AUTOMATIC TRANSFER SWITCH CONTROLLERS ATL SERIES

Lovato electric

ENERGY AND AUTOMATION

2 power sources automatic transfer switch controllers

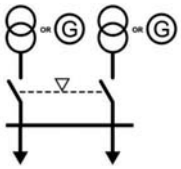
The automatic transfer switch controllers **ATL 600 - ATL601 - ATL 610 - ATL 800** can supervise and manage the changeover between **2 three-phase power sources**. The voltage and frequency measurements are shown on the graphic LCD display and the LEDs on the front panel provide a clear indication about the power source status.

- Management of 2 power sources
- Control of undervoltage, overvoltage, phase loss, asymmetry, minimum and maximum frequency, with time delay and independent enabling
- Inputs, outputs, limits, counters and alarms are programmable by the user
- Power sources can be independently defined as utility or generator
- Automatic test management for standby and rotation generators
- Suitable for LV and MV systems
- Programmable maintenance alarms
- Suitable for contactors, motorised circuit breakers and motorised changeover switches
- Tie breaker management for ATL 800 only
- Closed transition available for ATL 800 only
- Customizable change-over devices layout and transfer strategy for ATL 800 only
- Built-in PLC technology for ATL 800 only
- Built-in NFC technology for ATL 800 only.

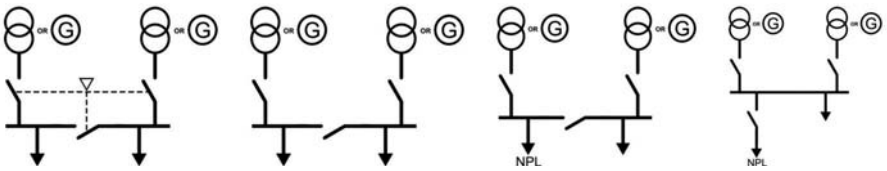
For ATL 610 - ATL 800 only:

- Dual AC/DC power supply
- Real time clock with backup energy
- Expandability with EXP... modules (e.g. Ethernet, extra I/Os).

ATL 6...



ATL 800 - Some possible configurations



Operational characteristics	ATL 600	ATL 601	ATL 610	ATL 800
Power supply voltage	110-240VAC	12/24VDC	110-240VAC and 12/24VDC	110-240VAC and 12/24/48VDC
Voltage measurement inputs				
• Rated voltage Ue	100-480VAC L-L		100-480VAC L-L	100-600VAC L-L
• Measurement range	50-576VAC L-L		50-576VAC L-L	50-720VAC L-L
• Frequency range	45...65Hz			
Current inputs	-		-	-
Programmable digital inputs	6		6	8
•Type of input	Negative			
Programmable relay outputs	7 5 with 1 normally open contact each (NO - SPST) rated 8A 250VAC 2 with 1 changeover contact each (NO/NC - SPDT) rated 8A 250VAC			
Expandability	-		With EXP... modules (2 max.)	With EXP... modules (3 max.)
RS485 port	-		With EXP 1012	Built-in
Real time clock	-		With EXP 1012	Built-in
Compatible software	Xpress and Sam1 APP		Synergy, Xpress and Sam1 APP	Synergy, Xpress, NFC and Sam1 APP
Flush-mount housing	144x144mm		144x144mm	180x240mm
Degree of protection	IP20 at rear. IP40 on front; IP65 with EXP80 01 optional gasket			IP20 at rear. IP65 on front

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Certifications and compliance

Certifications obtained:
cULus, EAC, RCM.

Compliant with standards: IEC/EN 61010-1, IEC/EN 61010-2-030, IEC/EN 61000-6-2, IEC/EN 61000-6-4, IEC/EN 60947-1, IEC/EN 60947-6-1,UL508, CSA C22.2 n°14.

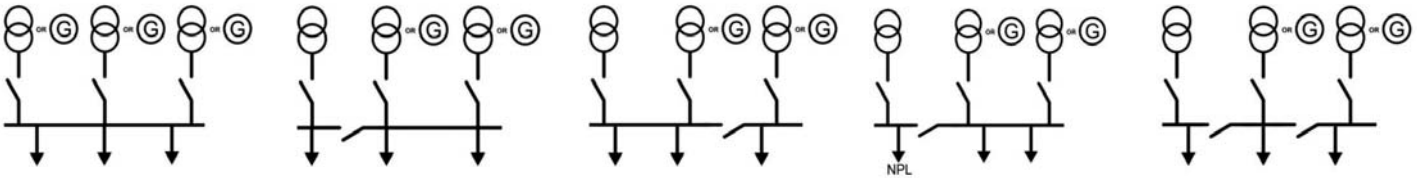
3 power sources automatic transfer switch controller

ATL 900 is an ATS controller with high performance. Specific functions are available for the control of **three power sources and three switching breakers**. It is possible to use the default logics for the changeover strategy or personalise them with the integrated PLC. ATL 900 has four current inputs; with this feature, it can use measured power to define new logics on the control of the power sources.

