NOLTA

Motor Protection and Water Technology

Catalog

NOLTA
Motor Protection

NOLTA motor starters offer optimum motor protection due to:

1. Thermal over-stressing protection

- No over-stressing of engines and cables

2. Magnetic high-speed circuit breaker

- Quick and safe disconnection in case of short circuit

3. Integration in plug

- Saves costs since no extra space is required
- Higher flexibility

4. Rotary field check, phase inverter and equipment-on indicator

- Protection from incorrect engine torque direction

5. Automatic or manual control

- Connections for floats or control conduit
- Automatic restart

6. High resistance to short-circuits

(only at thermal-electromagnetic release)

- No back-up fuse necessary (see data sheet: To Icc = 50 kA)

NOLTA – motor protection starters for single and three phase electrical motors – cost efficient due to high flexibility in application and configuration with:

- Thermo-magnetic motor protection
- On/off switch
- Robust polycarbonate housing
- Combination with IEC or CEE plug connection

Nominal motor currents of three-phase motors

(standard values for cage rotors)

The standard values are for nominal internal and surface cooled three-phase motors with 1500rpm.

Power (**kW**)	**230 V** A	**400 V** A	**500 V** A	Power (**HP**)
0.25	1.3	0.8	0.6	0.33
0.37	2.1	1.2	0.9	0.5
0.55	2.7	1.6	1.2	0.75
0.80	3.6	2.1	1.55	1.1
1.1	4.7	2.7	2.0	1.5
1.5	6.0	3.4	2.7	2.0
2.2	8.5	4.9	3.7	3.0
3.0	11.0	6.4	4.9	4.0
4.0	15.0	8.6	6.5	5.5
5.5	20.0	11.5	8.7	7.5
7.4	26.0	15.0	11.5	10.0
11.0	39.0	22.5	17.0	15.0

NOLTA Rotary-Toggle 50 Series

The NOLTA 50 Series Rotary-Toggle is designed for tough building sites and industrial applications, e.g.:

- Pumps
- Compressors
- Industrial Motors

All NOLTA Rotary-Toggles 50 series are equipped with a rotary toggle switch with thermal-electromagnetic release. The seamless connection between the bottom and the plug ensures a very high durability.
The motor starter switch can be used as an on/off switch.
Optionally the NOLTA Rotary-Toggle 50 series is available with a phase sequence indicator.

Available Versions 50 Series:

Voltage Frequency	Plug Pins	Features	CEE 16 A	CEE 32 A
400 V, 6h, 50-60 Hz	3P+E		50 3022..	50 3522..
	3P+E+N		50 3042..	50 3542..
	3P+E+N	Phaseinverter + Phase sequence indicator	50 3047..	50 3547..
500 V, 7h, 50-60 Hz	3P+E		50 3024..	50 3524..
	3P+E+N		80 3044..	80 3544..
	3P+E+N	Phaseinverter + Phase sequence indicator	80 3048..	80 3548..
>50 V, 10h, 100-300 Hz	3P+E		50 3090..	50 3590..
	3P+E+N		80 3095..	80 3595..
>50 V, 2h, 300-500 Hz	3P+E		50 3091..	50 3591..
Without CEE, >50 Hz			50 3942..	
		Phase sequence indicator 400 V	50 3947..	

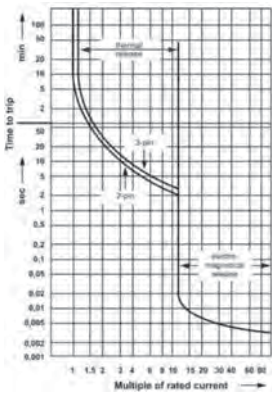
Other versions available upon request

Ranges of adjustment:

Adjustment range	max. back up fuse	Order-No. addition
0.10 – 0.16 A		..21
0.16 – 0.25 A		..22
0.25 – 0.40 A	**Short-circuit-protection**	..23
0.40 – 0.63 A		..24
0.63 – 1.00 A	no fusing	..25
1.00 – 1.60 A	necessary	..26
1.60 – 2.50 A	up to Icc = 50 kA	..27
2.50 – 4.00 A		..28
4.00 – 6.30 A		..29
6.30 – 9.00 A	40 A	..30
9.00 – 12.50 A	50 A	..31
12.50 – 16.00 A	63 A	..32
16.00 – 20.00 A	80 A	. .33*
20.00 – 25.00 A	100 A	..34*

*) only available with CEE 32A

Tripping characteristic:



How to specify your order:

50 304730	
50..	Main group
..3047..	Type description
..30	Adjustment range

NOLTA-Motorstarer plug, CEE 16 A, 3P+E+N, 6h, 400 V, 50 - 60 Hz, Adjustment range 6.3 – 9.0 A, with phase inverter and phase sequence indicator

Technical data subject to change

Technical data:

	50 Series	80 Series
Housing material:	Polycarbonate	Polycarbonate
Protection class:	IP 45	IP 44
Length:	(CEE 16 A) 285 mm	275 mm
	(CEE 32 A) 300 mm	295 mm
Width:	90 mm	87 mm
Height:	87 mm	85 mm
Weight:	(CEE 16 A) app. 960 g	app. 800 g
	(CEE 32 A) app. 1050 g	app. 900 g

The NOLTA Pushbutton 50 Series offers optimal protection for all electric motors, e.g.:

- Pumps
- Compressors
- Blowers

All NOLTA Push-Button 50 Series are equipped with a thermo electromagnetic release push button starter that can be used as on/off switch. The seamless connection of the bottom and the plug ensures a very high durability.
The motor starter switch can be used as anon/off switch.
Optionally the NOLTA Push-Button 50 Series is available with a phase sequence indicator.

Available versions:

Voltage Frequency	Plug Pins	Features	CEE 16 A	CEE 32 A	CEE + Under voltage coil 16 A	CEE + Under voltage coil 32 A
400 V, 6h, 50-60 Hz	3P+E		50 5022..	50 6022..	80 5122..	80 6122..
	3P+E	Shunt trip + Monitoring unit	80 5052..	80 6052..		
	3P+E+N		50 5042..	50 6042..		
	3P+E+N	Phaseinverter + Phase sequence indicator	50 5047..	50 6047..		
	3P+E+N				80 5142..	80 6142..
	3P+E+N	Phase inverter + Phase sequence indicator			80 5147..	80 6147..
	3P+E+N	Shunt trip + Monitoring unit	80 5062..	80 6062..		
	3P+E+N	Shunt trip + Monitoring unit Phase inverter + Phase sequence indicator	80 5067..	80 6067..		
	3P+E+N	Phase inverter + Phase sequence indicator	80 5247..	80 6247..		
	3P+E+N	Phase inverter + Phase sequence indicator, Hour counter	80 5447..	80 6447..		
500 V, 7h, 50-60 Hz	3P+E		50 5024..	50 6024..		
	3P+E				80 5124..	80 6124..
	3P+E+N		80 5044..	80 6044..	80 5144..	80 6144..
	3P+E+N	Phase inverter + Phase sequence indicator	80 5048..	80 6048..	80 5148..	80 6148..
	3P+E	Shunt trip + monitoring unit	80 5054..	80 6054..		
	3P+E+N	Shunt trip + monitoring unit	80 5064..	80 6064..		
	3P+E+N	Shunt trip + monitoring unit Phase inverter + Phase sequence indicator	80 5069..	80 6069..		
>50 V, 10h, 100-300 Hz	3P+E		50 5090..	50 6090..		
50-500Hz	2xM32		50 6942..			
50-60Hz	2xM32	Phase sequence indicator 400V	50 6947..			

Explanations to individual electronics on page 62.

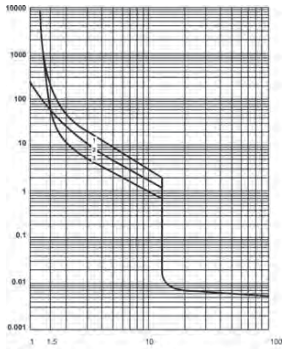
Other versions available upon request

Ranges of adjustment:

Adjustment range	max. back up fuse	Order-No. addition
0.10 – 0.16 A	Short-circuit-protection no fusing necessary up to Icc = 50 kA	..21
0.16 – 0.25 A		..22
0.25 – 0.40 A		..23
0.40 – 0.63 A		..24
0.63 – 1.00 A		..25
1.00 – 1.60 A		..26
1.60 – 2.50 A		..27
2.50 – 4.00 A		..28
4.00 – 6.30 A		..29
6.00 – 10.00 A	80 A	..30
9.00 – 14,00 A	80 A	..31
13,00 – 18.00 A	80 A	..32
17.00 – 23.00 A	80 A	. .33*
20.00 – 25.00 A	80 A	..34*

*) only available with CEE 32A

Tripping Characteristics:



1. 3-pin load, cold
2. 2-pin load, cold
3. 3-pin load, warm

Technical data:

Housing material:	Polycarbonate
Protection class:	IP 45 (IP55*)
Length:	(CEE 16 A) 285 mm
	(CEE 32 A) 300 mm
	(2x M32) 275 mm
Width:	90 mm
Height:	87 mm
Weight:	(CEE 16 A) app. 960 g
	(CEE 32 A) app. 1050 g

Notice:

Items with 2x M32 cable glands are rated **IP55**.

Optionally available with level controller N1 or N1pro (see page 50)

The NOLTA Contactor Combination offers optimal protection for all electric motors up to 5.5 kW (7.4 hp), e.g.:

- Pumps
- Compressors
- Automatic / Manual level control applications

All NOLTA Contactor Combinations are equipped with an operating- and a manual/automatic rocker switch.
Optionally the NOLTA contactor combination is available with phase sequence indicator, phase inverter, operating indicator or without plug.
With its additional cable gland the contactor combination is easy to equip with a float switch or a remote monitoring device.

Available versions:

Voltage Frequency	Plug Pins	Features	CEE 16 A	CEE 32 A	Without CEE + Phase inverter 16 A
400 V, 6h, 50-60 Hz	3P+E+N		80 4241..	80 8241..	80 9241..
	3P+E+N	Phase inverter + Phase sequence indicator	80 4253..	80 8253..	80 9253..
	3P+E+N	Phase inverter + Phase sequence indicator / operating indicator	80 4255..	80 8255..	80 9255..
400 V 50-60 Hz					80 9241..
		Phase sequence indicator			80 9253..
		Phase sequence indicator + operating indicator			80 9255..

With additional electronics (standard version equipped with phase inverter and phase sequence indicator)

400 V, 6h, 50-60 Hz	3P+E+N	Restart inhibit	80 4701..	80 8701..	80 9702..
	3P+E+N	Failure indicator / 24 V control voltage max. 8 / restart inhibit	80 4800..	80 8800..	80 9800..
	3P+E+N	Operating indicator / Tightness monitoring	80 4256..	80 8256..	80 9256..
	3P+E+N	Phase failure / phase sequence monitoring	80 4901..	80 8901..	80 9901..

