

Levikos M18 Level Controller

OPERATION & MAINTENANCE MANUAL



LEVIKOS M18
LEVEL CONTROLLER
INSTALLATION & OPERATION MANUAL

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NOTES



LEVIKOS M18
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I INTRODUCTION

This manual is designed to provide all parties concerned with relevant information on installation and operation of the Levikos M18 Controller.

The Levikos M18 Controller is engineered to provide a dedicated Single or Dual (optional) tank level management system to the end user. It is designed to withstand harsh and diverse environments. The controller incorporates a unique combination of features ensuring total reliability when it comes to tank level indication, monitoring and control.

The Levikos M18 Controller is ideally suited for applications including but not limited to fire, sewage, effluent, storm, and potable water tank level monitoring.

The controller uses a versatile 4-20mA level and can be configured to display level and provide alarms at desired level depending on the end user requirements.





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3 SAFETY SUMMARY

The symbols below are used on the equipment and throughout this document to draw the user's attention to important operational and safety information.

	<p>CAUTION or WARNING</p> <p>Read complete instructions prior to installation and operation of the unit</p>
	<p>CAUTION or WARNING</p> <p>Read complete instructions prior to installation and operation of the unit</p>

All safety related instructions that appear in the manual must be observed to ensure personal safety and to prevent damage to either the instrument or the system. If the instrument is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

4 TECHNICAL ASSISTANCE

All parties involved shall read and understand this manual prior to installation and commissioning of the product. The Controller shall be handled with care and shall be used according to this manual for optimum results.

If the indicator (display unit) requires repairs, some special handling care should be taken. The device must be withdrawn from the case and immediately placed in an anti-static wrap; protected from heat and humidity.

Allied Pumps is committed to customer service and the Service Team can be contacted for assistance via below methods.



Telephone: +61 (0) 8 9350 1000

Fax: +61 (0) 8 9356 5255

Website: www.alliedpumps.com.au

Address: 2 Modal Crescent (Cnr Baile Rd), Canning Vale, WA 6155



5 SYSTEM SPECIFICATIONS

MECHANICAL (ENCLOSURE)

DIMENSIONS..... 300(H) x 250(W) x 150(D)
 APPROXIMATE WEIGHT.....5.85 – 6.76kg
 MATERIAL FINISH..... STEEL PAINTED RAL7032
 INGRESS PROTECTION..... IP66
 ENVIRONMENT OPERATING TEMPERATURE... 5 - 50°C

ELECTRICAL

POWER..... 240VAC,50Hz, 3 PIN PLUG CONNECTION
 MAX. CONSUMPTION..... 60W
 INPUT..... 4-20mA, Passive, 2 Wire
 INPUT ACCURACY.....0.15% SPAN
 OUTPUTS..... VFC, RATED 250VAC, 10A
 BOOT-UP TIME..... 3s DELAY
 ETHERNET COMMUNICATION..... RJ-45

6 SYSTEM OVERVIEW

The system consists of the following components.

ITEM NO.	ITEM DESCRIPTION	TAG	QUANTITY
1	Enclosure	n/a	1
2	240VAC/24VDC Power Supply	U0101	1
3	NI500 Indicator	F0109	1
4	Buzzer	H0119	1
5	Alarm Strobe	H0122	1
6	Mute Button	S0122	1
7	Mute Relay	K0125	1
8	Low Tank Level VFC Terminals X1:3, X1:4	n/a	1
9	High Tank Level VFC Terminals X1:5, X1:6	n/a	1
10	4-20mA Level Sensor	n/a	1
11	NI500 Indicator (Dual Tank Only)	F0128	1
12	Low Tank Level VFC Terminals X1:9, X1:10 (Dual Tank Only)	n/a	1
13	High Tank Level VFC Terminals X1:11, X1:12 (Dual Tank Only)	n/a	1
14	4-20mA Level Sensor (Dual Tank Only)	n/a	1
15	Moxa Mgate Switch (Optional)	F0143	1

6.1 COMPONENTS FUNCTION

ITEM	FUNCTION
240VAC/24VDC Power Supply	Transforms Single phase Power into 24VDC extra low voltage power
NI500 Indicator	Indicates Value of sensor reading and activates alarms
Buzzer	Provides audible warning when high or low level alarms are active
Alarm Strobe	Provides visual warning when high or low level alarms are active
Mute Button	Deactivates audible warning (if alarms are active) only when pressed
4-20mA Level Sensor	Measures Liquid Level and transmit 4-20mA signal to Indicator
Moxa Mgate Switch (Optional)	Provides communication gateway for TCP connection (Optional)

