

QUICK START

ATEQ F28 LIGHT



(Photo no contractual)

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Reference: MR-328LTN-U

REVISIONS OF THE ATEQ F28Light USER MANUAL

Due to continuing improvements, the information contained in this user manual, the features and design of this device are subject to be changed without prior notice.

Edition/Revision	<u>Reference</u>	<u>Date</u> Week/Year	Chapters up dating
First edition	MR-328LTA-U	28/2015	
Second edition	MR-328LTB-U	30/2015	Updating Node and Group addresses switch.
Third edition	MR-328LTC-U	40/2015	Updating the Network connection to Ethernet.
Fourth edition	MR-328LTD-U	42/2015	Updating for IP addresses configuration.
Fifth edition	MR-328LTE-U	47/2015	Add automatic calibration process, remove indirect measurement.
Sixth edition	MR-328LTF-U	48/2015	Minor texts and explanations changes, add auto-calibration alarms.
Seventh edition	MR-328LTG-U	01/2016	Add auto-calibration alarms conditions and measurement curves for F28Light Demo software.
Eighth edition	MR-328LTH-U	02/2016	Change Standard Temperature 0°C to 20°C.
Ninth edition	MR-328LTI-U	04/2016	Add and update information on "Accessories and characteristics" chapter.
Tenth edition	MR-328LTJ-U	08/2016	General recast. Update F28Light Control Ethernet Software information (v1.5.0.3). Add M12 connector for External Regulator option. Update error codes.
Eleventh edition	MR-328LTK-U	10/2016	Update error codes.
Twelfth edition	MR-328LTL-U	11/2016	Update accuracy characteristics and update optional M12 connector 24V supply.
Thirteenth edition	MR-328LTM-U	12/2016	Update status and alarms codes.
Fourteenth edition	MR-328LTN-U	45/2017	Add IP addresses reseting.

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PREAMBLE

1. DEFINITION OF THE ATEQ F28 LIGHT

The **ATEQ F28 Light** is a compact air/air leak detector used to test the air-tightness of parts. The method used is based on the measurement of a small variation or drop in differential pressure between the test and reference parts, when both are filled to an identical pressure.



2. MEASUREMENT CHARACTERISTICS

2.1. PRESSURE DROP MEASUREMENT

RANGE	STANDARD ACCURACY*	RESOLUTION Maximum
0 – 50 Pa	+/- (1.5% Reading + 0.5 Pa)	0.01 Pa
0 – 500 Pa	+/- (1% Reading + 1 Pa)	0.1 Pa
0 – 5000 Pa	+/- (1% Reading + 10 Pa)	1 Pa

RANGE	OPTIONAL ACCURACY* (Laboratory accuracy)	RESOLUTION Maximum
0 – 50 Pa	+/- (1% Reading + 0.5 Pa)	0.01 Pa
0 – 500 Pa	+/- (0.5% Reading + 1 Pa)	0.1 Pa
0 – 5000 Pa	+/- (0.5% Reading + 10 Pa)	1 Pa

*Accuracy: Linearity + Repeatability + Hysteresis.

2.2. TEST PRESSURE MEASUREMENT

RANGE	STANDARD ACCURACY	RESOLUTION Maximum
All F.S. from vacuum to 20 bar	1% maximum of the F.S.	0.1 % F.S.

F.S. = Full Scale.

3. THE MAIN TYPES OF MEASUREMENT

Direct measurement, indirect measurement and sealed component measurement.

3.1. DIRECT MEASUREMENT

The **ATEQ** instrument is connected to the part to test, the part is filled with the regulator (can be replaced by the auto fill mode).

If the part leaks, the pressure in will decrease and will be detected by the **ATEQ** instrument.



3.1.1. The three types of direct test

<u>Test with reference</u>: measurement of a pressure variation between a test part and a reference part.

<u>Test without reference</u>: measurement of a variation in pressure between a test part and a sealing connector on the reference side.

<u>Test with central zero</u>: test of two parts at the same time. One part is connected to the test side and the other to the reference side.





The direct measurement cycle consists of 5 phases:

	1	2	3	4	
Start	Fill time	Stabilization time	Test time	Dump time	Cycle end



3.2. SEALED COMPONENTS

3.2.1. Principle

The sealed component mode is designed for leak measurement on sealed parts. The solution is to enclose the part in a sealed bell, to fill this bell and to measure the pressure drop in the part.

The external volume is connected to the pressurization port of the instruments valve.