Explanations to individual electronics on page 62

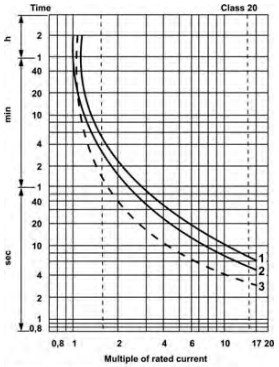
Other versions available upon request

Ranges of adjustment:

Adjustment range	max. back up fuse	Order-No. addition
0.10 – 0.23 A	0.5 A	..01
0.23 – 0.36 A	1.0 A	..02
0.36 – 0.54 A	1.6 A	..03
0.54 – 0.80 A	2.0 A	..04
0.80 – 1.20 A	4.0 A	..05
1.20 – 1.80 A	6.0 A	..06
1.80 – 2.60 A	8.0 A	..07
2.60 – 3.70 A	10.0 A	..08
3.70 – 5.50 A	16.0 A	..09
5.50 – 8.00 A	20.0 A	..10
8.00 – 11.50 A	25.0 A	..11
10.50 – 14.00 A	32.0 A	..12

Higher ampere ranges see page 12

Tripping Characteristics:



1. Symmetrical load, 3-phase, cold
2. 2-phase load, cold
3. Symmetrical load, 3-phase, warm

How to specify your order:

80 425508	
80..	Main group
..4255..	Type description
..08	Adjustment range

NOLTA motor-starter plug, CEE 16 A, 3P+E+N, 6h, 400 V, 50 - 60 Hz, with contactor and motor protective relay. Adjustment range 2.6 – 3.7 A, Phase inverter, Phase sequence indicator and Operating indicator

Technical data subject to change

Technical Data

Housing material:	Polycarbonate
Protection class:	IP 44
Length:	(CEE 16 A) 290 mm (CEE 32 A) 310 mm
Width:	110 mm
Height:	80 mm
Weight:	approx.. 1100 g

NOLTA 15 kW Contactor Combination

The NOLTA Contactor Combination offers optimal protection for all electronic motors up to 15 kW (20 hp), e.g.:

- Pumps
- Compressors
- Automatic / Manual level control application

All NOLTA 15 kW (20 hp) Contactor Combinations are equipped with an operating- and a manual / automatic rocker switch as well as an input lead with CEE 32 A phase inverter and phase sequence indicator. Optionally the NOLTA contactor combination is available with an operating indicator.

Available Versions:

Voltage/ Frequency	Input-lead with 32 A Plug	Features	CEE
400 V, 6h, 50-60 Hz	3P+E+N	Phase inverter + Phase sequence indicator	80 9253..
	3P+E+N	Phase inverter + Phase sequence indicator + Operating indicator	80 9255..

With additional electronics (standard version equipped with Phase inverter + Phase sequence indicator)

400 V, 6h, 50-60 Hz	3P+E+N	Restart inhibit / Operating indicator	80 9702..
	3P+E+N	Operating indicator / Tightness monitoring	80 9256..

Description of electronics on page 62.

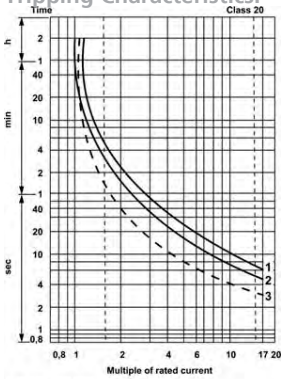
Other versions available upon request

Ranges of Adjustment:

Adjustment Range	max. back up fuse	Order-No. addition
12.00 – 18.00 A	35.0 A	..13
16.00 – 24.00 A	50.0 A	..14
23.00 – 32.00 A	63.0 A	..15

Technical data subject to change

Tripping Characteristics:

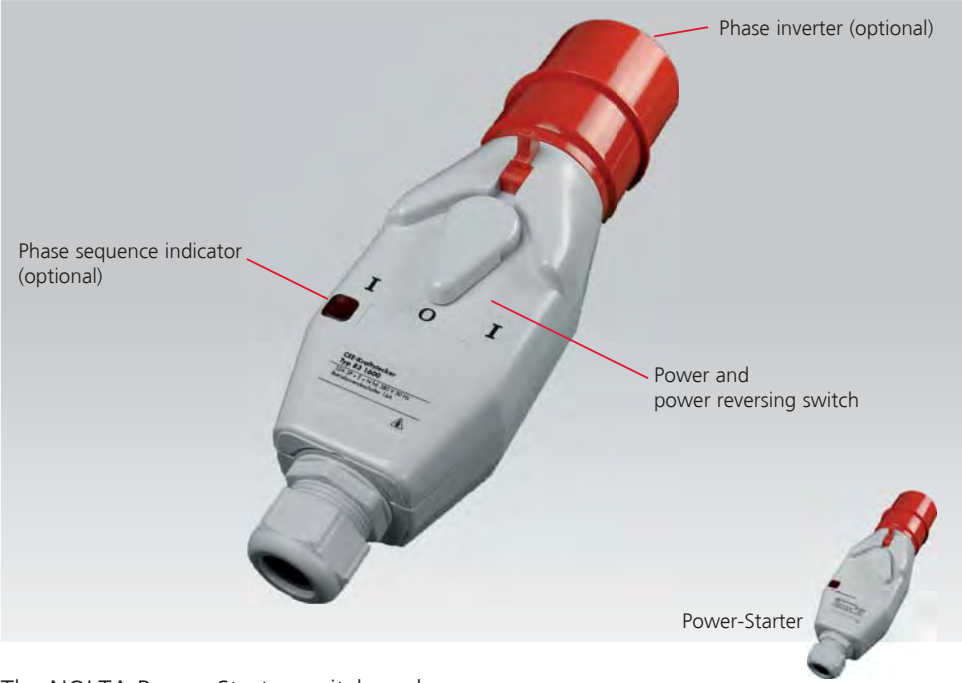


1. Symmetrical load, 3-phase, cold
2. 2-phase load, cold
3. Symmetrical load, 3-phase, warm

Technical data:

Housing material:	Polycarbonate
Protection class:	IP 44
Length	325 mm
Width:	145 mm
Height:	140 mm
Weight:	approx. 2500g

Power-Starter
Power-Reverser



The NOLTA Power-Starter switch and Power-Reverser for safe switching of all electric motors, e.g.:

- Agitators
- Reversing motors
- Conveyors

Fax order: +1 (617) 963 3594

Power-Starter
Power-Reverser

All NOLTA Power-Starter and Power-Reverser switches are equipped with a rotary toggle switch to start and stop the connected motor. Alternatively the switch can be used as an operating or operating reversing-plug. Optionally NOLTA power-starter and power-reverser switches are available with a phase inverter and a phase sequence indicator.

Available versions:

With Power switch max. 32A

Voltage Frequency	Plug Pins	Features	CEE 16 A	CEE 32 A
400 V, 6h, 50-60 Hz	3P+E+N		83 1001	83 1501
	3P+E+N	Phase inverter, Phase sequence indicator	83 1004	83 1504

With Power reversing switch max. 20A

Voltage Frequency	Plug Pins	Features	CEE 16 A	CEE 32 A
400 V, 6h, 50-60 Hz	3P+E+N		83 1100	83 1600
	3P+E+N	Phase inverter, Phase sequence indicator	83 1104	83 1604

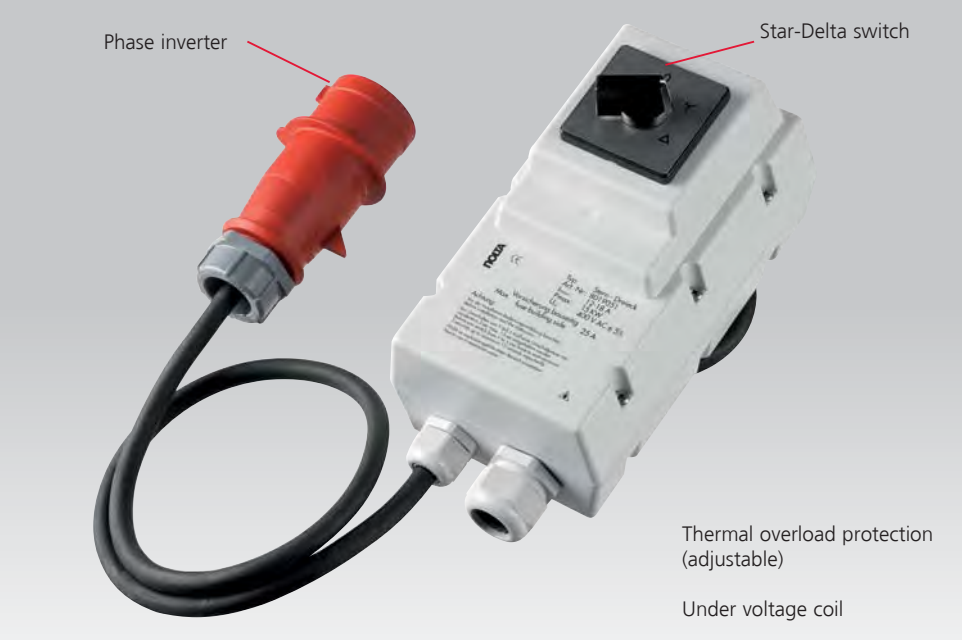
Other versions available upon request

Technical Data:

Housing material:	Polycarbonate
Protection class:	IP 44
Length	(CEE 16 A) 265 mm (CEE 32 A) 285 mm
Width:	84 mm
Height:	70 mm
Weight:	approx. 650 g

Technical data subject to change

Email order: info@noltainc.com



The NOLTA Star-Delta easy start for heavy applications, e.g.:

- Rolling mills
- Move mills
- Waste water pumps

All NOLTA Star-Delta starters are equipped with a rotary selection switch with thermal and under voltage release as well as a connection motor thermal sensor. The starters are standardly equipped with a carrying handle and an input lead with CEE 32 A phase inverter 3P+E+N, 6h, 400 V.

Available versions:

Voltage Frequency	Adjustment Range	Order Number
400 V, 6h, 50-60 Hz	12.10 – 18.20 A	8019051
	17.00 – 26.00 A	8019052
	24.00 – 37.00 A	8019053

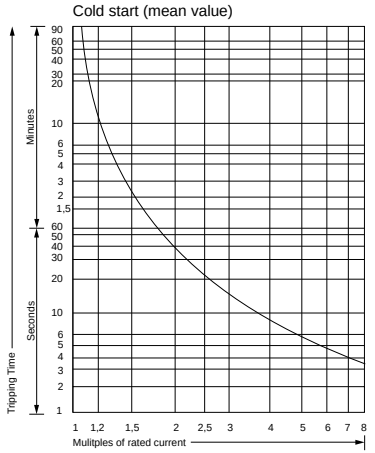
Other versions available upon request

Technical Data:

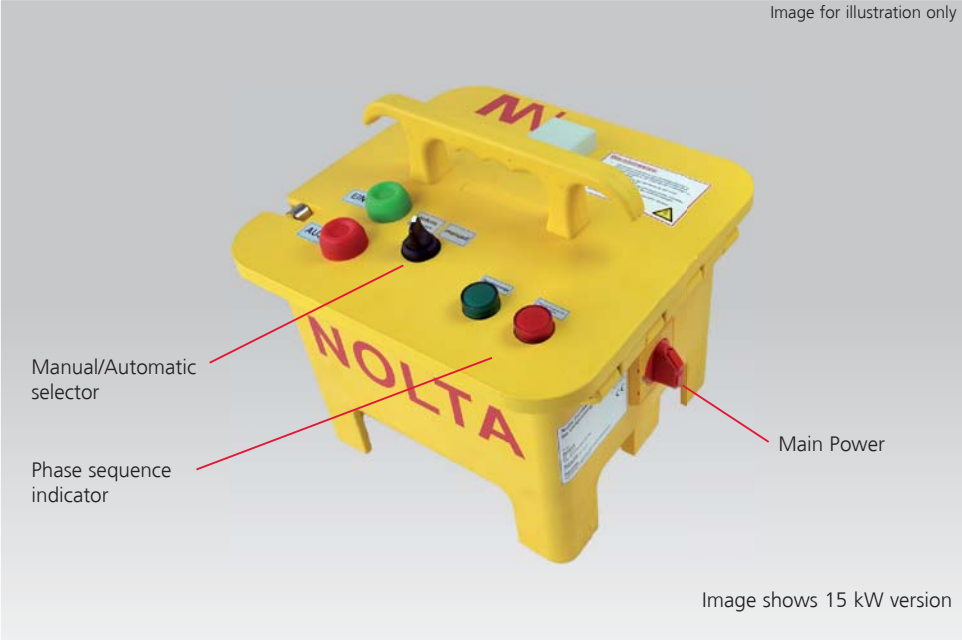
Housing material:	Polycarbonate
Protection class:	IP 45
Length:	315 mm
Width:	145 mm
Height:	200 mm
Weight:	Approx. 2700g
Supply voltage::	400 V, 50 Hz
Tolerance range:	+6% - 10% of the rated voltage according to DIN EN 60038 (VDE 0175)
Breaking capacity:	Star-delta start up to 15 kW
Ambient temperature:	-15 °C bis +40 °C
Test voltage:	2500 V / 50 Hz
Protection against contact:	According to VDE 0660-504 BGV A3
Supply:	Connection cable with 32 A CEE plug 5-pole with phase inverter
Motor side gland:	M32 (clamping range 11-21 mm)
Features:	Motor protection, star-delta starter, phase inverter, under voltage release, thermal contact connection

Technical data subject to change

Tripping characteristic:



The release characteristics shows the opening delay of the switches average value of the strewing volumes from cold contition with 20°C ambient temperature. With devices at operating temperature the time lag of the bimetal tripping devices sinks by approx. 1/4 of the read off values.



The portable NOLTA Soft-Starter for pumps and motors with high initial currents, e.g.:

- Waste water stations
- Mud pumps
- Industrial motors

7.5 kW

22 kW

All NOLTA Soft-Starters are equipped with a motor protection switch with thermo electro-magnetic release as well as a phase sequence and run indicator.
They offer connections for single point and dual level controls as well as level sensors.
Motors with integrated or external motor thermal sensors can also be connected.
A range of optional connection sets are available for easy installation.
Availability of features and accessories can vary between different versions.

Available Verisons:

7.5 kW Soft-Starter

		Article Number.
	Basic - Soft-Starter <7.5W	70 5000..
Adjustment range motor protection	6.30 - 9.00 A	..30
	9.00 - 12.50 A	..31
	12.50 - 16.0 A	..32

15 kW Soft-Starter

		Article Number
	Basic - Soft-Starter <15kW	70 5100..
Adjustment range motor protection	13.00 – 18.00 A	..32
	17.00 – 23.00 A	..33
	20.00 – 25.00 A	..34
	24.00 – 32.00 A	..35

22 kW Soft-Starter:

		Article No.
	Basic - Soft-Starter <22kW	70 5200..
Adjustment range motor protection	30.00 - 40.00A	..36
	37.00 - 50.00A	..37

Other versions available upon request

Accessories

		Artikel Nummer
Connection-Sets	Connection-Set CEE 32A 3m	03 3203
	Connection-Set CEE 63A 3m	03 6303
Level controller (See page 32)	e.g. Level Control MS1 10m	40 000110
	e.g. Level Control MS1 20m	40 000120

Compatible with all float switches in the NOLTA Catalogue. The connection set includes a 3m H07RN-F cable with pre-assembled connector plug. Other cable lengths are available upon request.

How to specify your order:

70 510033	
70..	Basic model
..5100..	Type description
..33	Adjustment range

NOLTA-Soft-Starter <15kW. Adjustment range 17.00-23.00A. with running and phase sequence indicator

Technical data subject to change

Technical Data:

	7,5 kW	15 kW	22kW
Housing:	Solid rubber "Signal Yellow" RAL 1003	Solid rubber "Signal Yellow" RAL 1003	Solid rubber "black"
Protection class:	IP 44	IP 44	IP 44
Dimensions (L x W x H incl. handle):	306/230/288 mm	360 x 340 x 330 mm	565/450/460 mm
Switch cycles:	20 Starts/h	Max. 20 Starts/h	Max. 20 Starts/h
Soft-starter operating current max.:	IEC max. 16,0 A UL max. 15,2 A	max. 30.0 A IEC max. 28.0 A UL	max. 45.0 A IEC max. 46.2 A UL
Weight:	app. 7 Kg	12.0 kg (26.5 lbs) 14.6 kg (32.2 lbs) with 2 level controllers MS1 10m	24.5 kg (54.0 lbs)

Combine it with float switch N1 or N1 pro (see page 50)

The NOLTA Motor Starter 230V for all single phase motors,
e.g.:

- Pumps
- Buzz saws
- Industrial motors

The NOLTA Motor Starter is equipped with an over-current protection switch and an ON / OFF switch or optionally a manual / automatic switch.
The type 81 02.. is suitable for the connection of a level controller.

Available versions:

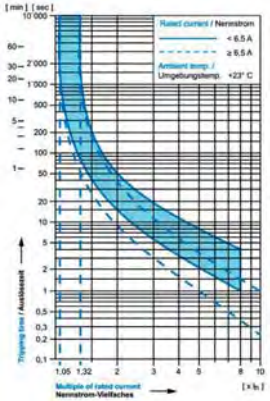
Type	on/off switch (max. 8A)	manual/ automatic switch (max. 8A)	over-current protection switch
81 00..	X		X
81 02..		X	X

Motor Starter can be mounted wit h a NIVA float switch on demand

Nominal current:

Nominal current	Order-No. addition
1.0 A	..01
1.5 A	..02
2.0 A	..03
2.5 A	..04
3.0 A	..05
3.5 A	..06
4.0 A	..07
4.5 A	..08
5.0 A	..09
5.5 A	..10
6.0 A	..11
6.5 A	..12
7.0 A	..13
7.5 A	..14
8.0 A	..15

Tripping Characteristics:



How to specify your order:

81 0208	
81..	Main group
..02..	Type description
..08	Nominal current
NOLTA-Motor Starter 230 V, 50 Hz, with Manual/Automatic switch max. 8A and Over current protection, 4.5 A	

Technical data subject to change

- Also available with Swiss plug type CH12.

Technical data:

Housing material:	Polycarbonate
Protection class:	IP 44
Length:	140 mm
Width:	66 mm
Height	88 mm
Weight:	approx. 320 g

Combine with float switches N1 and N1 pro (see page 50)

The NOLTA capacitor plug for all one phase motors, e.g.:

- Pumps
- Buzz saws
- Industrial motors

All NOLTA capacitor plugs are equipped with an operating capacitor and an over-current protection switch. Type 81 58.. may be used with a level controller.

Available versions:

Type	on/off switch with over-current protection (max. 8A)	on/off switch with over-current protection (max. 16A))	manual/ automatic switch (max. 8A)
81 53..		X	
81 58..*	X		X

* only available up to max. 8A.

Other versions available upon request

Capacitance:

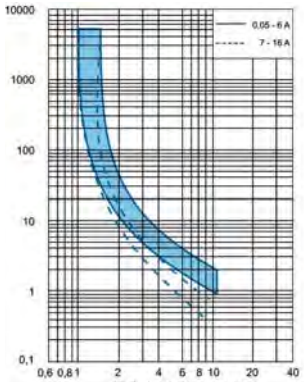
Rated capacitance µF ± 5% µF + 10%	Order-No. addition
20 µF	..29..
25 µF	..32..
30 µF	..35..

Nominal current:

Nominal current	Order-No. addition
0.5 A	..06
0.8 A	..09
1.0 A	..11
1.2 A	..13
1.5 A	..16
1.8 A	..18
2.0 A	..19
2.5 A	..21
3.0 A	..22
3.5 A	..23
4.0 A	..24
5.0 A	..26
6.0 A	..28
7.0 A	..30
8.0 A	..32
9.0 A	..34
10.0 A	..35
12.0 A	..37
15.0 A	..40
16.0 A	..41

Type 81 58.. to max. 8 A

Tripping Characteristics:



Multiplied nominal current

How to specify your order:

	81 532928
81..	Main Group
..5329..	Capacitance
..28	Nominal current

NOLTA-Capacitor Plug 230 V, 50 Hz, with Capacitor 20 µF, On/Off switch and over current protection, 6,0 A

Technical data subject to change

Technical data:

Housing material:	Polycarbonate
Protection class:	IP 44
Length:	140 mm
Width:	66 mm
Height	110 mm
Weight	approx. 320 g

Piggy-Back plug with motor protection

Piggy-Back plug with motor protection

Combine it with float switches N1 and N1pro (see from page 50)

The NOLTA Piggy-Back plug with motor protection for all single phase motors, e.g. in:

- Tanks
- Wells
- Ponds

The NOLTA Piggy-Back plug with on/off-switch and motor protection creates a plug and pump level controlled pump application.
Whether a tank needs to be filled or emptied this plug, with the corresponding float switch, is put in between the pump plug and the power outlet.
The NOLTA Piggy-Back plug is fitted with a 8A motor protection. Sizes below 8A are available upon request. If no float switch is needed, the Piggy-Back plug can be fitted with a motor protection of up to 16A.
Optional accessories include a weight for fine tuning of the switching point.

Available Versions

Type	Application	Order number
N1	normally open	81Z02032..
N1	normally closed	81Z02132..
N1 pro	normally open	81Z02232..
N1 pro	normally closed	81Z02332..

Adjustment range:

Nominal current	Order No. addition
0.5 A	..06..
0.8 A	..09..
1.0 A	..11..
1.2 A	..13..
1.5 A	..16..
1.8 A	..18..
2.0 A	..19..
2.5 A	..21..
3.0 A	..22..
3.5 A	..23..
4.0 A	..24..
5.0 A	..26..
6.0 A	..28..
7.0 A	..30..
8.0 A	..32..
9.0 A	..34
10.0 A	..35
12.0 A	..37
15.0 A	..40
16.0 A	..41

With controller only available up to 8A

Cable length:

Cable length in meters	Order number addition
2	..02
5	..05
10	..10
20	..20

Other lengths available upon request

How to specify your order:

81Z020..	Main group
..32..	Nominal current
..05	Cable length

81Z0203205 = NOLTA-Piggy-Back plug with motor protection, 50 Hz, with On/Off switch + over current protection 8.0 A with pre-mounted float switch "N1 N/O 5m".

Technical data subject to change

Technical Data Float Switch:

N1:	see page 50
N1 pro:	see page 52

Technical Data Plug:

Housing material:	Polycarbonate
Protection class:	IP 44
Length:	140 mm
Width:	66 mm
Height:	110 mm
Weight:	app. 320 g

- Also available with Swiss plug type (Plug CH12 and socket CH13)

The NOLTA Compact Plug 230V for all indoor single phase motors, e.g. in:

- Power drills
- Saws
- Industrial motors

All NOLTA compact plugs are motor protection plugs with an over current protection up to 16A at input voltage 250V. The version with an on/off switch includes a starter function.