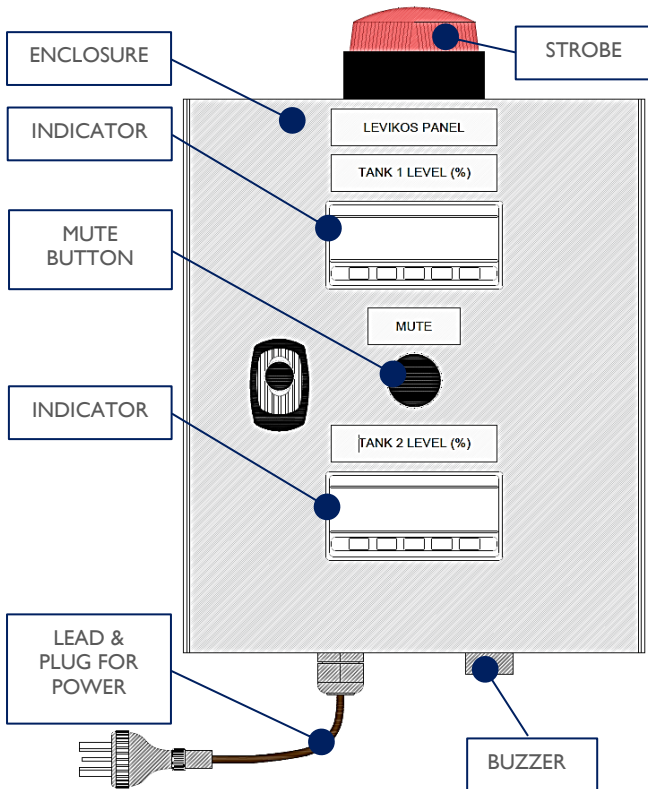


FIGURE 1.
LEVIKOS PANEL

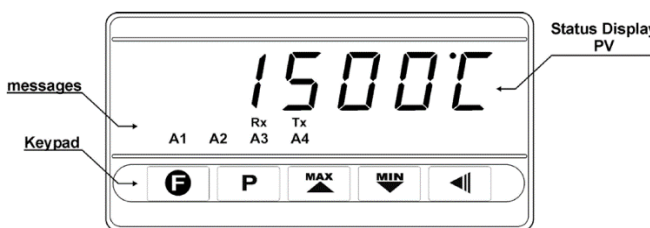


FIGURE 2.
INDICATOR FASCIA

7 INDICATOR PROGRAM KEYS

The following describes the program keys that the end user shall use to program the Levikos Indicator.

P PROGRAM KEY

This Key is used to access different displays with programmable parameters of the device

◀ BACK KEY

This Key is used to go back to previous parameter displayed in the menu cycle

MAX UP/MAX KEY

This Key is used to increase parameters or display maximum values stored in memory

MIN DOWN/MIN KEY

This Key is used to decrease parameters or display minimum values stored in memory

F FUNCTION KEY

This SPECIAL function key is NOT USED

7.1 RELEVANT PARAMETERS TABLE

TYPE	CODE	DESCRIPTION
4-20mA	c 4-20	Custom Linearization, user defined
4-20mA	4-20	Linear, scalable from (-)31000 to 31000
Input Type	in tYP	Selects the input signal or sensor type to be connected to the PV terminals. Refer to Table I for options. Changing the input type causes all other parameters related to PV and alarms to be changed as well.
Input Low Limit	in LoL	Sets the low limit fort input type 0-50mV, 4-20mA, 0-5V or 0-10V. When the PV Retransmission is used this limit defines the corresponding 4mA (or 0mA) in relation to the input value
Input High Limit	in HiL	Sets the high limit fort input type 0-50mV, 4-20mA, 0-5V or 0-10V. When the PV Retransmission is used this limit defines the corresponding

TYPE	CODE	DESCRIPTION
		20mA in relation to the input value
Alarm Set Points 1,2,3,4	SP AL 1	Defines the operation point of each alarm programmed with "Lo" or "Hi" functions, When an alarm is programmed with a differential function, the alarm setpoint value represents the deviation value of the alarm relative to the reference AL REF
	SP AL 2	
	SP AL 3	
	SP AL 4	
Alarm Functions 1,2,3,4	Fu AL 1	Defines functions for the alarms 1,2,3,4. oFF Alarm off iErr Broken or Shorted Sensor Lo Low value Hi High value dIF Lo Differential low dIF hi Differential high dIF ou Differential outside the range dIF in Differential within range
	Fu AL 2	
	Fu AL 3	
	Fu AL 4	

8 INDICATOR CONFIGURATION

The Levikos M18 is configured via the Front fascia of the Indicator (see Figure 2).

The installer/User shall step through the following to complete configuration.

8.1 PRE-REQUISITES

1. System is plugged into recommended Power Supply
2. Level Sensor's 4-20mA output is connected to Controller's terminals X1:1 and X1:2
3. Indicator NI500 is turned on (note indicator takes 3s to boot-up)

8.2 PARAMETER SET-UP

Provided all pre-requisites are actioned the user shall proceed according to the steps below.

SETTING INPUT TYPE – Configuration Cycle

1. From main menu press Program and Back Key simultaneously until the display shows **in tYP**
2. Move up or down the menu using the Up or Down Key to select **4-20**

SETTING INPUT LIMITS – Configuration Cycle

3. **in tYP** will display again after a short time. When it does using the Program Key navigate to **dp pOS** & set the decimal point to desired location using Up or Down Key
4. **in tYP** will display again after a short time. When it does using the Program Key navigate to **in LOL**
5. Using the Up or Down Key set the lower range value to be displayed for 4mA
6. **in tYP** will display again after a short time. When it does using the Program Key navigate to **in HIL**
7. Using the Up or Down Key set the higher range value to be displayed for 20mA

SETTING ALARM SET POINTS – Work Cycle

8. From main menu use the Up or Down Key navigate to **SP AL 1** & set the desired high level alarm value (this set point shall be within range set in **in LOL** & **in HIL**)
9. **SP AL 1** will display again after a short time. When it does use the Program Key to navigate to **SP AL 2** & set the desired low level alarm value using the Up or Down Key (this set point shall be within range set in **in LOL** & **in HIL**)
10. **SP AL 1** will display again after a short time. When it does use the Program Key to navigate to **SP AL 3** & set the desired high level alarm value using the Up or Down Key (this set point shall be set identical to **SP AL 1**)
11. **SP AL 1** will display again after a short time. When it does use the Program Key to navigate to **SP AL 4** & set the desired low level alarm value using the Up or Down Key (this set point shall be set identical to **SP AL 2**)

SETTING ALARM FUNCTIONS – Alarm Cycle

12. From main menu press Program and Back Key simultaneously until the display shows **Fu AL 1**. Using the Up and Down Key set the function to **H I**
13. **Fu AL 1** will display again after a short time. When it does use the Program Key to navigate to **Fu AL 2**. Using the Up and Down Key set the function to **Lo**
14. **Fu AL 1** will display again after a short time. When it does use the Program Key to navigate to **Fu AL 3**. Using the Up and Down Key & set the function to **H I**
15. **Fu AL 1** will display again after a short time. When it does use the Program Key to navigate to **Fu AL 4**. Using the Up and Down Key & set the function to **Lo**


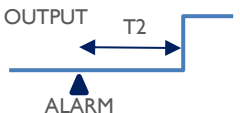
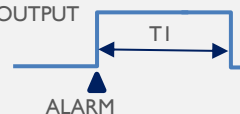
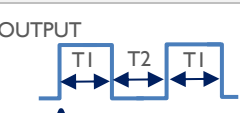
8.3 SPECIAL FUNCTIONS

8.3.1 ALARM TIMER

The alarms can be configured to perform timing functions. The configuration allows the alarm output to be delayed, or to deliver a single pulse or a train of pulses. The delay, the pulse width and the period are defined by the user.