<u>**Part transfer**</u>: The previously-filled internal volume ($P_{start} \times V1$) is opened to the chamber volume (V2), obtaining $P_{end} \times V2$. Through monitoring, the instrument detects large leaks. If the part has a large leak, the final pressure is lower than with a pass part. Two limits (min. and max.) given as a percentage of the P_{end} / P_{start} ratio are used to detect large leaks.

The solution is based on the relationship: $P_{start} \times V1 = P_{end} \times V2$

If the part is leaking, the final volume will be greater so the final pressure will be lower. To define ratio min and max, cycles with pass and fail parts must be carry on.

Example:

- ▶ P_{start} = 1.00 bar.
- \blacktriangleright **P**_{end} (Part OK) = 0.5 bar.
- ➢ Pend (part No OK) = 0.4 bar.

So $P_{min} = 0.45$ bar then ratio min = 0.45/1 = 0.45 (End ratio min parameter).

And $P_{max} = 0.55$ bar then ration max = 0.55/1 = 0.55 (End ratio max parameter).

We use ratio min and max instead of **End P**_{min} and **End P**_{max} because those last parameters depend on P_{start} , so according to regulation reject levels could change at each cycle.

Standard mode carries out a first cycle to identify large leaks and then adds a second cycle at nominal pressure to check for small leaks.

3.2.2. Sealed component measurement



measurement cycle consists of 7 phases:	Large leak

components

	1	2	3	4	5	6	
Start	Fill volume time	Transfer time	Fill time	Stabilization time	Test time	Dump time	Cycle end

The

sealed

INSTALLATION

1. APPEARANCE OF THE ATEQ F28 LIGHT





Do not use the Ground terminal.

2. ELECTRICS CONNECTORS

2.1. POWER SUPPLY CONNECTORS

The **F28Light** device has no power switch and works as soon as it is plugged in.

Following the option selected, the power supply is of two means.



Supply the device with 24V DC - 1.2A on the connector. Connect by using the following mean:

➤ 24V DC (+).



Supply the device with 24V DC - 1.2A on the M12 (5 pins) connector. Connect by using the following mean:

- ▶ 1: 24V DC (+).
- ≻ 3: 0V (-).
- > 5: Ground (Do not use).

24 V DC power supply (option):





MEANWELL GS25E24–P1J AC/DC Switching adaptor with phoenix (2 pins), see connector above.

Power supply characteristics:

INPUT: 100-240V AC, 50/60Hz, 0.7A OUTPUT: 21-27V DC, 1.19-0.92A (SET AT 24V DC, 1.04A) 25W MAXIMUM

Plug the MEANWELL power supply (2 pins side) to the device terminal, and then plug the power supply in an appropriate outlet.

2.2. NETWORK CONNECTOR



Ethernet connector for network connection.

2.3. POWER AND COMMUNICATION STATUS LED



When **LED** is on, it indicates the device is powered on, when flashing (frequency = 1 s) indicates the network communication status is OK.

2.4. EXTERNAL ELECTRONIC REGULATOR (OPTION)



M12 Female connector for driving an optional external electronic regulator.

3. PNEUMATIC CONNECTORS

3.1. PNEUMATIC SUPPLY

Air supply is via the two connectors.

6 bar / 600 kPa +/-15%, the air pressure source must be dry and clean.



The "**PILOT PRESS.**" connector is the supply for the valve drive.

The supply pressure must always be between 4 and 8 bar (400 kPa and 800 kPa).

The "**TEST PRESS.**" connector is to supply the device with the regulated test pressure. No connector if the device is with an optional pressure regulator built-in for direct measurement.

Adjust the pressure to the value of your test pressure.

If the "Auto-Fill" function is used, it must adjust the pressure at:

P_{supply} > P_{test} + 0.5bar

3.2. PNEUMATICS TEST OUTPUTS

These outputs enable parts to be connected (test, reference and/or bell).

3.2.1. Direct measurement connections

Standard valve:

Reference Output R (Cap or Reference part.) Test Output TEST (Connect to the part to test.)

P2 (Not used) Piezo sensor 2

EXHAUST: Exhaust output.

Pressurization Output **P1** (Not used).

Put a cap to seal this output.

3.2.2. Sealed components measurement connections

Standard valve:



P2 (not used).

EXHAUST: Exhaust output.

Pressurization Output **P1**, to connect a volume.

Reference Output **R** (cap or Reference part.)

Test Output TEST (connect to the part to test.)