Available Versions

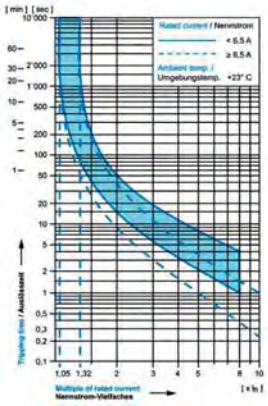
Compact Plug:

Nominal current	Order No.
0.5 A	81 0105
0.8 A	81 0108
1.0 A	81 0109
1.2 A	81 0110
1.5 A	81 0113
1.8 A	81 0114
2.0 A	81 0115
2.5 A	81 0117
3.0 A	81 0118
3.5 A	81 0119
4.0 A	81 0120
4.5 A	81 0121
5.0 A	81 0122
6.0 A	81 0123
7.0 A	81 0124
8.0 A	81 0125
9.0 A	81 0126
10.0 A	81 0127
11.0 A	81 0128
12.0 A	81 0129
13.0 A	81 0130
14.0 A	81 0131
15.0 A	81 0132
16.0 A	81 0133

Compact Plug with On/Off switch:

Nominal current	Order No.
0.5 A	81 0234
0.8 A	81 0237
1.0 A	81 0238
1.2 A	81 0239
1.5 A	81 0242
1.8 A	81 0243
2.0 A	81 0244
2.5 A	81 0246
3.0 A	81 0247
3.5 A	81 0248
4.0 A	81 0249
4.5 A	81 0250
5.0 A	81 0251
6.0 A	81 0252
7.0 A	81 0253
8.0 A	81 0254

Tripping Characteristics



Technical Data:

Housing:	PC Makrolon
Protection Class:	IP 20
Length:	90 mm
Width:	43 mm
Height:	67 mm
Weight:	app. 110 g

Rubber Plug
Connector Plug

The NOLTA Rubber Plug
for all one phase motors, e.g.:

- Pumps
- Buzz saws
- Industrial motors

Fax order: +1 (617) 963 3594

Rubber Plug
Connector Plug

The NOLTA Rubber Plug is equipped with an over-current release up to 16 A at a rated voltage of 250 V. This type is also available as a rubber plug, without an integrated on/off switch.

Available Versions

Connector plug **with** motor protection **without** On/Off switch:

Nominal current	Article No.
0.5 A	81 0305
0.8 A	81 0308
1.0 A	81 0310
1.2 A	81 0312
1.5 A	81 0315
1.8 A	81 0317
2.0 A	81 0318
2.5 A	81 0320
3.0 A	81 0321
3.5 A	81 0322
4.0 A	81 0323
4.5 A	81 0324
5.0 A	81 0325
5.5 A	81 0326
6.0 A	81 0327
7.0 A	81 0328
8.0 A	81 0329
8.5 A	81 0330
9.0 A	81 0331
10.0 A	81 0332
11.0 A	81 0333
12.0 A	81 0334
13.0 A	81 0335
14.0 A	81 0336
15.0 A	81 0337
16.0 A	81 0338

Connector plug **with** motor protection **with** On/Off switch:

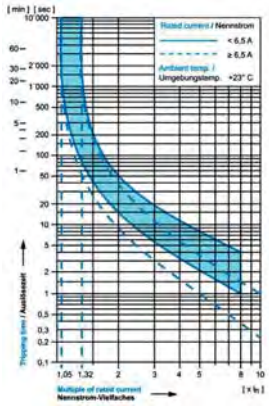
Nominal current	Article No.
0.5 A	81 1305
0.8 A	81 1308
1.0 A	81 1310
1.2 A	81 1312
1.5 A	81 1315
1.8 A	81 1317
2.0 A	81 1318
2.5 A	81 1320
3.0 A	81 1321
3.5 A	81 1322
4.0 A	81 1323
4.5 A	81 1324
5.0 A	81 1325
6.0 A	81 1327
7.0 A	81 1328
8.0 A	81 1329

Rubber plug **without** motor protection **with** On/Off switch:

Description	Article No.
Rubber plug with On/Off switch max. 6 A	81 0358
Rubber plug with On/Off switch max. 8 A	81 0360

Technical data subject to change

Tripping Characteristics



Technical data:

Housing material:	NBK
Protection class:	IP 44
Length:	100 mm
Width:	57 mm
Height:	85 mm
Weight:	approx. 200 g

- Other plug types available upon request

Email order: info@noltainc.com

Overview
Water Technology

Overview
Water Technology

NIVA is the water technology brand of NOLTA.
NIVA level controllers are the ideal solution for your applications due to:

1. High material resistance

- Due to special materials, even the standard versions meet the requirements of 90% of all applications.

2. Internal weight

- Cost efficient since no additional cable weight is necessary. The level controller remains in place on its own weight.

3. Special application variants

- Solutions for special applications such as EX zones, high temperatures, solvents, and potable water.

4. Easy installation

- The same type of controller can be wired to work in filling or emptying applications.

5. Form follows function

- High reliability even in small diameters. The drop shaped design keeps solid matter from getting stuck on the edges, ensuring proper function of the controller.

6. Reliable functionality

- Very long lasting almost maintenance-free functionality due to robust materials and a special cast resin encapsulation technique.

Recommended usage by category	MS1	MS1 EX	MS1 EX C	MS1 C	MS1 H	MS1 S	MS1 UL	MS1 ACS	N1	N1 pro	KR1 EX	M2	M3
Waste water disposal	•	•				•	•			•	•	•	•
Water supply	•	•		•			•	•	•		•	•	•
Water recycling / Reservoirs	•						•					•	•
General Industry	•	•		•	•	•	•			•	•	•	•
Chemical Industry	•	•	•	•	•	•	•			•	•	•	•
Regenerative Energy	•	•	•	•	•	•	•			•	•	•	•
Mining / Oil industry	•	•	•	•	•	•	•			•	•	•	•
Medical / Pharmaceutical	•				•		•			•		•	•
Construction	•								•	•		•	•

Resistance List	MS1	MS1 EX	MS1 EX Teflon	MS1 C	MS1 H	MS1 S	MS1 UL	MS1 ACS	N1	N1 pro	KR1 EX	M2	M3
Rainwater	•	•	•	•	•	•	•		•	•	•	•	•
Ground water	•	•	•	•	•	•	•		•	•	•	•	•
Potable Water								•					
Waste water with suds	•	•	•	•	•	•	•			•	•	•	•
Sea and River water	•	•	•	•	•	•	•		•	•	•	•	•
Mineral water	•	•	•	•	•	•	•	•	•	•	•	•	•
Chloride water	•	•	•	•	•	•	•			•	•	•	•
Salt water	•	•	•	•	•	•	•		•	•	•	•	•
Brine	•	•	•	•	•	•				•	•	•	•
Vegetable oils	•	•	•	•	•	•				•	•	•	•
Fruit acid	•	•	•	•	•	•				•	•	•	•
Alcohol	•	•	•	•	•	•				•	•	•	•
Emulsions with oils and fats	•	•	•	•	•	•				•	•	•	•
Ethyl alcohol			•	•									
Gasoline			•	•									
Chrome baths (Electroplating)			•	•									
Crude oil / fuel oil	•		•	•									
Brake fluid			•	•									
Fatty acid			•	•									
Lye			•	•									
Sulfuric acid solutions			•	•									
Solvent containing fluids			•	•									
Diesel			•	•									
Hydroxypropionic acid, diluted			•	•									
Max. ambient Temperature	80°C	80°C	80°C	100°C	90°C	100°C	60°C	70°C	60°C	85°C	80°C	80°C	80°C

This list was composed to the best of ones knowledge. It is based on empiric data and supplier data sheets. Since no plastic is resistant to all media and resistance heavily depends on external factors such as temperature, mix ratio etc. we strongly recommend to test the products in a controlled environment.

The NIVA Level Controller MS1 is engineered especially for use in sewage works and pumping stations with liquids heavily charged with solid matter such as raw sewage etc. Thanks to the good chemical and thermal properties our level controllers are resistant to lees, uric acid, fecal sewage water, oils, petrol, diesel oil, emulsions, alcohol, fruit acids, and even many chemicals. For use at temperatures of up to 80 °C (176 °F).

Available Versions:

Type	Cable	Cable length (approx.)	Order Number
SPDT	TPK/PVC 3 x 0.75	5m (16ft)	40 000105
SPDT	TPK/PVC 3 x 0.75	10m (30ft)	40 000110
SPDT	TPK/PVC 3 x 0.75	20m (65ft)	40 000120
SPDT	TPK/PVC 3 x 0.75	30m (98ft)	40 000130

Other cable types and lengths are available upon request

Application:

For use in municipal, industrial, commercial and domestic applications.

The NIVA Level Controller MS1
is the ideal solution to control liquid levels
with limited switching space, e.g. in:

- Pump stations
- Wells
- Pump chambers

Electronic connection:

Connection of level controller	Wire		
	grey	black	brown
For emptying a tank normally open	insulate	X	X
For filling a tank normally closed	X	insulate	X
Alarm high level	insulate	X	X
Alarm low level	X	insulate	X

Technical data subject to change

Technical Data:

Specific weight:	0.95 - 1.05 or according to specification
Max. temperature:	80°C
Breaking capacity:	1mA / 4V - 5A / 250V*
Switch point:	10°
Protective system:	IP 68 / 7 bar
Equipment group:	II
Cable cross section:	3x0.75 mm²
Height / diameter:	180 / 100 mm
Housing quality:	Polypropylene (PP)
Housing Color:	Orange
Cable quality:	TPK/PVC
Cable color:	Orange

* Micro-switch with gold-plated contacts made especially for low currents in electronic circuits

NOLTA Level Controller MS1 EX

The NIVA Level Controller MS1 EX is the ideal solution to control liquids with limited switching space in potentially explosive atmospheres classified Cl.1 Div.1, (ATEX Zone 0, 1 or 2) e.g. in:

- Refineries
- Gas stations
- Sewage works

The NIVA Level Controller MS1 EX meets the latest requirements of EC directive 95/9/EC (ATEX 95) and the international directive IECEx, which must be respected by applications in potentially explosive areas. In accordance with license ASEV 99.110036.02 the Level Controller MS1 EX may be used in zone 0, zone 1 and zone 2 as well as in gas groups IIA, IIB and IIC, where an explosion hazard exists due to combustible materials in temperature classes T1 to T6.

Available versions:

Type	Cable	Cable length (approx.)	Order number
SPDT	TPK/PVC 4G0.75	5m (16ft)	40 000205
SPDT	TPK/PVC 4G0.75	10m (30ft)	40 000210
SPDT	TPK/PVC 4G0.75	20m (65ft)	40 000220
SPDT	TPK/PVC 4G0.75	30m (98ft)	40 000230
			Other cable types and lengths are available upon request
Intrinsic safety barrier relay			06 3232

MS1 EX C with higher resistance to chemicals

Type	Cable	Cable length (approx.)	Order number
SPDT	Teflon/FEP 4G0.5	5	40 001505
SPDT	Teflon/FEP 4G0.5	10	40 001510
SPDT	Teflon/FEP 4G0.5	20	40 001520
SPDT	Teflon/FEP 4G0.5	30	40 001530
			Other cable types and lengths are available upon request

Application:

For use in intrinsically safe electrical circuits in zones 0, 1 and 2 (Cl.1 Div.1). IECEx certificate is recognized in many countries including the U.S., Canada, India, China, Australia. For a complete list check the IEC countries website.

