| |---	UO ---| |---	Status bits	Exception Bit Unordered
WAND_DW	WAND_DW	Word logic Instruction	AND Double Word
WAND_W	WAND_W	Word logic Instruction	AND Word
WOR_DW	WOR_DW	Word logic Instruction	OR Double Word
WOR_W	WOR_W	Word logic Instruction	OR Word
WXOR_DW	WXOR_DW	Word logic Instruction	Exclusive OR Double Word
WXOR_W	WXOR_W	Word logic Instruction	Exclusive OR Word

Appendix C

Relation between Conductivity (ms) and Caustic Soda (Na OH) Concentration (%)



Appendix D
Bottle Washing Machine

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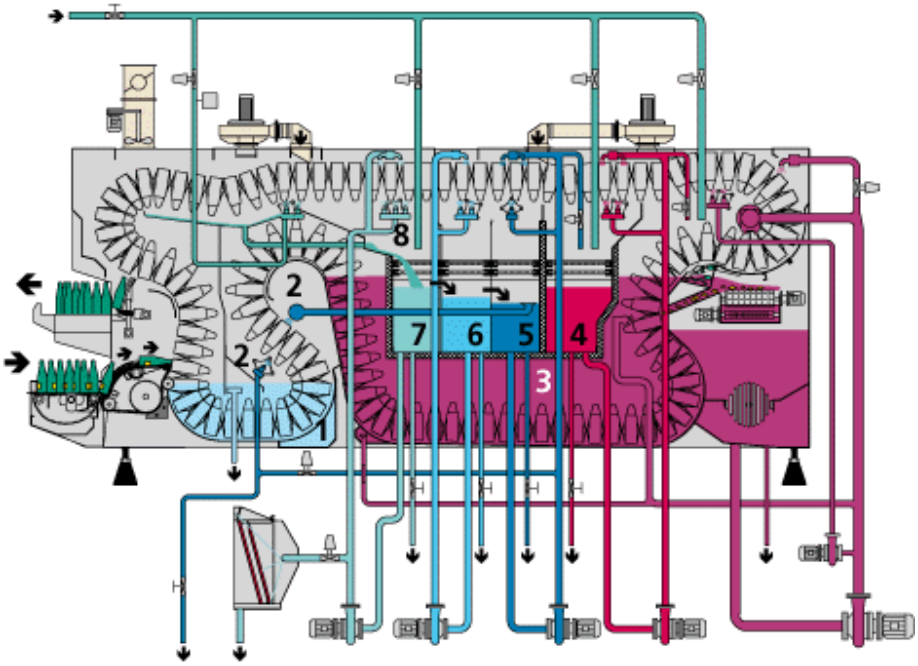

1 Pre-soak	5 Warm water 1
2 Pre-jetting	6 Warm water 2
3 Main caustic	7 Cold water
4 Post-caustic	8 Fresh water

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References

[1] **Lan G. Warnock**, Programmable Controllers, Paisley College of Technology Scotland, first Edition, 1988.

[2] **John W. Webb**, Programmable Logic Controllers, Principle and Applications, Los Angeles, California, Third Edition, 1995.

[3] **Lng. Juan Zapata and the staff of Beverages**, The Soft Drinks Bottlers Hand book beverages, All American Publisher Service .Inc 1990.

[4] **Magd Nasr**, Programmable Logic Controller, University of Applied Engineering and Science, Karlstad – SWEDEN, 2001

[5] **Hugk Jack**, Automating Manufacturing Systems with PLCs, Version 4.7, 14 April, 2005.

[6] **W.G. _Palmer**, Experimental Physical Chemistry, Cambridge University Press, 1996

[7] www.krones.com