INSTALLATION AND NETWORK

1. USER INTERFACES

In most cases, the user's software is developed by the customer. Example and documentation are available for C++, C#.net, VB.net and Labview. An **ATEQ** software, **F28LightControlEth** is available for testing the heads.

The interface with the device is only done with customer software through the ATEQ DLL (F28LightControl.dll).

1.1. INSTALLATION

Double click on the **SetupF28LightControlEthV15XX.exe** file and follow the instructions.

The installation of this software must be in Administrator mode.

If you're not in Administrator mode, once select the **SetupF28LightControlEthV15XX.exe** file, do right click and select **"Run as administrator**".



Note: XX is the version of the software that may change.

2. NETWORK CONFIGURATION (ETHERNET)

By default, each head is configured with DHCP mode for IP address management. If no rooter is connected to the network, the head will automatically (after 30 seconds) get the **192.168.1.200** IP fixed address.

Then configure a different IP address to each head and the groups, this is to avoid any communication conflict.

For IP and group configuration, please use the "F28 Ethernet Configuration" software.

2.1. IP NETWORK MANAGEMENT

The network must be configured with the **F28LightControlEth.exe** software. This configuration is to declare the IP's heads and the group.

To start the software, double click on the **F28LightControlEth** icon.



Select the "**Network**" tab, and then click on the "**Edition**" button.



The following window appears.

All the heads declared in the network are displayed.

Configure each head (one line by head) like the following model:



0.A.192.168.1.X

Group	192.168	1	X
Group: this is to put a	Private network class;	Under group	This value must be
head into a defined	always set to these	always set	different for each head
group (1 to 15)	values to 192.168.	to 1	in the network.

To had a head's IP click on the "**New**" button.



Enter a new IP address, select in the pick list the group of the head and click on the "**OK**" button.



IP Address	×
192 , 168 ,	0.0 V Ok
IP Address	Cancel
IP Address	×
IP Address 192 . 168 .	1 . 147 Ok
Group	Cancel
Ethernet network configuratio	n X
Group IP Address	• New
1 192.168.1.146	
1 192,168,1,147	Remove
	Edit
	Cancel
Network	
■ 🖳 Network ■ 🛱 Ethernet ■ 🍲 Group 1	Network
+ S/N 01-01.505	168.1.147
	192.168.1.146

The added IP address is displayed in the window.

The software is waiting for the new head connection in the network.

2.2. HEADS ETHERNET CONFIGURATION

To start the software, double click on the **F28LightControlEth** icon.



Select the "**Network**" tab, and then click on the "**Ethernet IP**" button.





- F28 Light Control (Ethernet) V1.5.0.2

In the "**Netboard**" field, select the Ethernet Network board to scan.

If several Ethernet boards are installed in the PC, they are displayed in this pick list.

Once selected, the IP address of the PC Master is displayed (IP PC field).

Quick start - F28 Light

Click on the "Search" button to scan the network.



Once scanned, the IP's heads are displayed.

If a head is connected for the first time, the 192.168.1.200 IP address appears.

F28 Ethern	et Configuration V1.0.2.0		
 F28 Ethern Netboard IP PC Found Devic 379-10002 379-10002 379-10002 379-10002 379-10002 379-10001 379-10001 379-10003 379-10003 379-10003 379-10004 379-10005 	Intel(R) 82567LM-3 Gigabit N 192 . 168 . 1 . 100 ces 9 - 192.168.1.119 5 - 192.168.1.125 0 - 192.168.1.125 0 - 192.168.1.125 4 - 192.168.1.124 8 - 192.168.1.128 3 - 192.168.1.123 4 - 192.168.1.123 4 - 192.168.1.124 1 - 192.168.1.134 11 - 192.168.1.141 1 - 192.168.1.141 1 - 192.168.1.121	etwork Connection	Search Signal
379-10004 379-10002 379-10001 379-10003 379-10003 379-10003 379-10003 379-10003 379-10003 379-10003 379-10003 379-10003 379-10004	11 - 192. 168. 1. 141 11 - 192. 168. 1. 121 2 - 192. 168. 1. 121 2 - 192. 168. 1. 147 2 - 192. 168. 1. 147 2 - 192. 168. 1. 132 6 - 192. 168. 1. 138 6 - 192. 168. 1. 138 6 - 192. 168. 1. 146 7 - 192. 168. 1. 139 4 - 192. 168. 1. 139 4 - 192. 168. 1. 135 8 - 192. 168. 1. 148	•	