Table 4 shows these advanced functions. Times T1 and T2 can be programmed from 0 to 6500 seconds. Programming 0 (zero) in the timer parameters T1 and T2 disables the timer function.

The LEDs associated with the alarm always light up when the alarm condition occurs, regardless of the current state of the output relay, which may be de-energized momentarily due to a time delay.

FUNCTION	T1(s)	T2(s)	OUTPUT
Normal	0	0	
Delayed	0	1 - 6500	
Pulse	1 - 6500	0	
Oscillator	1 - 6500	1 - 6500	

8.3.2 ALARM INITIAL BLOCKING

The initial blocking option inhibits the alarm from being recognized if an alarm condition is present when the controller is first energized. The alarm will be triggered only after the occurrence of a non-alarm condition followed by a new occurrence for the alarm.

The initial blocking is disabled for the sensor break alarm function.

9 REMOTE MONITORING

The Levikos M18 has 3 methods of monitoring.

1. Volt free Contacts (Low and High Level)
2. Modbus RTU (Serial RS 485)
3. Modbus TCP (Ethernet)

9.1 VOLT FREE CONTACTS

FUNCTION	TERMINALS	STATE	RATING
TANK 1 LOW LEVEL	X1:3 X1:4	Normally Open	250VAC, 10A
TANK 1 HIGH LEVEL	X1:3 X1:4	Normally Open	250VAC, 10A
TANK 2 LOW LEVEL (if installed)	X1:5 X1:6	Normally Open	250VAC, 10A
TANK 2 LOW LEVEL (if installed)	X1:7 X1:8	Normally Open	250VAC, 10A

9.2 MODBUS RTU (SERIAL RS-485)

The optional serial interface RS485 allows to address up to 247 indicators in a network communicating remotely with a host computer or master controller.

9.2.1 RS485 INTERFACE

- Compatible line signals with RS485 standard
- 2 wire connection from master to up to 31 slaves indicators in a multi drop bus. It is possible address 247 nodes with multiple outputs converters.
- Maximum communication distance: 1000m
- The RS485 signals are:

D1=D: Bidirectional data line.

D0=D: Bidirectional inverted data line.

C=GND: Optional connection.

9.2.2 GENERAL CHARACTERISTICS

- Optically isolated serial interface
- Programmable baud rate: 1200, 2400, 4800, 9600, 19200, 38400, 57600 or 115200bps.
- Data Bits: 8
- Parity: None or even.
- Stop Bits: 1

9.2.3 COMMUNICATION PROTOCOL

All configurable parameters can be accessed through the Registers Table 5 below. Broadcast commands are also supported (address 0).

The available Modbus commands are:

03 - Read Holding Register

05 - Force Single Coil/Digital Output state

06 - Preset Single Register

The registers are arranged in a table in such a way that several registers can be read in the same request.

9.2.4 CONFIGURATION

Two parameters must be configured in the device for serial communication:

- **baud**: Baud rate. All devices with same baud rate.
- **Ad-ES**: Device communication address. Each device must have an exclusive address.

HOLDING REGISTERS

Equivalent to the registers reference 4XXXX.

The holding registers are basically a list of the internal indicator parameters. All registers above address 12 can be read or be written to. The registers up to this address are read only. Each table parameter is a 16 bits two complement signed word.

HOLDING REGISTERS	PARA-METER	REGISTER DESCRIPTION
0000	PV	Read: Process variable. Write: not allowed. Range: the minimum value is in <i>inL oL</i> set and the maximum value is in <i>inH iL</i> set and the decimal point position depends on <i>dPPoS</i> .

HOLDING REGISTERS	PARA-METER	REGISTER DESCRIPTION
0001	PV min	Read: Minimum value of PV Write: not allowed.
0002	PV max	Read: Maximum value of PV Write: not allowed.
0003	PV	Read: Process variable. Write: not allowed. Maximum range: 0 to 62000.
0004	Display Value	Read: Current display value. Write: Current display value. Maximum range: -31000 to 31000. The range depends of the showed display.
0005	Display Number	Read: Current display Number. Write: not allowed.
0006	Status Word I	Read: Digital Inputs and Alarms (high part) and Hardware type (low part). Write: not allowed. Range: 0000h to FFFFh Value format: XXYYh, when: XX: Hardware type bit 0 - Alarm 1 bit 1 - Alarm 2 bit 2 - Alarm 3 bit 3 - Alarm 4 bit 4 - Analog output bit 5 - RS 485 bit 6 - reserved bit 7 - reserved. YY: digital inputs & alarms bit 0 - Alarm 1 state: 0=inactive; 1=active bit 1 - Alarm 2 state: 0=inactive; 1=active bit 2 - Alarm 3 state: 0=inactive; 1=active bit 3 - Alarm 4 state: 0=inactive; 1=active bit 4 - Digital Input: 0=inactive; 1=active bit 5 - reserved bit 6 - reserved bit 7 - reserved

HOLDING REGISTERS	PARAMETER	REGISTER DESCRIPTION
0007	Software Version	Read: Software version. Write: not allowed. If the version is V1.00, for example, value will be 100.
0008	ID	Read: Identification device Number. Write: not allowed. Values: 1 – NI100/N2000; 3 – NI500. Other values: special devices.
0009	Status Word 2	Read: Indicator status bits. Write: not allowed. Read value: verify each bit: bit 0 – Sensor error bit 1 – Cable error bit 2 – Underflow bit 3 – Overflow bit 4 – reserved bit 5 – Alarm 1 power-up inhibit (0=no; 1=yes) bit 6 – Alarm 2 power-up inhibit (0=no; 1-yes) bit 7 – Alarm 3 power-up inhibit (0=no; 1-yes) bit 8 – Alarm 4 power-up inhibit (0=no; 1-yes) bit 9 – Unit (0-°C; 1-°F) bit 10 – reserved bit 11 – Output 1 state bit 12 – Output 2 state bit 13 – Output 3 state bit 14 – Output 4 state bit 15 – Output 5 state
0010	Special Command	Special function command. Write: Value 0 – Tare reset; Value 5 – Hold & Peak-hold clean; Value 10 – Maximum and minimum clean; Value 15 -Tare
0011	dPPoS	Decimal point position of PV. Range: 0 to 4 0=XXXXX; 1=XXXX.X; 2=XXX.XX; 3=XX.XXX; 4=X.XXXXX