- Real time clock with backup energy
- Expandability with EXP... modules (e.g. Ethernet, extra I/Os).

- Management of 3 power sources and 3 changeover devices plus 2 tie-breakers
- Control of under and over-voltage, phase loss, asymmetry, minimum and maximum frequency, each with independent enabling and time delay
- Inputs, outputs, limits, counters and alarms are programmable by the user
- Power sources can be independently defined as utility or generator
- Automatic test management for standby or rotation generators
- Suitable for LV and MV systems
- Programmable maintenance alarms
- Suitable for contactors, motorised circuit breakers and motorised changeover switches
- 4 current inputs for the three phases and neutral
- Closed transition available
- Tie breaker management
- Built-in PLC technology
- Built-in NFC technology
- Dual AC/DC power supply

ATL 900 - Some possible configurations



Operational characteristics	ATL 900
Power supply voltage	110-240VAC and 12/24/48VDC
Voltage measurement inputs	
• Rated voltage Ue	100-600VAC L-L
• Measurement range	50-720VAC L-L
• Frequency range	45...65Hz
Current inputs	4 inputs (5A or 1A)
Programmable digital inputs	12
• Type of input	Negative
Programmable relay outputs	3 with 1 normally open contact each (NO - SPST) rated 16A 250VAC 3 with 1 normally open contact each (NO - SPST) rated 8A 250VAC 4 with 1 changeover contact each (NO/NC - SPDT) rated 8A 250VAC
Expandability	With EXP... modules (3 max.)
RS485 port	Built-in
Real time clock	Built-in
Compatible software	Synergy, Xpress, NFC and Sam1 APP
Flush-mount housing	180x240mm
Degree of protection	IP20 at rear. IP65 on front

Certifications and compliance

Certifications obtained:
cULus, EAC, RCM.

Compliant with standards: IEC/EN 61010-1, IEC/EN 61010-2-030, IEC/EN 61000-6-2, IEC/EN 61000-6-3, IEC/EN 60947-1, IEC/EN 60947-6-1,UL508, CSA C22.2 n°14.

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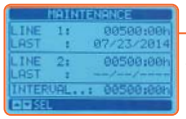
Graphic LCD display and text in 5 or 8 languages

The backlit graphic LCD display makes the user's interface easy with benefits in bad light conditions. The ATL 600, ATL 601, ATL 610 and ATL 800 have a 128x80 pixel resolution display while the ATL 900 has a bigger one with 128x112 pixel resolution.
For ATL 600, ATL 601and ATL 610, the texts are available in 5 different languages: English, Italian, French, Spanish and German; additional 3 languages are available for ATL 800 and ATL 900: Portuguese, Polish and Russian.
The new interface allows the user to clearly see in a simple way:

- System status
- Voltage and frequency measurements
- Statistical data
- Control thresholds
- Pop-up windows for alarms.



Maintenance counters

In the ATLs, there are two counters used for maintenance purposes; the first one used to monitor the working hours and the second to count the number of breaker operations. When the counters reach the set limits, the relative alarms trip.

Inputs, outputs, internal variables, counters

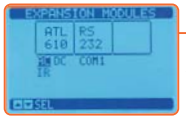
The input and output functions are preconfigured with the most common settings but the user can easily change the default configuration to adapt the controller to the application needs. All inputs and outputs are configurable.
There are four types of programmable internal variables:

- Limit thresholds
- Remote-controlled variables
- User alarms
- Programmable counters

About enabled limits and counters, the user can find the relative pages, scrolling them on the display.

Statistics and events

The controllers record statistics data available for the user to understand how the system works. An internal cyclic memory records up to 100 events for ATL 600, ATL 601 and ATL 610, 250 for ATL 800 and ATL 900, that provide useful information about the history and know the performance of the system controlled.