X F28 Ethernet Configuration V1.0.2.0 Intel(R) 82567LM-3 Gigabit Network Connection • Netboard 192 . 168 . 1 . 100 IP PC Found Devices 379-100026 - 192.168.1.126 Search 379-100033 - 192.168.1.133 379-100027 - 192.168.1.127 379-100018 - 192.168.1.118 379-100043 - 192.168.1.143 Signal 379-100029 - 192.168.1.129 379-100045 - 192.168.1.145 379-100049 - 192.168.1.149 379-100037 - 192.168.1.137 379-100031 - 192.168.1.131 Properties 379-100036 - 192.168.1.136 379-100042 - 192.168.1.142 379-10008 - 192.168.1.108 379-100009 - 192, 168, 1, 109 379-100007 - 192, 168, 1, 107 379-100010 - 192, 168, 1, 110 379-100005 - 192.168.1.105 379-100004 - 192.168.1.104 379-100011 - 192.168.1.111 379-100003 - 192.168.1.103 379-100006 - 192.168.1.106 379-100002 - 192.168.1.102

Select a head and then click on the "Properties" button.



The configuration Window appears.

- Uncheck the DHCP option,
- Enter a IP address (each head must have a different address),
- >Enter а Subnet Mask (255.255.255.0 in general)
- Enter a Gateway (ask your network administrator),
- Enter a Group, this will install the device into the specified group for configuration and run.

The "Signal" button will make flashing the communication LED on the device; this is to physically locate it in the network.

Configuration

DHCP

IP Address

Subnet Mask

Gateway

Group ID

00-1E-C0-A5-CB-32

1

192 . 168 . 1 . 101

255 . 255 . 255 . 0

192 . 168 . 1 . 250



x

OK

Cancel

2.3. IP ADDRESS LOSS

If the IP address is lost or nor recoverable, the communication between the device and the PC in the network is impossible.

To recover the communication, you must reset the IP address assignation, to be able to give another one.

2.3.1. Until 521.41E version board

For that, with the device powered off, set all the "Address" and the "Group" switches to 1.



Then power on the device for a few seconds and power off, the IP address is reset.

Set the switches as shown in the paragraph 2 and do the process to recover and set the IP address.

2.3.2. Since 521.41E version board included

Since the 521.41E new board version, a **Reset key** is available to recover the default IP address configuration, see chapter 5.1 "**IP** address configuration".

This Reset key is located in the front panel, near the 24V DC connector.

Please follow this process:

- **1.** Switch off the device,
- 2. Press and hold for 5 seconds the Reset key during switching on the device,
- **3.** Wait for 20s, the IP default configuration is set again (192.168.1.200 in DHCP mode).



2.4. NETWORK CONFIGURATION

To check the network and the heads connected.

 F28 Light Control Demo (Ethernet) V1.4.0.0 							
Results Network Display Informations Par	ameters Update					Style 🔻 🕜	
Start Stop							
Actions							
ATEO - E28 Light Control Demonstration							
E Stework			AILQ 120	Light control E	emonstration		
📄 🖬 🚓 Ethernet	Network						
😑 🗇 Group 1							
= 379-100001-01.400							
- 379-100003-01.400	Ŭ	Ŭ				Ŭ	
= 379-100005-01.400	192.168.1.1	192.168.1.2	192.168.1.3	192.168.1.4	192.168.1.5	192.168.1.6	
= 379-100007-01.400							
= 379-100008-01.400							
	192.168.1.7	192.168.1.8	192.168.1.9	192.168.1.10	192.168.1.11	192.168.1.12	
=							
+ 379-100011-01.400							
+ 379-100013-01.400	192.168.1.13	192.168.1.14	192.168.1.15	192.168.1.16	192.168.1.17	192.168.1.18	
= 379-100014-01.400							
= 379-100018-01.400	192.168.1.19	192.168.1.20	192.168.1.21	192.168.1.22	192.168.1.23	192.168.1.24	
	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc		
😑 🗇 Group 3							
	192.168.1.25	192.168.1.26	192.168.1.27	192.168.1.28	192.168.1.29	192.168.1.30	
- 379-100022-01.400							
	192.168.1.31	192.168.1.32	192.168.1.33	192.168.1.34	192.168.1.35	192.168.1.36	
- = = 379-100027-01.400							
😑 🐵 Group 4	192.168.1.37	192.168.1.38	192.168.1.39	192.168.1.41	192.168.1.42	192.168.1.43	
- + 379-100031-01.400							
Network							
	192.168.1.44	192.168.1.45	192.168.1.46	192.168.1.47	192.168.1.48	192.168.1.49	
· ·							
						ATEQ	



The head is connected and its IP address is displayed and / or the last test is "**Pass**".