0012	FFunc	F key Function. Standard Model: 0=OFF; 1=HoLd; 2=rESEt; 3=PHoLd LC Model: 0=OFF; 1=HoLd; 2=rESEt; 3=PHoLd; 4=H i; 5=L o; 6=ZEro
0013	dIGIn	Digital Input Function. Standard Model: 0=OFF; 1=HoLd; 2=rESEt; 3=PHoLd; LC Model: 0=OFF; 1=HoLd; 2=rESEt; 3=PHoLd; 4=H i; 5=L o; 6=EtErE;
0014	FILtEr	Input digital filter. Range: 0 to 60
0015	oFSEt	Input Offset value. Range: from InLoL to InHiL
0016	SCALE	SCALE parameter condition. 0 Configurable indication from – 31000 to + 31000. 1 Configurable indication from 0 to + 60000. 2 Configurable indication from 0 to +120000.
0017	SrOot	Input Square Root. Range: 0 to 1 0=no; 1=yes
0018	OutEr	4-20mA analog output on error condition. 0=down; 1=up
0019	ALrEF	Alarm Reference. Range: from InLoL to InHiL
0020	oUttY	Retransmission type of PV. Range: 0 to 1 0=4 to 20mA retransmission; 1=0 to 20mA retransmission



0021	SPAL1	Alarm 1 Preset. Range: The minimum value is in $inLoL$ set for not differential alarm or ($inLoL - inHiL$) for differential alarm; The maximum value is in $inHiL$ set for not differential alarm or ($inHiL - inLoL$) if differential alarm.
0022	SPAL2	Alarm 2 Preset Range: same as SPAL1 or dFAL1.
0023	SPAL3	Alarm 3 Preset Range: same as SPAL1 or dFAL1.
0024	SPAL4	Alarm 4 Preset Range: same as SPAL1 or dFAL1.
0025	FuAL1	Alarm 1 Function. Range: 0 to 6 0=OFF; 1=Err; 2=Lo; 3=Hi; 4=d.FL; 5=d.FH; 6=d.F.
0026	FuAL2	Alarm 2 Function Range: same as FuAL1.
0027	FuAL3	Alarm 3 Function Range: same as FuAL1.
0028	FuAL4	Alarm 4 Function Range: same as FuAL1.
0029	blAL1	Alarm 1 power-up inhibit. Range: 0 a 1 0=no; 1=yes.
0030	blAL2	Alarm 2 power-up inhibit Range: same as blAL1.
0031	blAL3	Alarm 3 power-up inhibit Range: same as blAL2.
0032	blAL4	Alarm 3 power-up inhibit Range: same as blAL3.
0033	HYAL1	Alarm 1 Hysteresis (engineering unit) Range: 0 to span of sensor
0034	HYAL2	Alarm 2 Hysteresis (engineering unit) Range: same as HYAL1

0035	HYAL3	Alarm 3 Hysteresis (engineering unit) Range: same as HYAL1
0036	HYAL4	Alarm 4 Hysteresis (engineering unit) Range: same as HYAL1
0037	inLYP	Input sensor type Standard model (types 0 to 22): 0= tc J; 1= tc K; 2= tc T; 3= tc E; 4= tc N; 5= tc R; 6= tc S; 7= tc B; 8= Pt100; 9= 0 to 50mV; 10= 0 to 5V; 11= 0 to 10V; 12= 0 to 50mV (custom linearization); 13= 0 to 5V (custom linearization); 14= 0 to 10V (custom linearization); 15= Lin J; 16= Lin K; 17= Lin T; 18= Lin E; 19= Lin N; 20= Lin R; 21= Lin S; 22= Lin B; 23= Lin Pt100; 24= 0 to 20mA; 25= 4 to 20mV; 26= 0 to 20mA (custom linearization); 27= 4 to 20mV (custom linearization); LC - Load Cell model (types 0 to 9): 0= 0 to 20mV; 1= -20 to 20mV; 2= 0 to 50mV; 3= 0 to 20mV (custom linearization); 4= -20 to 20mV (custom linearization); 5= 0 to 50mV (custom linearization); 6= 0 to 20mA; 7= 4 to 20mV; 8= 0 to 20mA (custom linearization); 9= 4 to 20mV (custom linearization);



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0038	տ ւ լ	Temperature Unit. Range: 0 to 1 0=°C; 1=°F. Not available on LC model.
0039	inLoL	Indication Low limit. Range: the minimum value depends on input type configured in <i>inLYP</i> and the maximum is in <i>inH L</i> .
0040	inH L	Indication High limit. Range: from <i>inLoL</i> to the input maximum configured in <i>inLYP</i> .
0041	Ad-ES	Slave address Range: 1 to 247
0042	bRud	Communication Baud Rate. Range: 0 to 4 0 to 1200; 1 to 2400; 2 to 4800; 3 to 9600; 4 to 19200; 5 to 38400; 6 to 57600; 7 to 115200; 8 to 15 repeat baud rates from 1200 to 115200, but with invert polarity.
0043	Serial Number High	Serial Number (High Display) Range: 0 to 9999. Read only
0044	Serial Number Low	Serial Number (Low Display) Range: 0 to 9999. Read only
0045	-	Reserved
0046	RL 1 1	Alarm 1 Time 1 of timer. Range: 0 to 6500sec See operation manual for details.
0047	RL 1 2	Alarm 1 Time 2 of timer (in seconds) Range: same as <i>RL 1 1</i> .
0048	RL 2 1	Alarm 2 Time 1 of timer (in seconds) Range: same as <i>RL 1 1</i> .