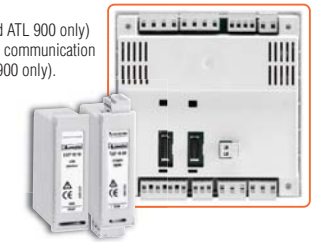
Expandability

(2 slots for ATL 610 - 3 slots for ATL 800-ATL 900)

The configuration of the ATL in different installations can have many variants, for example the types of communication (USB, RS485, Ethernet) or the number of inputs and outputs required. ATLs support expandability by EXP... plug-in modules.
Since the expansion modules are common with other LOVATO Electric products, this saves on management cost and, above all, guarantees configuration flexibility at installation time as well provides performance ease especially when the system is already in operation. The following EXP modules are available:

- Digital inputs and outputs
- Analog inputs and outputs (for ATL 800 and ATL 900 only)
- USB, RS232, RS485, Ethernet and Profibus communication
- GPRS/GSM modem (for ATL 800 and ATL 900 only).

The module is automatically recognised by the ATL when installed.



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USB and Wi-Fi dongles

Through the optical port, direct connection to a PC USB port (using CX 01 dongle) or via Wi-Fi (using CX 02 dongle) is allowed.
CX 02 dongle (Wi-Fi) can furthermore make:

- Copy of the parameters
  All parameters in the ATL can be saved in the CX 02 memory and if required loaded on the same device again (backup function) or to a different one of the same type (replication of the configuration).
- Clone of the device settings
  In addition to the copy of the parameters, the current values of the statistical data, counters and events can be saved in memory as well, in order to fully replicate an ATL on another device of the same type or to restore the ATL to a previously saved state.

Optical port

All the controllers are equipped with a front optical port to support programming through CX 01 dongle and to use the functionality of CX 02 Wi-Fi dongle.
Advantages:

- No need to remove power from the panel to connect to the controller
- Electrical safety (no electrical connection)
- IP54 guaranteed
- Convenience of working on the front.

Real time clock for ATL 610, ATL 800 and ATL 900

The ATLs have a real time clock with integrated backup reserve energy so all events are identified by the time stamp at which they occurred.

4 current inputs for ATL900

Current inputs allow to monitor load power demand and to define proper changeover strategy.
Knowing the power demand of the system and the rated power of the sources, the ATL 900 is able to select the best source available that can correctly supply the loads.

Dual AC/DC power supply for ATL 610, ATL 800 and ATL 900

The ATL controllers can cover all the power supply solutions required in the market. The best and safest solution is AC and DC power supply used together: LOVATO Electric ATLs can do it.
The controller is supplied by the available line and during the transfer, in absence of the AC source, the controller is supplied by the battery using the DC inputs. Non-stop control!
The AC ensures the supply during the monitoring of the system and the DC ensures supply continuity during the switching.

Programmable PLC logic for ATL 800 - ATL 900

With PLC logic capability, programs can be made to combine internal status of the controller variables with signals incoming from the field to activate outputs, define new changeover actions and/or generate alarms.

NFC for ATL 800 - ATL 900

Parameter programming by smart devices (e.g. tablets and mobile phones) is now possible using NFC wireless technology.

Plug-in GPRS/GSM modem for ATL 800 - ATL 900

By fitting the EXP10 15 expansion module, the controller is automatically equipped and configures a GSM/GPRS modem. This simplifies installation and wiring. Once a data-enabled SIM card is inserted, alarm or event SMS, email messages and latest logged data can be transmitted by the controller to FTP servers.

Closed transition for ATL 800 -ATL 900

For applications which require "closed transition" change-over strategy, ATL 800 - ATL 900 is programmable with specific functions both for spontaneous syncronising or controlled syncronising.

Sam1 App

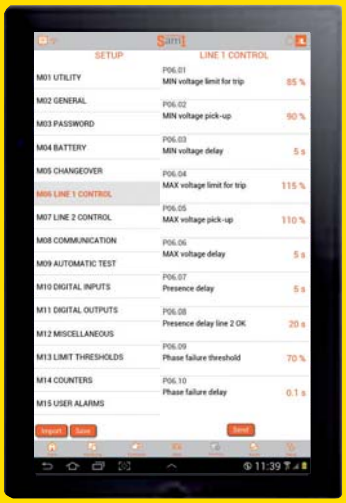
CX 02 dongle is the access point to the ATL through the Sam1 APP. Thanks to Sam1, one can:

- See all the ATL measurements on smartphones or tablets.
- Send commands, such as counters reset or enabling and disabling of ATL outputs.
- Set parameters, save a copy in a file and retrieve it in case of need; the file can be sent via email as well.
- See active user alarms.
- See the event list and save a copy.

Sam1 APP is downloaded from Google Play Store or Apple iTunes.