The head is **not connected**.

The head has an "Alarm".

The last test is "Fail".

The head is **running** a test cycle.

192.168.1.35

SOFTWARE USE

1. START THE SOFTWARE

Double click on the **F28LightControlEth.exe** file and the software is displayed.



2. HEAD PARAMETERS SETTING

To set the F28 Light heads, select the "**Parameter**" tab. enter all the parameters you into each field.

 F28 Light Control (Ethernet) V1.5.0.3 	-	-		matter in			3
Results Network Display	Informations Parame	eters Update				Style 🝷	0
Reload Read Parameters							
Network			ATEQ - F	28 Light Contro	ol 🛛		
E Reverses			Param	eters			
⊑ -	Test Type	Leak Test	•	1 •			
	Cycle Time						
	Fill Time	2 s	Stabilization Time	3 s	Test Time	3 s	
	Dump Time	2 s					
	Pressure 1	har 💌		2		0	
	Set Fill	1	Maximum		Fill Type	Standard 🔻	
							E
	Leak						
	Unit	sccm 🔻	Test Reject	0.5	Ref. Reject	0	
	Offset	0	Standard P.Atm	1013 hPa	Standard Temperature	20 °C	
	Volume	100	Unit	cm3 🔻	Reject Calc	Pa/s 🔻	
	Options						
	Sign		No Negative Value		Filter Time	s	
		ensation	Electronic Regulator				
		10 scm					
	Calibration leak	0 sccm	Volume Min.	0 cm3			
Network	Calibration pressure	0 bar	Volume Max.	0 cm3			
». •							-
						ATEQ	

Once all the parameters are entered in the fields, click on the "**Reload**" button to upload them into the device(s).



3. PARAMETERS TAB

It's possible to copy a set of parameters to paste it into a second set, once pasted the parameters are automatically reloaded into the F28Light device.

A new feature allows to create 4 programs and record them into the PC, when select a new one, the program is automatically reloaded into the F28Light device.





● - F28 Light Control (Ethernet) V1.5.0.3 Style 🔻 🕜 😡 🔹 Results Network Display Informations Parameters Update 🗘 🗘 Copy Paste & Reload Reload Read Parameters Edit ATEQ - F28 Light Control <u>-</u>-🛓 🚔 Eth Parameters -1 -+ 379-104740-01.510 Leak Test Test Type Cycle Time 3 2 3 Stabilization Time Fill Time s s Test Time s 2 Dump Time s Pressure 1 2 0 bar • Unit Maximum Minimum 1 Standard 🔹 Set Fill Fill Type Leak 0.5 0 Unit sccm Test Reject Ref. Reject 1013 0 20 Offset Standard P.Atm hPa Standard Temperature °C 100 cm3 • Pa/s Reject Calc Volume Unit Options 0 Sign No Negative Value Filter Time s Test Pressure Compensation Electronic Regulator Auto-Calibration 10 Offset max sccm 0 0 Calibration leak sccm Volume Min. cm3 0 0 Network Calibration pressure bar Volume Max. cm3 » ATEO

3.1. LEAK TEST (DIRECT MEASUREMENT)

3.1.1. Parameters (Direct measurement)

Test type:	Leak test.					
Cycle Time						
Fill Time 2 Dump Time 2	s Stabilization Time ³ s Test Time ³ s					
Fill time:	Time to fill the part to the test pressure.					
Stabilization time:	Time to equalize the pressure between the TEST and REFERENCE components.					
Test time:	Leak measurement time, it depends of the reject level value.					
Dump time:	Time for the part to return to atmospheric pressure. Dump time by default is zero.					
Pressure 1						
Unit mbar Set Fill 2000	Maximum 4000 Minimum -1000 Fill Type Standard ▼					
Unit: Pressure unit (bar, mbar, PSI, Pa, kPa, MPa).						
Maximum:	Maximum level of the fill pressure.					
Minimum:	Minimum level of the fill pressure.					
Set Fill:	Instruction test pressure that the device will automatically regulate if there's electronic regulator and instruction for test compensation options.					
	Standard or Automatic, mode following the configuration of the device.					
Fill type:	Auto Fill mode: mode used with an internal calibrated jet to pressurize the part to test. It allows getting a ramp fill mode and once the "Set fill" test pressure instruction is reached, the fill is stopped and the fill time continues until its end.					
	Ramp mode: mode used with an electronic regulator option, the pressure will increase by following a ramp.					
	Instruction mode: when the set fill pressure is reached, the cycle jump automatically from the fill step to the stabilization step.					