0049	RL 2 2	Alarm 2 Time 2 of timer (in seconds) Range: same as <i>RL 1 1</i> .
0050	RL 3 1	Alarm 3 Time 1 of timer (in seconds) Range: same as <i>RL 1 1</i> .
0051	RL 3 2	Alarm 3 Time 2 of timer (in seconds) Range: same as <i>RL 1 1</i> .
0052	RL 4 1	Alarm 4 Time 1 of timer (in seconds) Range: same as <i>RL 1 1</i> .
0053	RL 4 2	Alarm 4 Time 2 of timer (in seconds) Range: same as <i>RL 1 1</i> .
0054	oU LoL	Low Limit for Analog Retransmission – Defines the PV value that results in a 4mA (or 0mA) analog output current.
0055	oU H L	High Limit for Analog Retransmission – Defines the PV value that results in a 20mA analog output current.
0056-0060	-	Reserved
0061-0090	inP 0 1 to inP 30	Custom linearization value.
0091-0120	oU 0 1 to oU 30	Value to be displayed in point of custom linearization

9.3 MOXA MGATE CONFIGURATION

The Moxa MGate that is used to extract information from the display unit uses a software base configuration tool called MGate Manager. The complete manual for the device can be found under the link below

https://www.moxa.com/support/sarch_result.aspx?type=doc&prod_id=73&type_id=7

For the Levikos, below is the summarised configuration information necessary to communicate with the Levikos.

9.3.1 INSTALLTING MGATE MANAGER

The following instructions explain how to install MGate Manager, a utility for configuring and monitoring MGate MB3000 units over the network.

1. To install MGate Manager, insert the MGate Documentation and Software CD into your PC's CD-ROM drive, and then run the following setup program to begin the installation process from the "Software" directory:

MGM_Setup_[Version]_Build_[DateTime].exe
The filename of the latest version may have the following format:

MGM_Setup_Verx.x.x_Build_xxxxxxxx.exe,
for example:

2. You will be greeted by the Welcome Window. Click Next to Continue
3. When the Select Destination Location window appears, click Next to continue. You may change the destination directory by first clicking on Browse....
4. When the Select Additional Tasks window appears, click Next to continue. You may select Create a desktop icon if you would like a shortcut to MGate Manager on your desktop.
5. Click Install to start copying the software files.
6. A progress bar will appear. The procedure should take only a few seconds to complete.
7. A message will indicate that MGate Manager is successfully installed. You may choose to run it immediately by selecting Launch MGate Manager.
8. You may also open MGate Manager through Start >> Programs >> MGate Manager >> MGate Manager.

9.3.2 STARTING MGATE MANAGER

MGate Manager is a Windows-based utility that is used to configure the MGate MB3000.

Before running MGate Manager, make sure that your PC and the MGate MB3000 are connected to the same network. Alternatively, the MGate MB3000 may be connected directly to the PC for configuration purposes.

You may open MGate Manager from the Windows Start menu by clicking Start >> Programs >> MGate Manager >> MGate Manager.

9.3.3 CONNECTING TO THE UNIT

1. Click On Search and a new Search Window will pop-up
2. Click on Specify IP Search Address of the unit, enter the IP address and click OK
3. If the search is successful, the unit will be listed in MGate Manager. Configuration can be done in two ways: left click the unit to begin the MGate Manager configuration; right click the unit to begin the Web Console configuration.

9.3.4 MODIFYING THE CONFIG.

Once your unit is displayed in MGate Manager, select it by clicking on it. The **Configuration** button will become available. Click **Configuration** to open the configuration window. Before going into configuration page, if the firmware version is after v3.0, you have to input the default password **moxa**. If you prefer to use web console for configuration, the default account and password are **admin** and **moxa** respectively.

9.3.5 CONFIGURE SERIAL PORT

The Mode tab is where each serial port's operation mode is configured. The operation mode determines whether the device(s) that are connected to the serial port will operate as a master or a slave and whether the Modbus RTU or Modbus ASCII protocol will be used. There are four operation modes as follows:

- RTU Slave
- RTU Master
- ASCII Slave
- ASCII Master

RTU Slave shall be selected for the Levikos.



9.3.6 CONFIGURE IP ADD. & SETTINGS

The Network tab is where the unit's network settings are configured. You can modify the Name, Network Configuration, IP Address, Netmask, Default Gateway, and DNS. You may also select a Password to protect the unit from unauthorized access.

PARAMETER	VALUE	NOTES
Name	(an alphanumeric string)	You can enter a name to help you identify the unit, such as the location, function, etc.
Network Configuration	Static IP, DHCP, BootP, or DHCP/BootP	Select Static IP if you are using a fixed IP address. Select one of the other options if the IP address is set dynamically.
IP Address	192.168.127.254 (or other 32-bit number)	The IP (Internet Protocol) address identifies the server on the TCP/IP network.
Netmask	255.255.255.0 (or other 32-bit number)	This identifies the server as belonging to a Class A, B, or C network.
Gateway	0.0.0.0 (or other 32-bit number)	This is the IP address of the router that provides network access outside the server's LAN.
DNS1	0.0.0.0 (or other 32-bit number)	This is the IP address of the primary domain name server.
DNS2	(an alphanumeric string)	This is the IP address of the primary domain name server.
Password	(an alphanumeric string)	You can set a password to prevent unauthorized users from configuring the unit. The password will be required when anyone attempts to configure the unit over the network. Modbus operation is not affected by the password.

PARAMETER	VALUE	NOTES
Confirm password	(an alphanumeric string)	Re-type the password again for confirmation.

9.3.7 CONFIGURE SERIAL PARAMETERS

The **Serial** tab is where each serial port's communication parameters are configured. You can configure **Baud Rate**, **Parity**, **Stop Bit**, **Flow Control**, **FIFO**, and **Interface Mode**.