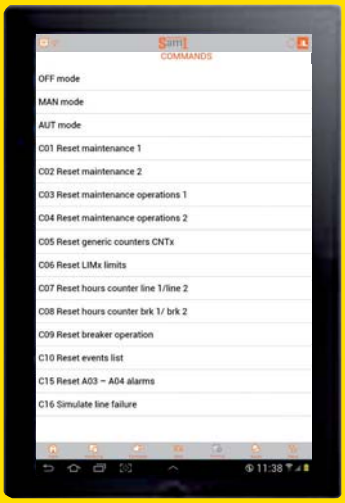
Google play iTunes

PARAMETER SETTING



MEASUREMENT VIEWING

SEND COMMANDS



ALARM VIEWING

NFC App

Programming the parameters via tablet and smartphone is now possible also through NFC wireless technology. Bringing a smartphone or tablet with NFC connection enabled close to the display of the ATL 800 or ATL 900 activates the APP and the controller connected is recognised automatically. It will then be possible to modify the parameters and program the ATL.

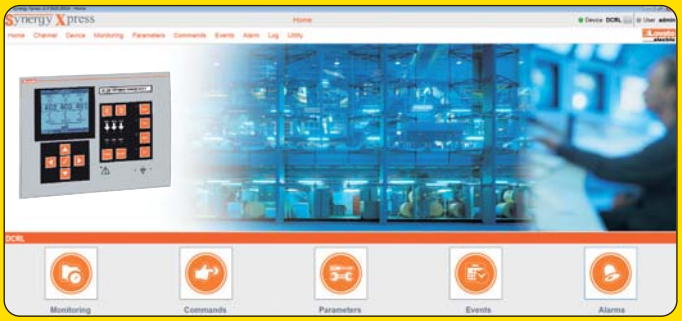
NFC

WiFi

Xpress configuration and remote control software

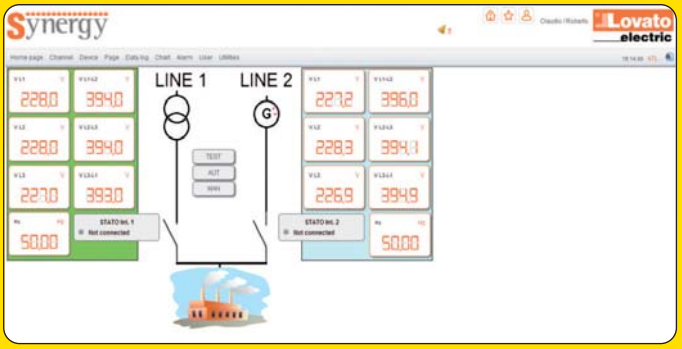
is a software that permits to:

- Transfer setup parameters from ATL to PC or vice versa
- Read measurements
- See events and alarms
- Send commands.



Synergy supervision and energy management software

ATL 610, ATL 800 and ATL 900 are compatible with the current version of Synergy. Thanks to the communication expansion modules, they can be immediately added to an existing network without needing extra external accessories. Serial and Ethernet communications are supported. The Ethernet port is suitable to work with both static IP and dynamic IP address and the ATL network configuration is similar to what is normally done for PCs.



HOW TO ORDER

Automatic transfer switch controllers

ATL 600 - ATL 601 - ATL 610

Order code	Description
For 2 power sources	
ATL 100	Automatic transfer switch controller for 2 single phase power sources, modular housing (3 modules), power supply 110/230VAC configurable
ATL 600	Automatic transfer switch controller with optical port for 2 power sources, 144x144mm, power supply 110-440VAC
ATL 601	Automatic transfer switch controller with optical port for 2 power sources, 144x144mm, power supply 12/24VDC
ATL 610	Automatic transfer switch controller with optical port for 2 power sources, 144x144mm, power supply 110-440VAC and 12/24VDC, expandable with EXP... expansion modules
ATL 800	Automatic transfer switch controller with optical port for 2 power sources, 180x240mm, power supply 110-440 VAC and 12/24/48VDC, expandable with EXP... expansion modules, built-in RS485
For 3 power sources	
ATL 900	Automatic transfer switch controller with optical port for 3 power sources, 180x240mm, power supply 110-440 VAC and 12/24/48VDC, expandable with EXP... expansion modules, built-in RS485, 3ph+N current inputs

Expansion modules for ATL 610 - ATL 800 - ATL 900

EXP10...

Order code	Description
Inputs and outputs	
EXP10 00	4 opto-isolated digital inputs
EXP10 01	4 opto-isolated static outputs
EXP10 02	2 digital inputs and 2 static outputs, opto-isolated
EXP10 03	2 relay outputs rated 5A 250VAC
EXP10 06	2 relay outputs rated 1.5A 440VAC AC-15
EXP10 07	3 relay outputs rated 1.5A 440VAC AC-15
EXP10 08	2 opto-isolated digital inputs and 2 relay outputs rated 5A 250VAC
Communication ports	
EXP10 10	Opto-isolated USB interface
EXP10 11	Opto-isolated RS232 interface
EXP10 12	Opto-isolated RS485 interface
EXP10 13	Opto-isolated Ethernet interface with web server function
EXP10 14	Opto-isolated Profibus-DP interface

Expansion modules for ATL 800 - ATL 900

EXP10...