Main parameters to configure:

Leak							
Unit	sccm 🔻	Test Reject	0.5		Ref. Reject	0	
Offset	0	Standard P.Atm	1013	hPa	Standard Temperature	20	°C
Volume	100	Unit	cm3	•	Reject Calc	Pa/s	-

	-
Unit (Leak):	Leak unit displayed. If a flow unit is selected, one parameter is added (volume).
Maximum (Test):	Maximum reject leak, above this level the test part is declared fail.
Minimum (Reference):	Minimum reject leak, above this level the reference part is declared fail. Note: when the reference reject value is 0, the device takes into
	account the absolute value of the symmetrical test reject.
Offset:	Value to subtract to the final result.
Standard P atm:	The measurements depend on the atmospheric pressure. The device recalculates the results according to the Patm parameter entered.
Standard temperature:	The measurements depend on the ambient temperature. The instrument recalculates the results according to the temperature parameter entered.
Volume Value:	Value of the volume (with flow unit selected).
Unit (Volume):	Unit for the volume.

Options

	options						
	Sign	No Negative Value	Filter Time	0 s			
	Test Pressure Compensation	Electronic Regulator					
S	ign:	To reverse the result sign, to vacuum or indirect tests.	this option must be	e checked for			
N	o negative value:	The measurement display be negative.	ecomes zero when	the result is			
Fi	Iter time:	Performs an average over the set measurement time; this filters out fluctuations on measured values.					
	_	This function allows the conv pressure instruction.	ersion of the results	s to a defined			
Test pressure compensation:	When this function is activated, the instrument recalculates the results according to the instruction pressure. The measurement results won't take in account pressure variations						
Ε	Electronic regulator This function is to validate if an electronic regulator is connect to the device.						

Auto-Calibration						
Offset max	10	sccm				
Calibration leak	0	sccm	Volume Min.	0	cm3	
Calibration pressure	0	bar	Volume Max.	0	cm3	

Offset max:	Maximum Offset allowed for auto-calibration.				
Calibration leak:	alue of the master leak that will be connected to the device for he volume measurement.				
Calibration pressure:	This parameter is the pressure applied when the leak was calibrated.				
Volume Min.:	Minimum reject for the calculated volume. If the calculated Volume is below the minimum volume " Volume Min. " parameter, an alarm is triggered.				
Volume Max.	Maximum reject for the calculated volume. If the calculated Volume is over the maximum volume " Volume Max. " parameter, an alarm is triggered.				

3.2. SEALED COMPONENTS

• F28 Light Control (Ethernet) V1.5.0.3	-	-		matter in		
Results Network Display	Informations Parame	eters Update				Style 🔻 🕡
Reload Read Parameters Parameters						
Network			ATEQ - I	F28 Light Contro	bl	
Ethernet			Param	neters		
= 😵 Group 1 + 379-104740-01.510	Test Type	Sealed Component	•	1 •		
	Cycle Time					
	Fill Time	2 s	Stabilization Time	3 s	Test Time	3 s
	Dump Time	2 s	Fill Volume	0 s	Transfert	0 s
	Pressure 1					
	Unit	bar 🔻	Maximum	2	Minimum	
	Set Fill	0		0	Fill Type	Standard 🔻
	End Ratio Max.	Ľ	End Ratio Min.	•		E
	Leak			0.5		
	Unit	sccm 🔻	Test Reject	1013	Ref. Reject	20
	Offset	100	Standard P.Atm	hPa	Standard Temperature	Pa/s
	Ontions		Onic		Reject Calc	10/3
						0
	Test Pressure Comp	ensation	Electronic Regulato	r	Filter Time	s
	Auto-Calibratio	1		-		
	Offset max	10 sccm				
	Calibration leak	0 sccm	Volume Min.	0 cm3		
Network	Calibration pressure	0 bar	Volume Max.	0 cm3		
»						-
						ATEQ