Electronic connection

Connection of level controller	Wire			
	grey	black	brown	⏚
For emptying a tank	insulate	X	X	X
For filling a tank	X	insulate	X	X
High level alarm	insulate	X	X	X
Low level alarm	X	insulate	X	X

Technical data subject to change

⏚ Ground wire to prevent electrostatic discharge

Technical Data

Specific weight:	0.95 –1.05 or according to specification
Max. temperature:	80°C (176°F)
Breaking capacity:	1 - 100 mA / 4 V - 40 V*
Switch point:	10°
Inductance L_i:	0
Capacitance C_i:	0
Protective system:	II 1G Ex ia IIC T6
Cable cross section:	4G0.75 mm²
Height / diameter:	180 / 100 mm
Housing quality:	PRE-ELEC PP**
Housing Color:	Black
Cable quality:	TPK / PVC
Cable color:	Blue

* Micro-switch with gold-plated contacts made especially for low currents in electronic circuits
** Specially deflective plastic to prevent electrostatic charging when used in Ex-area (in accordance with ATEX 95).

- EC type examination certificate SEV 13 ATEX 0102
- IECEx SEV 13.0001

The NIVA Level Controller MS1 C
is the ideal solution to control liquids with
limited switching space. For example in:

- Chemical plants
- Electro plating
- Purifying plants

The NIVA Level Controller MS1 C was designed for an extremely high resistance to chemical liquids and for use at high temperatures of up to +100°C (212°F).
For use in solvents we recommend Type MS1 CL.

Available versions:
MS1 C

Type	Cable	Cable length (approx.)	Order number
SPDT	Teflon/FEP 4 x 0.5	5m (16ft)	40 000705
SPDT	Teflon/FEP 4 x 0.5	10m (30ft)	40 000710
SPDT	Teflon/FEP 4 x 0.5	20m (65ft)	40 000720
SPDT	Teflon/FEP 4 x 0.5	30m (98ft)	40 000730

Other cable types and lengths are available upon request

MS1 CL with resistance to solvents:

Type	Cable	Cable length (approx.)	Order number
SPDT	Teflon/FEP 4 x 0.5	5m (16ft)	40 001205
SPDT	Teflon/FEP 4 x 0.5	10m (30ft)	40 001210
SPDT	Teflon/FEP 4 x 0.5	20m (65ft)	40 001220
SPDT	Teflon/FEP 4 x 0.5	30m (98ft)	40 001230

Other cable types and lengths are available upon request

Application:
For use in chemically loaded liquids at temperatures up to 100 ° C (212 ° F).
Resistant to: Ethyl alcohol, Gasoline/Diesel, fatty acids and others. Due to its special cable quality the MS1 CL is also resistant to solvents.

For a more complete list please see page 31.

Electronic connection

Connection of level controller	Wire			
	grey	black	brown	⏚
For emptying a tank	insulate	X	X	X
For filling a tank	X	insulate	X	X
High level alarm	insulate	X	X	X
Low level alarm	X	insulate	X	X

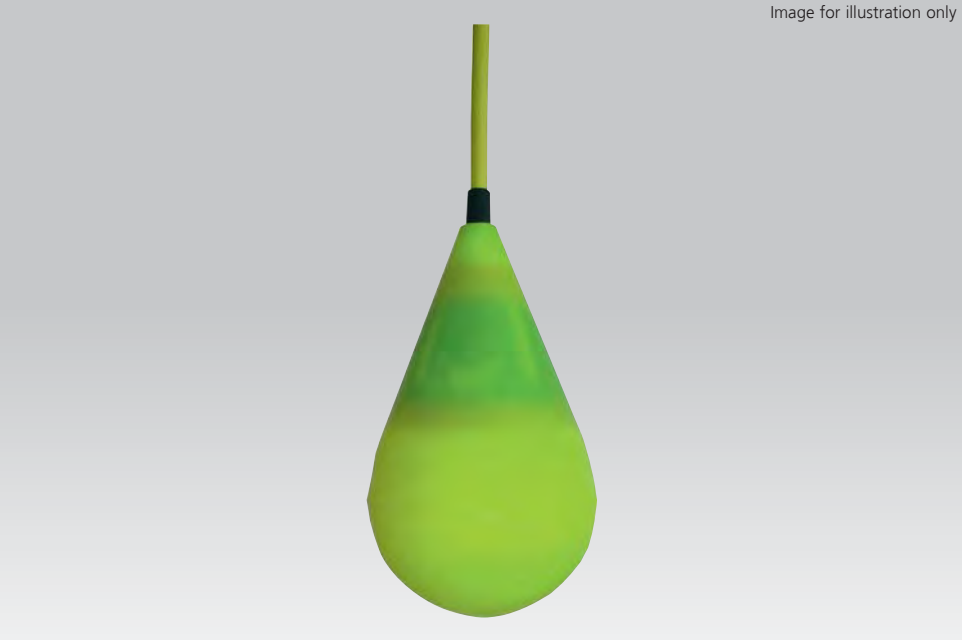
Technical data subject to change

⏚ Ground wire

Technical Data:

Specific weight:	0.95 - 1.05 or according to specification
Max. temperature:	100°C (212°F)
Breaking capacity:	1mA / 4V - 5A / 250V*
Switch point:	10°
Protective system:	IP 68 / 7 bar
Equipment group:	II
Cable cross section:	4 x 0.5 mm²
Height / diameter:	180 / 100 mm
Housing quality:	Polypropylene
Housing Color:	Grey
Cable quality:	Teflon (FEP)
Cable color:	Black

* Micro-switch with gold-plated contacts made especially for low currents in electronic circuits



The NIVA Level Controller MS1 H is engineered especially for use in halogen-free installations. The adhesion free connection cable provides protection against water and dirt as well as a high resistance against oils.

The MS1 H is halogen-free and develops in case of a fire only small corrosive emissions. It is resistant to hydrolysis, flexible in low temperatures, cut and abrasion resistant and therefore ideally suited for use in extreme environments.

Available Versions:

Type	Cable	Cable length (approx.)	Order number
SPDT	PUR/TPE 4G1.0	5m (16ft)	40 002205
SPDT	PUR/TPE 4G1.0	10m (30ft)	40 002210
SPDT	PUR/TPE 4G1.0	20m (65ft)	40 002220
SPDT	PUR/TPE 4G1.0	30m (98ft)	40 002230

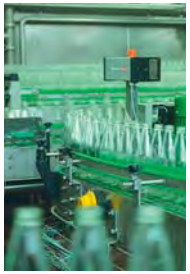
Other cable types and lengths available upon request

Application:

Halogen-free installations for indoor and outdoor applications.
For use in temperatures up to +90°C (194°F).

The NIVA Level Controller MS1 H is the ideal solution for halogen-free installations, e.g. in:

- Hospitals
- Public institutions
- Chemical plants



Electronic connection

Connection of level controller	Wire			
	grey	black	brown	⏚
For emptying a tank	insulate	X	X	X
For filling a tank	X	insulate	X	X
High level alarm	insulate	X	X	X
Low level alarm	X	insulate	X	X

Technical data subject to change

⏚ Ground wire

Technical Data:

Specific weight:	0.95 - 1.05 or according to specification
Max. temperature:	90°C
Breaking capacity:	1mA / 4V - 5A / 250V
Switch point:	10°
Protective system:	IP 68 / 7 bar
Equipment group:	II
Cable cross section:	4G1.0 mm²
Height / diameter:	180 / 100 mm
Housing quality:	Polypropylene
Housing Color:	Luminous yellow
Cable quality:	PUR/ TPE
Cable color:	Luminous yellow

* Micro-switch with gold-plated contacts made especially for low currents in electronic circuits

- Flame resistant (IEC 60332-1-2)

The NIVA Level Controller MS1 S for use in high temperature environments e.g. in

- Galvanization
- Cement plants
- Chemical applications

The NIVA MS1 S may be used in high temperature environments where common isolating and sheathing materials would melt or become brittle.

Its resistance to numerous oils, alcohols, animal and vegetable fats as well as other chemical substances make it especially useful in applications for the chemical industry.

Available versions:

Type	Cable	Cable length (approx.)	Order number
SPDT	SiHF 4G0.75	5m (16ft)	40 001805
SPDT	SiHF 4G0.75	10m (30ft)	40 001810
SPDT	SiHF 4G0.75	20m (65ft)	40 001820
SPDT	SiHF 4G0.75	30m (98ft)	40 001830

Other cable types and lengths available upon request

Application:

In areas with high ambient temperatures where common isolating and sheathing materials would melt or become brittle.
For continued use in aggressive fluids with temperatures up to +100°C (212°F).

Electronic connection

Connection of level controller	Wire			
	grey	black	brown	⏚
For emptying a tank	insulate	X	X	X
For filling a tank	X	insulate	X	X
High level alarm	insulate	X	X	X
Low level alarm	X	insulate	X	X

Technical data subject to change

⏚ Ground wire

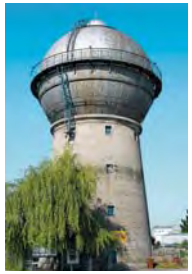
Technical Data:

Specific weight:	0.95 - 1.05 or according to specification
Max. temperature:	100°C
Breaking capacity:	1mA / 4V - 5A / 250V
Switch point:	10°
Protective system:	IP 68 / 7 bar
Equipment group:	II
Cable cross section:	4G0.75 mm²
Height / diameter:	180 / 100 mm
Housing quality:	Polypropylene
Housing color:	Red
Cable quality:	SiHF 4G0.75
Cable color:	Dark Red

* Micro-switch with gold-plated contacts made especially for low currents in electronic circuits

The NIVA Level Controller MS1 ACS is the ideal solution to control liquids with high hygienic requirements. For example in:

- Wells
- Bottling plants
- Potable water reservoirs



The NIVA MS1 ACS was designed especially for use in potable water and food applications. With the French ACS – drinking water certificate this robust and long lasting switch qualifies for trouble free applications and a secure investment in your systems. The ACS certificate is accepted by many municipalities.

Available versions:

Type	Cable	Cable length (approx.)	Order number
SPDT	TML-B 3x0.75	5m (16ft)	40 000805
SPDT	TML-B 3x0.75	10m (30ft)	40 000810
SPDT	TML-B 3x0.75	20m (65ft)	40 000820
SPDT	TML-B 3x0.75	30m (98ft)	40 000830

Other cable types and lengths are available upon request

Application:

Especially for use in potable water and food applications.

- Drinking water certificate for France. Other countries accreditations pending.

Electronic connection:

Connection of level controller	Wire grey	Wire black	Wire brown
For emptying a tank normally open	insulate	X	X
For filling a tank normally closed	X	insulate	X
Alarm high level	insulate	X	X
Alarm low level	X	insulate	X

Technical data subject to change

Technical data:

Specific weight:	0.95 –1.05 or according to specification
Max. temperature:	70°C
Breaking capacity:	1 mA / 4 V - 5 A / 250 V *
Switch point:	10°
Protective system:	IP 68 / 2 bar
Equipment group:	II
Cable cross section:	3 x 0.75 mm²
Height / diameter:	180 / 100 mm
Housing quality:	SABIC PP 56M10 00900
Housing color:	Blue
Cable quality:	TML-B
Cable color:	Blue

* Micro-switch with gold-plated contacts made especially for low currents in electronic circuits

- ACS drinking water certificate 12 ACC NY 231

NOLTA Level Controller MS1 UL

The NIVA level controller MS1 UL for use in North America, e.g. in:

- Treatment plants
- Pump stations
- Lift stations

The NIVA level controller MS1 UL is engineered especially for use in sewage works and pumping stations in liquids heavily charged with solid matter such as raw sewage etc.

Thanks to the good chemical and thermal properties our level controllers are resistant to lees, uric acid, fecal sewage water, oils, petrol, diesel oil, emulsions, alcohol, fruit acids, and even many chemicals. For use at temperatures up to 60 °C (140 °F).