Order code	Description
Inputs and outputs	
EXP10 04	2 opto-isolated analog inputs
EXP10 05	2 opto-isolated analog outputs
EXP10 15	GPRS/GSM modem (antenna excluded; see CX 03 below)

Communication devices and accessories

CX 01

CX 02

Order code	Description
CX 01	USB dongle for PC – ATL connection, for programming, data download, diagnostics and firmware upgrade. Complete with cable, 1.8m long
CX 02	Wi-Fi dongle for PC – ATL programming, data download, diagnostics and cloning
CX 03	GSM quad-band antenna IP67 (800/900/1800/1900MHz) for EXP10 15 expansion module
EXP80 01	IP65 gasket seal for internal display frame for ATL 6...

Dual power supply module

ATL DPS1

Order code	Description
ATL DPS1	For measurement and control of voltages present at supply inputs to power motorised circuit breakers/changeover switches, modular housing (3 modules), power supply 110/230VAC configurable

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2 power sources modular automatic transfer switch controller

ATL 100 is a single phase automatic transfer switch controller in a modular housing. ATL 100 monitors the 2 single phase voltage inputs and it connects to the output the line that is within the limits. The 2 outputs can control contactors or motorized changeover switches to perform the transfer between the lines.

- Rated voltage value selectable between 110VAC and 230VAC
- Minimum and maximum voltage tripping thresholds
- 2 single phase L+N inputs
- L1 priority line
- 2 independent measuring circuits
- Fault LED for abnormal conditions
- Inputs and outputs status LEDs
- Self diagnostic of internal circuit
- Alarm relay output.

Operational characteristics
- Rated supply voltage: 110/230VAC configurable
- Frequency: 50/60Hz
- Input voltage range: 80-300VAC
- Voltage tripping thresholds min / max: 80% / 120% of preset value
- 2 line inputs L1-L2: single phase, between phase and neutral
- Priority line: L1 when both input values are within limits
- Fixed delay time between line switching: 0.5 seconds
- 4 status indication LEDs for voltage of each line within limits, voltage present at output, relay output anomaly
- Mounting: on 35mm DIN rail (IEC/EN 60715) or by screws using extractible clips
- Modular housing, 3 modules
- Degree of protection: IP40 on front; IP20 at rear.

Certifications and compliance
Certifications obtained: EAC.
Compliant with standards: IEC/EN 61010-1, IEC/EN 61010-2-030, IEC/EN 61000-6-2, IEC/EN 61000-6-4, IEC/EN 60947-1, IEC/EN 60947-6-1.

Dual power supply module

ATL DPS1 is capable of measuring and controlling two auxiliary supply voltages at its inputs designating the most ideal to connect to the output. It reduces the number of components and improves installation safety.

- Rated voltage value selectable between 110VAC and 230VAC
- Minimum and maximum voltage tripping thresholds
- 2 single phase L+N inputs
- 1 single phase L+N output
- L1 priority line
- 2 independent measuring circuits
- Digital thresholds independent from the supply voltage
- Indicating LEDs for abnormal conditions and status of inputs and outputs
- Inputs and outputs status LEDs
- Output voltage monitoring
- Self diagnostic of internal circuit
- Alarm relay output.

Operational characteristics
- Rated supply voltage: 110/230VAC configurable
- Frequency: 50/60Hz
- Input voltage range: 80-300VAC
- Voltage tripping thresholds min / max: 80% / 120% of preset value
- 2 line inputs L1-L2: single phase, between phase and neutral
- Current output: 4A max
- Priority line: L1 when both input values are within limits
- Fixed delay time between line switching: 0.5 seconds
- 4 status indication LEDs for voltage of each line within limits, voltage present at output, relay output anomaly
- Mounting: on 35mm DIN rail (IEC/EN 60715) or by screws using extractible clips
- Modular housing, 3 modules
- Degree of protection: IP40 on front; IP20 at rear.

Certifications and compliance
Certifications obtained: cULus, EAC, RCM.
Compliant with standards: IEC/EN 61010-1, IEC/EN 61010-2-030, IEC/EN 61000-6-2, IEC/EN 61000-6-4, IEC/EN 60947-1, IEC/EN 60947-6-1.

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