3.2.1. Parameters sealed components

Test type:		Sealed	Sealed Components.					
Cycle Time								
Fill Time Dump Time	2	s	Stabilization Time Fill Volume	3 0	s s	Test Time Transfert	3 s 0 s	
Fill volume:		Time to Output pressu	Time to fill the volume connected to the P1 port (Pressurization Output) to the test pressure. This volume (V1) is filled to a pressure P_{start} .					
Transfer time:		Time to test pa	Time to transfer the pressure from the pressurized volume to the test part.					
Fill time:		Time to	o fill the part to	the test	press	ure.		
Stabilization time:Time to equalize the pressure between the TEST REFERENCE components.			the TEST and					
Test time:		Leak m the wor	neasurement tir rk mode progra	me, it de mmed.	epends	s of the rejec	t level value and	
Dump time:Time to back the part to the atmospheric pressure. Dump to by default is zero.			sure. Dump time					
Pressure 1								
Unit	mbar	•	Maximum	4000]	Minimum	-1000	
Set Fill	2000				1	Fill Type	Standard 🔻	
End Ratio Max.	0		End Ratio Min.	0				
Unit (Pressure):		Pressure unit (bar, mbar, PSI, Pa, kPa, MPa).						
Maximum:		Maximum level of the fill pressure.						
Minimum:		Minimu	Im level of the	fill press	sure.			
Set Fill:		Instruc regulat compe	tion test pres e if there's el nsation options	ssure th ectronic 3.	nat th regul	e device w ator and ins	vill automatically struction for test	
		Standard or Automatic, mode following the configuration of the device.						
Fill type:		Auto Fill mode: mode used with an internal calibrated jet to pressurize the part to test. It allows getting a ramp fill mode and once the "Set fill" test pressure instruction is reached, the fill is stopped and the fill time continues until its end.						
		Ran pres	n p mode : mode sure will increas	e used w se by fol	vith an Iowing	electronic re a ramp.	gulator option, the	
		Inst cycl	ruction mode: e jump automat	when t ically fro	the se m the f	t fill pressure ill step to the	e is reached, the stabilization step.	
End ratio Max.:		Ratio c §3.2 "S	alculated by th Sealed compon	e P_{start}/ ents".	End P	_{max} calculatio	on, see preamble	
End ratio Min.:		Ratio calculated by the P _{start} / End P _{min} calculation, see preamble §3.2 "Sealed components".						

Main parameters to configure:

Quick start - F28 Light

Leak						
Unit	sccm 🔻	Test Reject	0.5	Ref. Reject	0	
Offset	0	Standard P.Atm	1013 hPa	Standard Temperature	20	°C
Volume	100	Unit	cm3 🔻	Reject Calc	Pa/s	r]

Unit (Leak):	Leak unit displayed. If a flow unit is selected, two parameters are added (volume and reject calculation).
Maximum:	Maximum level for the test part is fail.
Minimum:	Minimum level for the test part is fail.
Offset:	Value to add to the final result.
Standard P atm:	The measurements depend on the atmospheric pressure. The device recalculates the results according to the Patm parameter entered.
Standard temperature:	The measurements depend on the ambient temperature. The instrument recalculates the results according to the temperature parameter entered.
Volume Value:	Value of the volume (with a flow unit selected).
Volume Unit:	Unit for the volume.
Reject Calc:	Not available.

Options

Sign	No Negative Value	Filter Time	0	s
Test Pressure Compensation	Electronic Regulator			

Sign:	To reverse the result sign, this option must be checked for vacuum or indirect tests.			
No negative value:	The measurement display becomes zero when the result is negative.			
Filter time:	Performs an average over the set measurement time; this filters out fluctuations on measured values.			
	This function allows the conversion of the results to a defined pressure instruction.			
Test pressure compensation:	When this function is activated, the instrument recalculates the results according to the instruction pressure. The measurement results won't take in account pressure variations			
Electronic regulator	This function is to validate if an electronic regulator is connected to the device.			



The instrument allows variations in input pressure. This is why the instrument uses maximum and minimum ratio parameters, instead of End P1 max and min because they can vary at each cycle.

During the test cycle, if the volume is greater (large leak), the **Fail Part** and **End of Cycle** outputs are activated. If the volume is reduced (problem with the fixture) the **Alarm** and **End of Cycle** outputs are activated.

Auto-Calibration					
Offset max	10	sccm			
Calibration leak	0	sccm	Volume Min.	0	cm3
Calibration pressure	0	bar	Volume Max.	0	cm3

Offset max:	Maximum Offset allowed for auto-calibration.				
Calibration leak:	Value of the master leak that will be connected to the device for the volume measurement.				
Calibration pressure:	This parameter is the pressure applied when the leak was calibrated.				
Volume Min.:	Minimum reject for the calculated volume. If the calculated Volume is below the minimum volume " Volume Min. " parameter, an alarm is triggered.				
Volume Max.	Maximum reject for the calculated volume. If the calculated Volume is over the maximum volume " Volume Max. " parameter, an alarm is triggered.				