Available Versions:

Type	Cable	Cable length*	Order Number
SPDT	SJOW 3/18 AWG	15 ft (ca 5m)	42 000115
SPDT	SJOW 3/18 AWG	30 ft (ca. 9m)	42 000130
SPDT	SJOW 3/18 AWG	65 ft (ca. 20m)	42 000165
SPDT	SJOW 3/18 AWG	98 ft (ca. 30m)	42 000198

*ATTENTION: Cable length in ft for MS1UL

Other cable types and lengths available upon request

Application:

For use in North America

Electronic connection:

Connection of level controller	Wire white	Wire red	Wire black
For emptying a tank	insulate	X	X
For filling a tank	X	X	insulate
Alarm high level	insulate	X	X
Alarm low level	X	X	insulate

Technical data subject to change

Technical Data:

Specific weight:	0.95 - 1.05 or according to specification
Max. temperature:	60°C (140°F)
Breaking capacity:	5A / 125V*
Switch point:	10°
Protective system:	IP 68 / 2 bar
Equipment group:	II
Cable cross section:	3/18 AWG
Height / diameter:	180 / 100 mm
Housing quality:	PP UL94 V0
Housing color:	Black
Cable quality:	SJOW
Cable color:	Black
Certificates:	Intertek cETLus 4004472

* Micro-switch with gold-plated contacts made especially for low currents in electronic circuits

- With Intertek -certificate 4004472

The NIVA Level Controller M2 is the ideal solution to control liquids with very limited switching space. For example in:

- Constricted diameters
- Narrow hoppers
- Small tanks

Due to its smaller volume and its lesser buoyancy force, the "small" Level Controller M2 is only suitable for use in media without large amounts of solid matter and especially suitable for use in small tanks with limited space.

Available Versions

Type	Cable	Cable length (approx.)	Order Number
SPDT	TPK/PVC 3 x 0.5	5m (16ft)	40 000505
SPDT	TPK/PVC 3 x 0.5	10m (30ft)	40 000510
SPDT	TPK/PVC 3 x 0.5	20m (65ft)	40 000520
SPDT	TPK/PVC 3 x 0.5	30m (98ft)	40 000530

Other cable lengths and types are available upon request

With pre-mounted cable weight (300 g)

Type	Cable	Cable length (approx.)	Order Number
SPDT	TPK/PVC 3 x 0.5	5m (16ft)	40 000605
SPDT	TPK/PVC 3 x 0.5	10m (30ft)	40 000610
SPDT	TPK/PVC 3 x 0.5	20m (65ft)	40 000620
SPDT	TPK/PVC 3 x 0.5	30m (98ft)	40 000630

Other cable types and lengths are available upon request

Application:

Liquids without solids. Small diameters. For cable weights to stabilize and adjust the switching point.
Additional weights and other accessories on page 60.

Electronic Connection

Connection of level controller	Wire		
	grey	black	brown
For emptying a tank	insulate	X	X
For filling a tank	X	insulate	X
High level alarm	insulate	X	X
Low level alarm	X	insulate	X

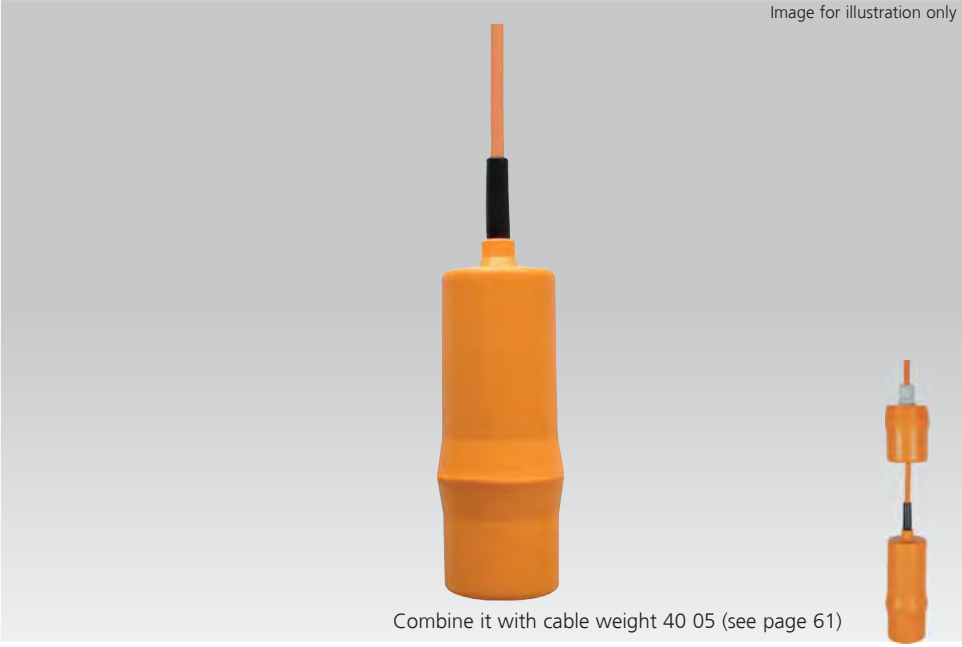
Technical data subject to change

Technical Data

Max. temperature:	80°C
Breaking capacity:	1 mA / 4 V - 2 A / 250 V *
Switch point:	10°
Protective system:	IP 68 / 2 bar
Protective class:	II
Cable cross section:	3 x 0.5 mm²
Height / diameter:	90 / 60 mm
Housing quality:	Polypropylene (PP)
Housing color:	Orange
Cable quality:	TPK / PVC
Cable color:	Orange

* Micro-switch with gold-plated contacts made especially for low currents in electronic circuits

NOLTA Level Controller M3



The NIVA level controller M3 is the ideal solution to control liquid levels with limited switching space, e.g. in:

- Barrels
- Silos
- Tanks

The Niva M3 Level controller was developed especially for use with barrel pumps. With a max. diameter of only 44mm it can operate in barrels with 2" inlets.

This way simple solutions such as barrel and drum emptying may be realized.
The TPK/PVC Cable is resistant to a multitude of liquids and ensures a maintenance free operation.

Available Versions

Type	Cable	Cable length (approx.)	Order number
SPDT	TPK/PVC 3 x 0.5	5m (16ft)	40 001305
SPDT	TPK/PVC 3 x 0.5	10m (30ft)	40 001310
SPDT	TPK/PVC 3 x 0.5	20m (65ft)	40 001320
SPDT	TPK/PVC 3 x 0.5	30m (98ft)	40 001330

Other cable types and lengths available upon request

With pre-assembled cable weight (160g):

Type	Cable	Cable length (approx.)	Order number
SPDT	TPK/PVC 3 x 0.5	5m (16ft)	40 001405
SPDT	TPK/PVC 3 x 0.5	10m (30ft)	40 001410
SPDT	TPK/PVC 3 x 0.5	20m (65ft)	40 001420
SPDT	TPK/PVC 3 x 0.5	30m (98ft)	40 001430

Other cable types and lengths available upon request

Application

Emptying or filling barrels, tanks and drums.
May be used with the additional cable weight 40 00 (ø 60mm) for stabilizing the switching point. For weights and other accessories please refer to page 60.

Electronic Connection

Connection of level controller	Wire		
	grey	black	brown
For emptying a tank	insulate	X	X
For filling a tank	X	insulate	X
High level alarm	insulate	X	X
Low level alarm	X	insulate	X

Technical data subject to change

Technical Data

Max. temperature:	80°C
Breaking capacity:	1 - 100 mA / 4V - 2A / 250V*
Switch point:	10°
Protective system:	IP 68 / 2 bar
Equipment group:	II
Cable cross section:	3 x 0,5 mm²
Height / diameter:	120 / 44 mm
Housing quality:	Polypropylene
Housing color:	Orange
Cable quality:	TPK / PVC
Cable color:	Orange

* Micro-switch with gold-plated contacts made especially for low currents in electronic circuits

The NIVA Level Controller N1 is the ideal solution to control the level of most diverse liquids, for example in:

- Construction site dewatering
- Industrial filling plants
- Pit draining

The NIVA Level Controller N1 can be used everywhere where liquid levels must be supervised. The NIVA N1 is simple to install and maintenance-free. Thus fast economical and reliable solutions for your application can be realized. Different to the MS control switches, the N1 is a pump switch which can be used for direct control of pumps. The NIVA Level Controller N1 can also be supplied in combination with the Contactor Combination, the NOLTA Motor-starter 230V or the NOLTA Capacitor Plug.

Available Versions:

Type	Cable	Length (m)	Order Number
Normally open	H 07 RN-F 3G1mm²	5	41 000905
Normally closed	H 07 RN-F 3G1mm²	5	41 001005
Normally open	H 07 RN-F 3G1mm²	10	41 000910
Normally closed	H 07 RN-F 3G1mm²	10	41 001010
Normally open	H 07 RN-F 3G1mm²	20	41 000920
Normally closed	H 07 RN-F 3G1mm²	20	41 001020

Available Versions with piggy-back plug:

Type	Cable	Length (m)	Order Number
Normally open	H 07 RN-F 3G1mm²	5	41Z000905
Normally closed	H 07 RN-F 3G1mm²	5	41Z001005
Normally open	H 07 RN-F 3G1mm²	10	41Z000910
Normally closed	H 07 RN-F 3G1mm²	10	41Z001010
Normally open	H 07 RN-F 3G1mm²	20	41Z000920
Normally closed	H 07 RN-F 3G1mm²	20	41Z001020

Other cable types and lengths are available upon request

Application:

For direct pump control in large diameter water basins and dewatering applications, for example in domestic waste water, surface water, dewatering and ground water applications.

Comparison N1 and N1 pro

	N1	N1 pro
Application	■ Clear water ■ Surface water ■ Dewatering ■ Groundwater	■ Industrial waste water ■ Emulsions of oils and fats ■ Diluted acids and brines ■ Aggressive mediums
Max. temperature	60°C	80°C
Cable quality	H07RN-F	proResist (TPE)
Cable cross-section	3G1.0 mm²	3G1.0 mm²
Cable color	Black	Orange
Certificates	CE TÜV	CE

■ TÜV certificate AN 50253239

Technical Data:

Max. temperature:	60°C
Breaking capacity:	10 (8) A / 250V 10 (4) A / 400V
Switch point:	45°
Protective system:	IP 68 / 2 bar
Protection class:	II
Cable cross section:	3G1mm²
Length /Width / Height:	132 / 81 / 43 mm
Housing quality:	Polypropylene (PP)
Housing color:	Orange
Cable quality:	H07RN-F
Cable color:	Black
Certificates:	TÜV Rheinland, CE

NOLTA Level Controller N1 pro

The NOLTA Level Controller N1 pro is the ideal solution to control liquid levels in industrial applications such as:

- Industrial waste water
- Emulsion of oils
- Many chemicals

The NOLTA Level Controller N1 pro can be used everywhere where liquid levels must be superised. It is ideal for industrial applications. It is simple to install and maintenance-free. The N1 pro is equipped with Nolta's proResist cable which guarantees extreme durability and resistance. Different to the MS-type control switches, the N1 pro is a pump switch which can be used for direct control of pumps. The level controller N1 pro can also be supplied in combination with other NOLTA motor protection plugs.