PARAMETER	VALUE	LEVIKOS SETTINGS
Interface Mode	RS-232	RS-485, 2W
	RS-422	
	RS-485, 2W	
	RS-485, 4W	
BAUD Rate	50 bps to 961200 bps	96200 bps
Parity	None, Odd, Even, Space, Mark	Even
Stop Bits	1,2	1
Flow Control	None, RTS/CTS, RTS Toggle	Default
UART FIFO	Enable, Disable	Default
RTS On Delay	0 to 100 ms	Default
RTS Off Delay	0 to 100 ms	Default

10 ORDERING INFORMATION

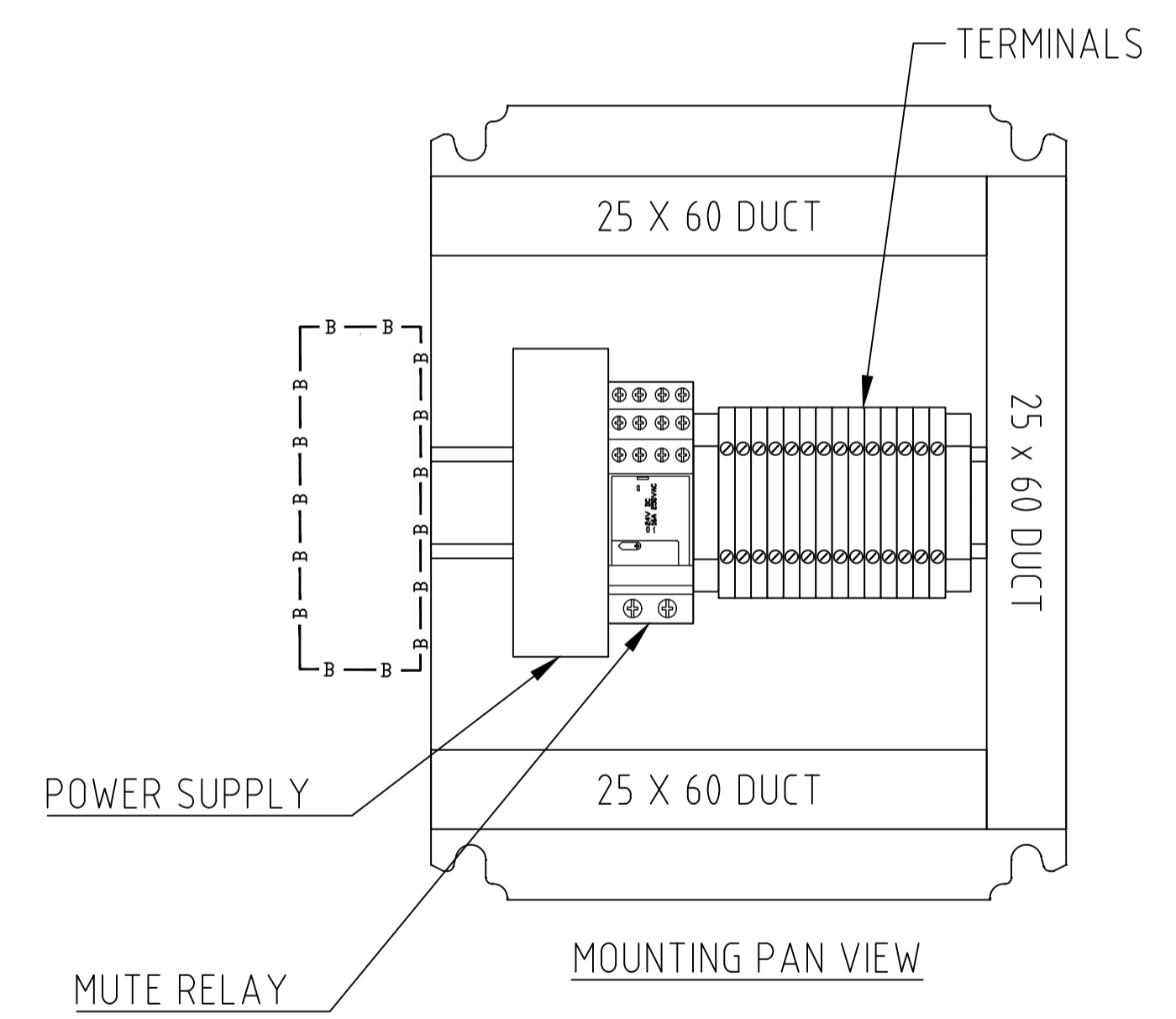
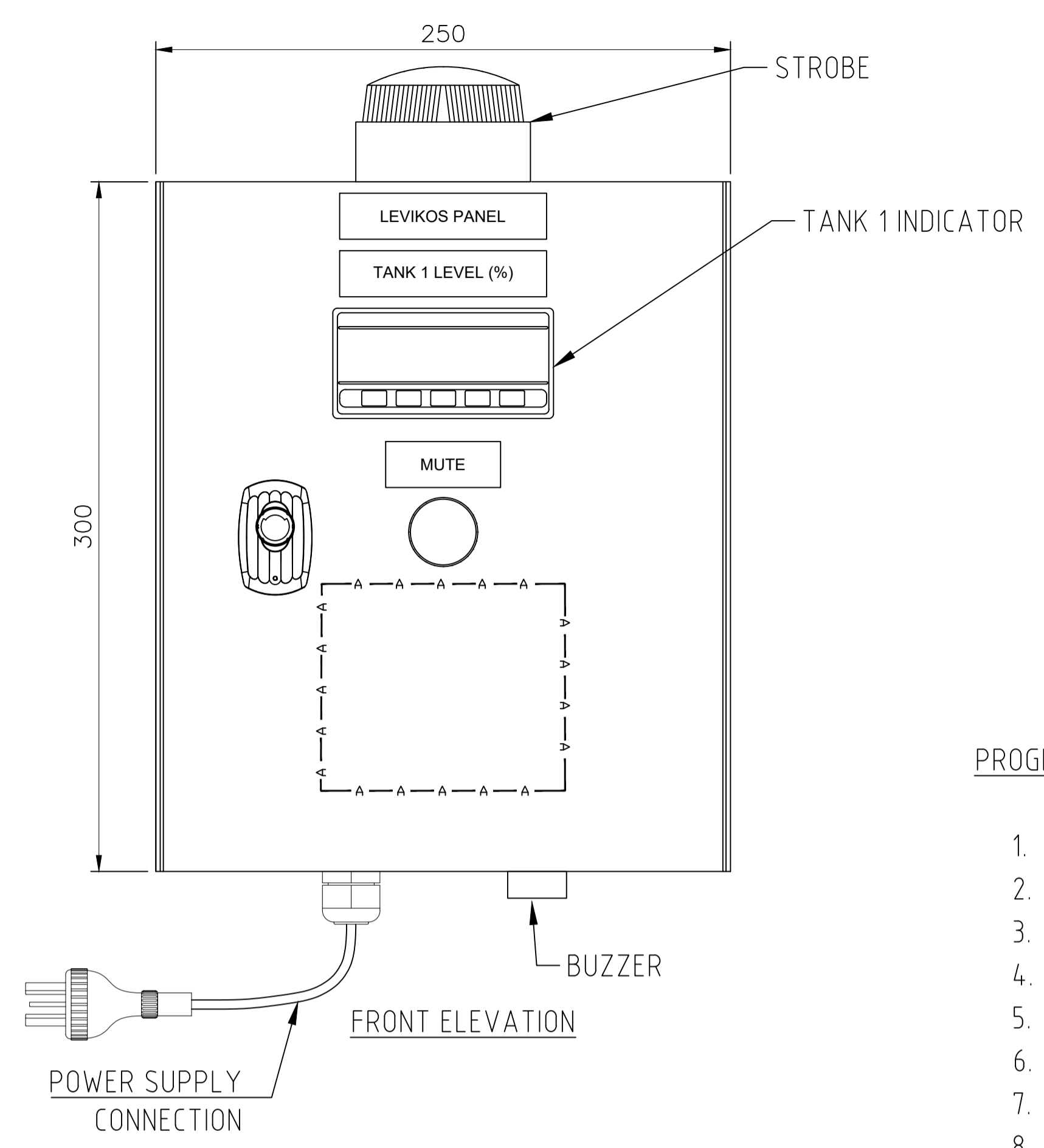
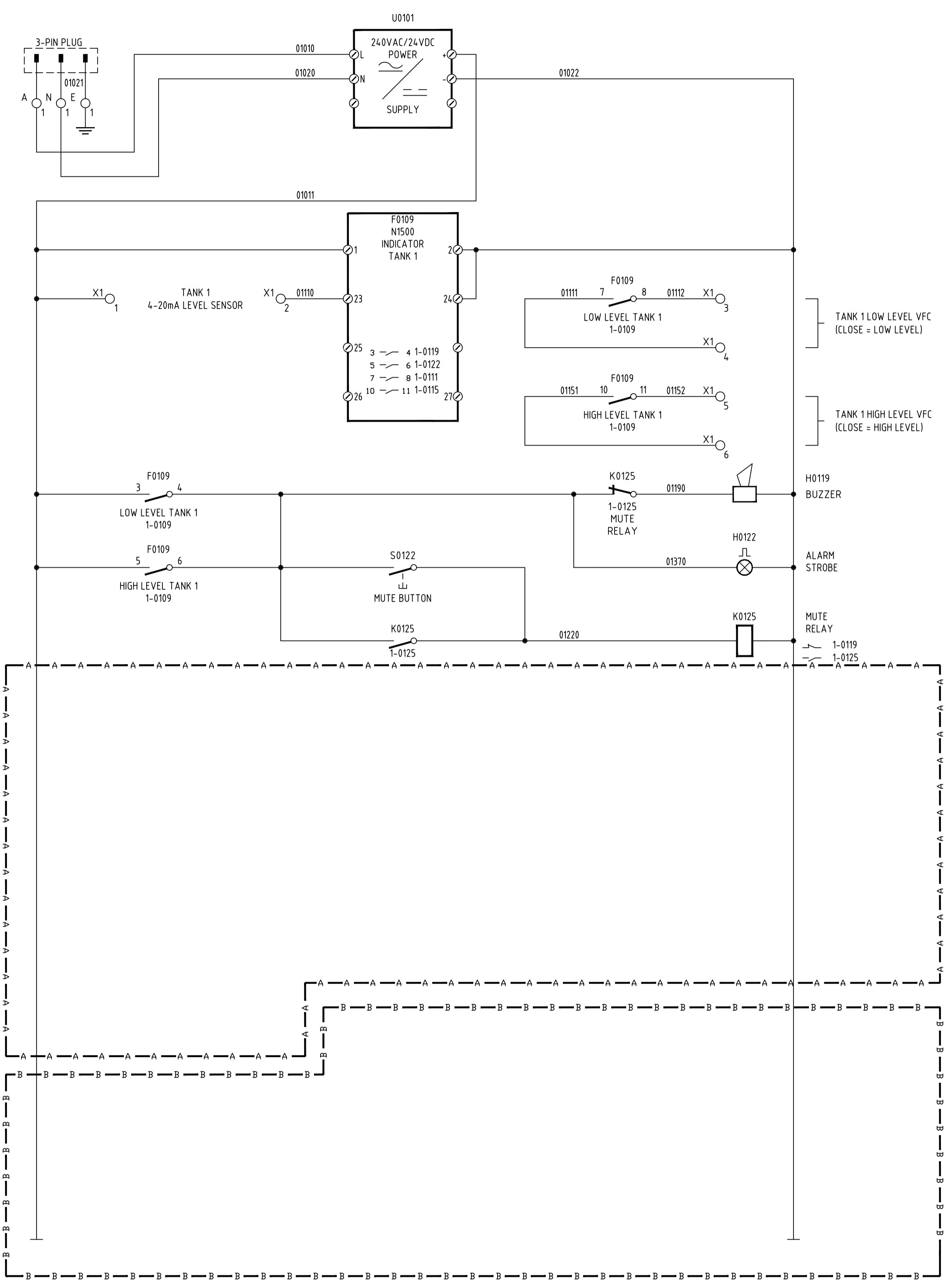
SYSTEM MODEL NO.	DESCRIPTION	ENCLOSURE		INSTRUMENTATION (Note: Other Depth and Cable Length available)
		SIZE(mm)	MATERIAL	
LVK-S-X-X SKU: KJ308100	SINGLE TANK BASIC MODEL	300(H) 250(W) 150(D)	METAL	1 x (0-4m) Level Transducer complete with 1 x 10m Cable
LVK-S-X-ETH SKU: KJ308200	SINGLE TANK WITH ETHERNET TCP/IP			
LVK-S-RTU-X SKU: KJ308300	SINGLE TANK WITH SERIAL MODBUS RTU			
LVK-D-X-X SKU: KJ308500	DUAL TANK BASIC MODEL			2 x (0-4m) Level Transducers complete with 1 x 10m Cable each
LVK-S-X-ETH SKU: KJ308600	DUAL TANK WITH ETHERNET TCP/IP			
LVK-D-X-RTU SKU: KJ308700	DUAL TANK WITH SERIAL MODBUS RTU			