Available Versions:

Type	Cable	Length (m)	Order Number
Normally open	proResist 3G1mm²	5	41 001205
Normally closed	proResist 3G1mm²	5	41 001305
SPDT	proResist 4G1mm²	5	41 001505
Normally open	proResist 3G1mm²	10	41 001210
Normally closed	proResist 3G1mm²	10	41 001310
SPDT	proResist 4G1mm²	5	41 001510
Normally open	proResist 3G1mm²	20	41 001220
Normally closed	proResist 3G1mm²	20	41 001320
SPDT	proResist 4G1mm²	5	41 001520

Available Versions with in-line plug:

Type	Cable	Length (m)	Order Number
Normally open	proResist 3G1mm²	5	41Z001205
Normally closed	proResist 3G1mm²	5	41Z001305
SPDT	proResist 3G1mm²	5	41Z001505
Normally open	proResist 3G1mm²	10	41Z001210
Normally closed	proResist 3G1mm²	10	41Z001310
SPDT	proResist 3G1mm²	5	41Z001510
Normally open	proResist 3G1mm²	20	41Z001220
Normally closed	proResist 3G1mm²	20	41Z001320
SPDT	proResist 3G1mm²	5	41Z001520

Other cable lengths are available upon request

Comparison N1 and N1 pro

	N1	N1 pro
Application	■ Clear water ■ Surface water ■ Dewatering ■ Groundwater	■ Industrial waste water ■ Emulsions of oils and fats ■ Diluted acids and brines ■ Aggressive mediums
Max. temperature	60°C	80°C
Cable quality	H07RN-F	proResist (TPE)
Cable cross-section	3G1.0 mm²	3G1.0 mm²
Cable color	Black	Orange
Certificates	CE TÜV	CE

Application:

For direct pump control for example in industrial waste water, emulsions of oils and fats, diluted acids and brines and aggressive medium applications.

Technical Data

Max. temperature:	80 ° C
Breaking capacity:	10 (8) A / 250V 10 (4) A / 400V
Switch point:	45°
Protective system:	IP 68 / 2 bar
Protection class:	II
Cable cross-section:	3G1mm²
Length /Width / Height:	132 / 81 / 43 mm
Housing quality:	Polypropylene (PP)
Housing color	Orange (N/O and SPDT White (N/C)
Cable quality:	proResist (TPE/PVC)
Cable color:	Orange
Certificates:	CE

The NIVA Level Controller KR1 EX is the ideal solution to control liquids in potentially explosive atmospheres classified Cl.1 Div.1, (ATEX Zone 0, 1 or 2) for example in:

- Gas stations
- Sewage works
- Fermentation plants

The NIVA Level Controller KR1 EX was designed especially for use in intrinsically safe electrical circuits in potentially explosive atmospheres. In accordance with license IECEx SEV 13.0002 the Level Controller KR1 EX may be used in hazardous areas as well as in gas groups IIA, IIB and IIC.

The controller is equipped with a change-over contact (SPDT), meaning that depending on the electrical connection, the level controller can be used both to empty and fill a tank. Unlike level controller MS1 EX, type KR1 EX is a wide angle controller, which means that only one controller is required for switching on and off.

Available Versions:

Type	Cable	Cable length (approx.)	Order Number
SPDT	TPK/PVC 4G0.75	5m (16ft)	40 000405
SPDT	TPK/PVC 4G0.75	10m (30ft)	40 000410
SPDT	TPK/PVC 4G0.75	20m (65ft)	40 000420
SPDT	TPK/PVC 4G0.75	30m (98ft)	40 000430

Other cable types and lengths are available upon request

Application KR1 EX:

For use in intrinsically safe electrical circuits in zones 0, 1 and 2 (Cl.1 Div.1). IECEx certificate is recognized in many countries including the U.S., Canada, India, China, Australia. For a complete list check the IEC countries website.

Electronic Connection:

Function	Wire			
	blue	black	brown	⏚
Normally Open	insulate	X	X	X
Normally Closed	X	insulate	X	X
Alarm High Level	insulate	X	X	X
Alarm Low Level	X	insulate	X	X

Technical data subject to change

⏚ Ground wire to prevent electrostatic charging

Technical Data:

Max. temperature:	80°C (176°F)
Breaking capacity:	1 - 100 mA / 4 V - 40 V*
Switch point:	45°
Capacitance C_i:	0
Inductance L_i:	0
Protective system:	IP 68 / 2 bar
EX Type:	II 1G Ex ia IIC T6
Cable cross section:	4G0.75 mm²
Height / diameter:	40 / 100 mm
Housing quality:	PRE-ELEC PP**
Housing Color:	Black
Cable quality:	TPK / PVC
Cable color:	Blue

* Micro-switch with gold-plated contacts made especially for low currents in electronic circuits
** Specially deflective plastic to prevent electrostatic charging when used in Ex-area (in accordance with ATEX 95).

- EC type examination certificate SEV 06 ATEX 0137
- IECEx SEV 13.0001

NOLTA Level Controller KR1

The NOLTA Level Regulator KR1 is the ideal solution to control liquid levels in industrial applications such as:

- Waste water
- Emulsion of oils
- Chlorine water

The NIVA level controller KR1 can be used everywhere where liquid levels must be supervised. The NIVA KR1 is ideal for industrial applications. It is simple to install and maintenance-free. Thus fast economical and reliable solutions can be realized. The KR1 is equipped with a TPK/PVC cable which guarantees extreme durability and resistance. The level controller KR1 can also be supplied in combination with the NOLTA contactor combination, the NOLTA motorstarter or the NOLTA capacitor plug.

Available Versions:

Type	Cable	Cable length (approx.)	Order Number
SPDT	TPK/PVC 4G1.0	5	40 000305
SPDT	TPK/PVC 4G1.0	10	40 000310
SPDT	TPK/PVC 4G1.0	20	40 000320
SPDT	TPK/PVC 4G1.0	30	40 000330

Other cable types and lengths are available upon request

Electronic Connection:

Function	Wire		
	blue	black	brown
Normally Open	insulate	X	X
Normally Closed	X	insulate	X
Alarm High Level	insulate	X	X
Alarm Low Level	X	insulate	X

Technical data subject to change

Technical Data:

Max. temperature:	80°C
Breaking capacity:	10(8)A / 250V
Switch point:	45°
Capacitance C_i:	-
Inductance L_i:	-
Protective system:	IP 68 / 2 bar
EX Type:	II
Cable cross section:	4G1,0 mm²
Height / diameter:	40 / 100 mm
Housing quality:	Polypropylene PP
Housing Color:	Orange
Cable quality:	TPK / PVC
Cable color:	Black

NOLTA Level Sensor IL-10

The Level Sensor IL-10
is designed for seamless level control
e.g. in:

- Wastewater treatment and biogas production
- Oil and fuel storage tanks
- Brackish water and fuel tanks in shipbuilding

The intrinsically safe submersible pressure transmitter model IL-10 has been designed for the highest requirements of level measurement. Owing to their high accuracy, reliability and their excellent media resistance, it is the ideal solution for almost all level measurements in hazardous areas.

Especially noteworthy are the outstanding approval-related characteristics (CENELEC approval per ATEX). In addition, the IL-10 has the North-American approvals FM (USA) and CSA (Canada)

Available Versions:

Type	Cable length in m	Cable	Measuring range	Art. No.
IL-10	10	PUR	0..0.10 bar (1mWs)	24 0110
IL-10	10	PUR	0..0.20 bar (2mWs)	24 0210
IL-10	10	PUR	0..0.25 bar (2.5mWs)	24 02510
IL-10	10	PUR	0..0.50 bar (5mWs)	24 0510
IL-10	20	PUR	0..0.10 bar (1mWs)	24 0120
IL-10	20	PUR	0..0.20 bar (2mWs)	24 0220
IL-10	20	PUR	0..0.50 bar (5mWs)	24 0520

Other cable length and types upon request

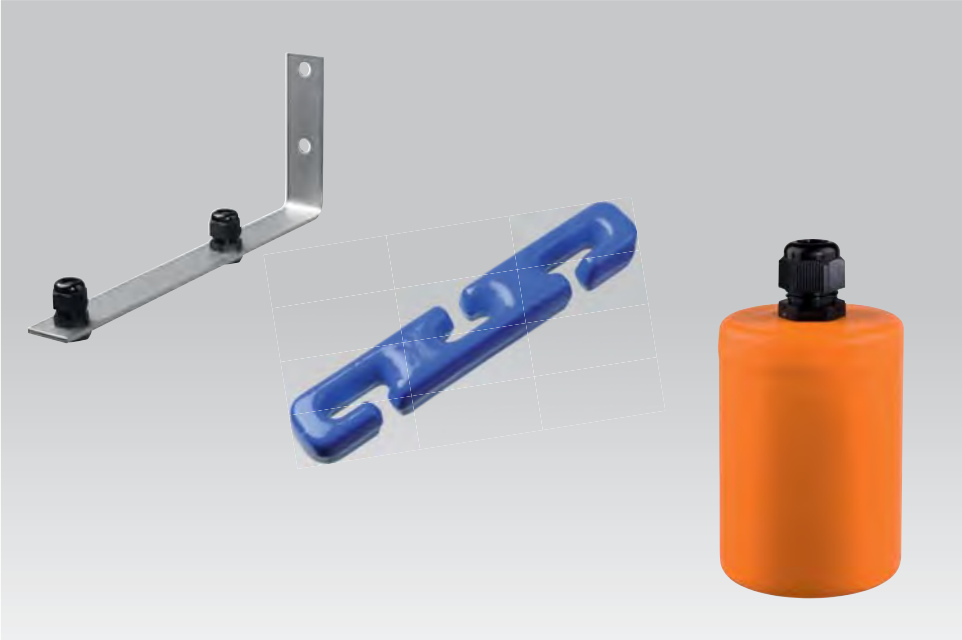
Application:

For continuous level measurements. The electrical output signal is fed to the pump control for reliable refilling and dry run protection.

Technical Data:

Input, fluid level:	0...0.5 bar
Output:	4...20mA, 2-wire
Medium:	Wastewater, Oil, Gasoline
Medium temperature:	-10 ... + 60 °C
Protective class:	IP 68, immersion depths of 300m
Housing:	Stainless Steel 316L
Protective tube:	PUR
Accuracy:	+/- 0,2%
Certificates:	CENELEC per ATEX, FM, cCSAus, GL, GOST-R, CRN

Technical data subject to change



Cable support bracket
Art.-No. 40 02

The stainless steel support bracket is mounted on the wall. With the included M16 cable glands, one or two level controllers can be suspended freely at exactly the required height. Comes with screws and anchors (M 6).

Cable weight
Art.-No. 41 03

The cable weight 41 03 weighs approximately 700g (1.5 lb) and can be used on all level controllers.

The weight can be retrofitted on already installed controllers.

Cable weight
Art.-No. 40 00 and 40 01

The cable weight 40 00 weighs approximately 300g (0.7 lb) and can be used with NIVA level controller M 2. Cable weight 40 01 weighs approximately 700 g (1.5 lb) and can be used with level controllers MS 1, N1 and KR1. Both weights must be fixed to the cable before installing the level controllers.

Technical Data:

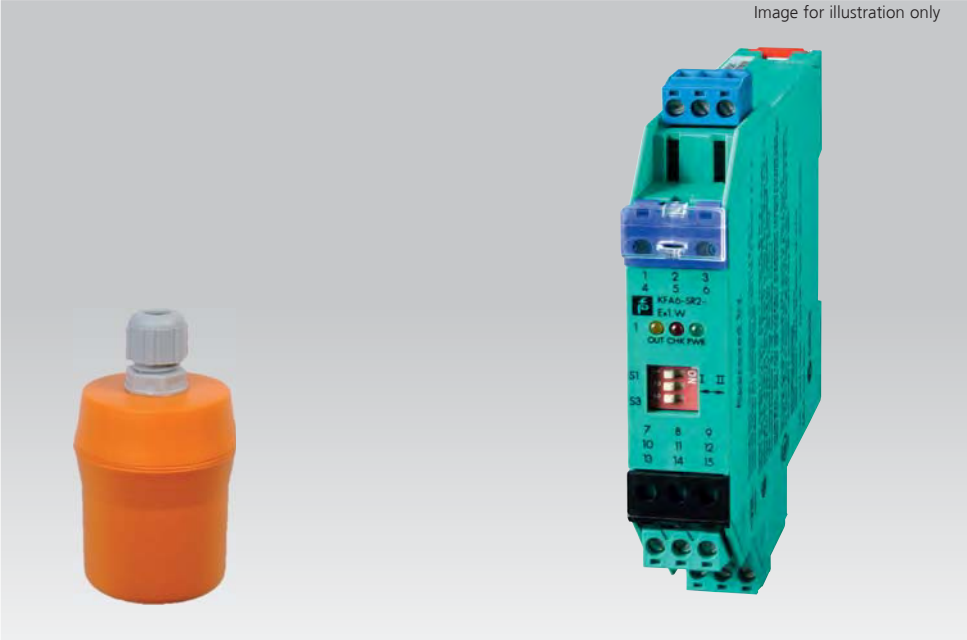
Material:	Stainless steel A2
Size:	280 x 110 x 30 x 4 mm
Cable gland:	M16 Polyamide
Clamping range:	4.5 - 10 mm (0.18 - 0.4 in)
Anchor:	M6 x 67 A4

Technical Data:

Weight:	700 g
Material:	Cast iron, plastic laminated
Cable gland:	3 cut-outs
Size L/H/W:	190 x 31 x 27 mm (7.5 x 1.2 x 1 in)

Technical Data:

Weight:	40 00 = 300 g (0.7 lb) 40 01 = 700 g (1.5 lb)
Material:	Polypropylene (PP)
Cable gland:	M16 Polyamide
Clamping range:	4.5 -10 mm
Size:	Ø 60 mm x 110 mm (Ø 2.36 in x 4.33 in)



Cable weight
Art.-No. 40 05

The cable weight 40 05 weighs approx. 160g (0.35 lbs) and fits all Level Controllers M2 and M3. It can not be used with IECEx devices.

The cable weight has to be fitted on the cable before installation of the controller.

If required the M3 can also be supplied with a pre-mounted weight. (See page 48)

Technical Data

Weight:	160 g
Material:	Polypropylene (PP)
Cable gland:	M12 PE/PP
Clamping range:	3 - 6 mm
Size:	Ø 44 mm x 55 mm

Intrinsically safe barrier Art.-No. 06 3232

This 1-channel intrinsic safety barrier relay is an important safety measure for intrinsically safe electrical circuits.

To ensure the safe disconnection of all intrinsically safe circuits in EX zones 0 and 1 (Cl.1 Div.1), a safety barrier relay is strictly required when installing EX-certified level controllers (EN 60079-11,14, 25 and EN 61241-11).

One relay is required for each switching point (number of controllers in EX zone).

Dual-channel barrier relays are available upon request.

Technical explanations of individual electronics:

Restart inhibit
In case of an interruption of the thermal switch in the engine coil the contactor will switch off. The electronic will only restart after a manual reset.

Leak monitoring
Should humidity ingress into the engine compartment, the electronic monitoring device will switch the contactor off. The electronic will only restart after a manual reset.

Thermal contact with under voltage coil
Measures the voltage between the hot wire and neutral. In case of power failure the device shuts off completely and can only be restarted manually.

24 V electronics
Here the control circuit is operated with 24 V. These devices can be operated without a neutral conductor.

Phase failure / Phase sequence indicator
This electronic will prohibit a motor start in case of wrong phase sequence or phase failure. This prevents the motor from running in the wrong direction or a fast overcharge.

Thermal contact with shunt trip
Monitors the thermal contact of the motor. After a power outage the motor or pump will restart automatically. The neutral wire is not required.

Technical data subject to change

Comparison of different starting methods of electrical motors

Direct start
Advantage: Proven, robust method, direct start, motor protection with electro magnetic tripping and one float switch connection is possible.
Disadvantage: Direct start is not suitable for all electrical motors.

Star-Delta Start
Advantage: Robust method, manual switching with rotary toggle, thermal motor protection included.
Disadvantage: Bypassing or continuous use of the star connection is possible. Short circuit protection must be adjusted. No float switch operation possible.

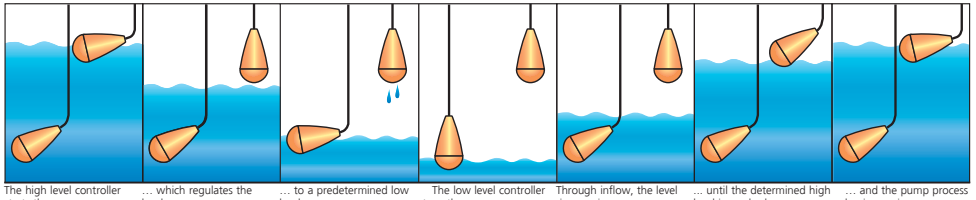
Soft-Starter
Advantage: Proven method, easy to adjust to soft start motors.
Disadvantage: Switching cycles per hour are limited. Additional modules such as motor protection with thermal magnetic release need to be adjusted. Float switch operation is possible to a limited extent.

Frequency converter
Advantage: "All inclusive", motor and customer specific adjustments are possible.
Disadvantage: Large structural form, short circuit protection needs to be adjusted. Very expensive.

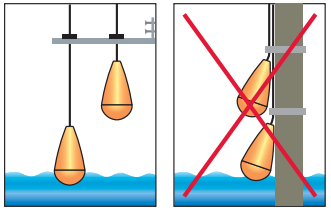
Technical explanations to water technology

Function

"MS" Series



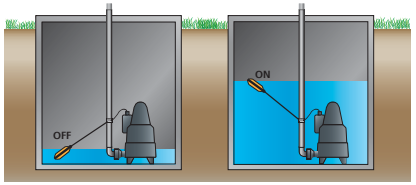
The high level controller starts the pump … | … which regulates the level … | … to a predetermined low level. | The low level controller stops the pump. | Through inflow, the level rises again … | … until the determined high level is reached … | … and the pump process begins again.



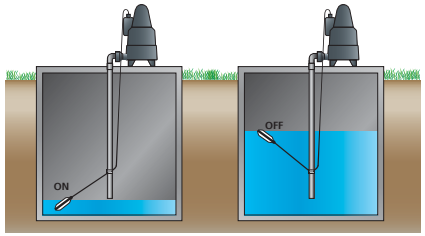
When installing the level controllers make sure that they are suspended freely and vertically, that they do not rest on the base, that they can float without interference from the shaft walls, pipes, fittings etc. and that they are not exposed directly to currents.

For simple mounting we can supply cable support brackets. The stainless steel support bracket is mounted on the wall. With the included M16 cable glands, one or two level controllers can be suspended freely at exactly the required height.

"N" and "KR" Series



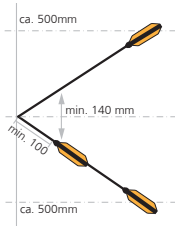
Type "empty" (Normally open)
This type is used when a fluid level is not to exceed a given mark. (spill over protection)
Common applications include waste water collection tanks and storage cisterns.



Type "Fill" (Normally closed)
This type is used when a fluid level is not to fall below a given mark.
Common applications include wells and fish ponds or tanks.

The illustration to the right is valid for all level controllers type "**N**" and "**KR**".
By changing the tether length of the cable the switching point can be adjusted to fit your needs.

It is important to respect the min. lengths of 100mm.
If this distance is not kept the cable may be damaged due to the bending radius.



The quality policy of Nolta GmbH

Customer satisfaction is our company's priority. We achieve this through the quality of our products and services, with the benchmark set by our customers.

CEO
Dr. Ing. Jochen Knake

The quality of our products and services is dependent on the individual effort of each employee along with continuous programs of supervision and quality control.

Under these prime conditions the requirements and specifications set forth by our customers are fulfilled.

Our commitment to improve our products and services is done on a daily basis. Management plays an integral part in ensuring the high standards demanded by our customers are met at all levels within Nolta GmbH.

All management levels ensure that the quality policy is understood and implemented by all employees.

We strengthen our market position through continued and constantly improved product quality and short lead times. The results are measured by customer satisfaction reviews.

To reduce the need for price adjustments we periodically review our manufacturing locations and outsourcing partners. Where applicable, and under close monitoring, external production is an option.

The service philosophy of Nolta GmbH

We understand quality not only in regards to our product but also in our service to our customers. Product quality is a matter of course and our highest priority. What distinguishes us from others, is our exemplary service which has made Nolta GmbH a reliable and trusted partner in motor protection and water technology for over 50 years.

We see ourselves not only as manufacturer and supplier of high quality products but also as a service provider for our customers. This includes uncomplicated communication channels and qualified consultation as well as target oriented training opportunities through the Nolta Academy.

We provide our customers with top end products and 50 years of experience in motor protection and water technology.

Nolta GmbH and the environment

At Nolta, we see the natural wealth of our environment as the foundation of our economic actions. Our actions are guided by our concern for the environment and our efforts to protect it from harmful influences.

For this reason, we manufacture our products using energy saving and environmentally friendly techniques. And when our products come to the end of their useful lives, we dispose of them in environmentally friendly ways.

At every level of management, we integrate the concern for the environment in our decision making process. Protecting the environment requires responsible actions by all employees. Furthermore, managers have the extra responsibility to ensure our environmental policies are followed and to lead by example.

The Nolta Academy

Complex machines and pump solutions require specialized knowledge.

As your partner, Nolta makes information about our products available to both manufacturers and end users.

The Nolta Academy hosts regular seminars training courses on operating, protecting, controlling, maintaining, and monitoring machines and pumps.

The integrated management system of Nolta GmbH

The main components in the quality of our product are the protection of our environment and the safety of our employees.

The basis for fulfilling these components is an integrated management system for quality management, environmental protection and occupational safety. We feel that it is our obligation to reach the best quality in our products while acting ecologically responsible.

At Nolta we undertake regular checks as to whether the actions of our company are in line with this policy, fulfill all legal requirements and strive for constant ecological improvement.

We want to ensure the technological and organizational implementation as well as the success of our environmental policy through our management system.

NOLTA
Water Technology

History

- 1959 Invention of single-phase motor protection starter by Walter Tatje
- 1960 Introduction of 3-phased motor protection starter
- 1969 Production of control units
- 1979 Opening of a company owned research lab for electronic switching units and control elements
- 1982 Opening of a tool shop and molding department
- 1996 DIN ISO 9001 certification
- 1997 Foundation of Nolta Academy
- 1998 Internationalization of sales especially within the European Union
- 2003 Invention of a patented telemetric motor protection plug for remote surveillance and maintenance of pumps and other machines
- 2007 Foundation of a subsidiary in Shenzhen, China
- 2008 Acquisition of NIVA, Albbruck, a leading level regulator manufacturer, and integration in the newly founded water technology department.
- 2008 Foundation of a subsidiary in Northampton, MA, USA, later moved to Boston
- 2011 Opening of the new manufacturing facility in Coelbe, Germany
- 2012 Patent for the worlds first wireless float switch
- 2013 Foundation of Nolta India pvt. ltd.
- 2014 Acquisition of 10% of Locca! a Geo-Location-Services Start-Up in Vienna Austria

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