II APPENDICES

II.1 APPENDIX A – DRAWINGS

0100
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LEGEND

- TERMINALS
- — — EXTERNAL CABLE
- A-A- OPTION A BOUNDARY
- B-B- OPTION B BOUNDARY

OPTIONS TABLE

<input type="checkbox"/>	OPTIONS NOT INSTALLED	
<input checked="" type="checkbox"/>	OPTIONS INSTALLED	
OPTION A		
DESCRIPTION	OPTION CODE	
SINGLE TANK	ST	<input checked="" type="checkbox"/>
DUAL TANK	DT	<input type="checkbox"/>
OPTION B		
RS485 (RTU)	RTU	<input type="checkbox"/>
ETHERNET (TCP)	TCP	<input type="checkbox"/>

PROGRAMMING OF DISPLAY UNIT

1. PRESS [P] & [LEFT] SIMULTANEOUSLY UNTIL In.FYP IS REACHED
2. MOVE UP OR DOWN THE MENU TO SELECT 4-20mA
3. RETURN TO In.FYP MENU & PRESS UP OR DOWN TO MOVE TO In.L0L
4. USE UP OR DOWN ARROW TO SET LOWER RANGE VALUE
5. RETURN TO In.FYP MENU & PRESS UP OR DOWN TO MOVE TO In.HIL
6. USE UP & DOWN ARROW TO SET HIGHER RANGE VALUE
7. RETURN TO MAIN MENU
8. MOVE TO SP.AL1 USING [P] & SET TO DESIRED HIGH LEVEL
9. MOVE TO SP.AL2 USING [P] & SET TO DESIRED LOW LEVEL
10. MOVE TO SP.AL3 USING [P] & SET TO DESIRED HIGH LEVEL
11. MOVE TO SP.AL4 USING [P] & SET TO DESIRED LOW LEVEL
12. RETURN TO MAIN MENU & PRESS [P] & [LEFT] UNTIL Fu.AL1 IS REACHED
13. MOVE TO Fu.AL1 USING [P] & SET TO HI
13. MOVE TO Fu.AL2 USING [P] & SET TO Lo
14. MOVE TO Fu.AL3 USING [P] & SET TO HI
15. MOVE TO Fu.AL4 USING [P] & SET TO Lo
16. RETURN TO MAIN MENU

LEVIKOS M18 PANEL MODEL NO.
LVK-ST-X-X

REV	DESCRIPTION	BY	DATE	CHK	DATE	APP	DATE	REFERENCE
0	APPROVED FOR CONSTRUCTION	JFD	09.05.18	LD	09.05.18	LS	09.05.18	
B	AMENDED TO COMMENTS	JFD	07.05.18	LD	07.05.18	LS	07.05.18	
A	ISSUED FOR APPROVAL	JFD	02.05.18	LD	02.05.18	LS	02.05.18	

Specialists in Package Pumping Solutions

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www.alliedpumps.com.au

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CLIENT.	
PROJECT.	STANDARD PRODUCTS LEVEL ALARM INDICATOR
SHEET SIZE.	A1
SCALE.	1:Scale

TITLE.	LEVEL ALARM INDICATOR LEVIKOS PANEL ELECTRICAL SCHEMATIC AND GENERAL ARRANGEMENT	
INTERNAL DOC CONTROL.	PROJECT DRG. No.	REVISION.
STD-E-LAI-01	-E-	



I2 WARRANTY INFORMATION

Warranty is subject to Allied Pumps Pty Ltd terms and conditions of sale and limited to replacement or repair, at Manufacturer's discretion, of any parts or equipment, excluding and travel, site, removal or reinstallation costs, for a period of twelve months from date of invoice, provided such part of equipment that is deemed by the respective manufacturer to be faulty. Any work done on site to inspect or remedy faults that are subsequently not accepted as being under warranty by the manufacturer, or are caused by misuse, fair wear or operating procedures, will be charged at parts and labour and travelling time rates applicable at the time.

Warranty does not provide for circumstances outside Allied Pumps control including (but not limited to); seismic activity, base or ground movement, mechanical impact, abuse or negligence, or general wear and tear.

Warranty does not cover equipment that is not installed, continuously monitored and maintained in accordance with the manufacturer's requirements, including, but not limited to, regular servicing, and/or regulatory requirements and applicable Australian Standards. Warranty does not cover damage caused by dry running the pumps.

If Buyer requires our services in respect of site inspection or service outside of what is covered by Manufacturers' warranties, then Buyer should enter into a separate agreement with ALLIED PUMPS in respect to the same. In the event of no such separate agreement, all operations, calibrating, cleaning and maintenance of plant is the responsibility of the buyer.

ALLIED PUMPS have not acted as a consultant nor charged design fees on this project, and is in no way responsible for, nor guarantee any particular level of performance of the plant supplied or effluent quality unless such guarantee is specially given in writing.

Under no circumstances is ALLIED PUMPS liable for any direct or consequential loss or business interruption or damage to persons or properties of any nature due to any cause whatsoever.

Application of warranties is conditional on ALLIED PUMPS having received in cash the total contract price. Furthermore, ALLIED PUMPS reserves the right to withdraw any code compliance, Australian Standard compliance or selection compliance, should the contract not be paid in full.