3.1. LEAK DESENSITIZED

• F28 Light Control (Ethernet) V1.5.0.3		-		and the life			×
Results Network Display	Informations Parame	ters Update				Style 👻	• 🕜
Reload Read Parameters Reload							
Network			ATEQ - F	28 Light Contro	ol		
Ethernet			Param	eters			-
= Group 1 + 379-104740-01.510	Test Type	Leak Desensitized	•	1 •			
	Cycle Time						
	Fill Time	2 s	Stabilization Time	3 s	Test Time	3 s	
	Dump Time	2 s					
	Pressure 1						
	Unit	bar 🔻	Maximum	2	Minimum	0	
	Set Fill	1			Fill Type	Standard 🔻	
							ш
	Leak Desensitize	d		0.5			
	Unit	sccm	Test Reject	1013	Ref. Reject	20	
	Offset	100	Standard P.Atm	hPa	Standard Temperature	20 °C	
	Volume		Unit	uns 🔸	Reject Calc	Pd/S V	
	Options						
	Sign		No Negative Value		Filter Time	s	
	Test Pressure Comp	ensation	Electronic Regulator	-			
	Auto-Calibration	10					
	Offset max	0 sccm	Values Ma	0 2			
Network		0 bar	Volume Max	0 cm3			
>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	contracting coddie	bui					
•						ATEQ	•

3.1.1. Parameters (Desensitized)

Test type:	Leak Desensitized.						
Cycle Time							
Fill Time 2 Dump Time 2	s Stabilization Time ³ s Test Time ³ s						
Fill time:	Time to fill the part to the test pressure.						
Stabilization time:	Time to equalize the pressure between the TEST and REFERENCE components.						
Test time:	Leak measurement time, it depends of the reject level value.						
Dump time:	Time for the part to return to atmospheric pressure. Dump time by default is zero.						
Pressure 1							
Unit mbar Set Fill 2000	Maximum 4000 Minimum -1000 Fill Type Standard						
Unit:	Pressure unit (bar, mbar, PSI, Pa, kPa, MPa).						
Maximum:	Maximum level of the fill pressure.						
Minimum:	Minimum level of the fill pressure.						
Sat Fill.	Instruction test pressure that the device will automatically regulate.						
Set Fill.	Remind : the input pressure must be at least greater than 50 kPa (0.5 bar) of the test pressure.						
	Standard or Automatic, mode following the configuration of the device.						
Fill type:	Auto Fill mode is used with an internal calibrated jet to pressurize the part to test. It allows getting a ramp fill mode and once the " Set fill " test pressure instruction is reached, the fill is stopped and the fill time continues until its end.						

Main parameters to configure:

Unit	sccm 👻	Test Reject	0.5		Ref. Reject	0	
Offset	0	Standard P.Atm	1013	hPa	Standard Temperature	20	°C
Volume	100	Unit	cm3	•	Reject Calc	Pa/s	-

Unit (Leak):	added (volume).				
Maximum (Test):	Maximum reject leak, above this level the test part is declared fail.				
Minimum	Minimum reject leak, above this level the reference part is declared fail.				
(Reference):	Note : when the reference reject value is 0, the device takes into account the absolute value of the symmetrical test reject.				
Offset:	Value to subtract to the final result.				
Standard P atm:	The measurements depend on the atmospheric pressure. The device recalculates the results according to the Patm parameter entered.				
Standard temperature:	The measurements depend on the ambient temperature. The instrument recalculates the results according to the temperature parameter entered.				
Volume Value:	Value of the volume (with flow unit selected).				
Unit (Volume):	Unit for the volume.				

	Options							
	Sign	No Negative Value	Filter Time	0	s			
	Test Pressure Compensation	Electronic Regulator						
Si	gn:	Do not use this function.						
Nc	negative value:	Do not use this function.						
Fil	ter time:	Performs an average over the set measurement time; this filters out fluctuations on measured values.						
_	_	This function allows the convergence pressure instruction.	ersion of the resu	lts to a	defin	ned		
le co	st pressure mpensation:	When this function is activated, the instrument recalculates the results according to the instruction pressure. The measurement results won't take in account pressure variations						
Ele	Electronic regulatorThis function is to validate if an internal electronic regulator installed into the device.							

Auto-Calibration					
Offset max	10	sccm			
Calibration leak	0	sccm	Volume Min.	0	cm3
Calibration pressure	0	bar	Volume Max.	0	cm3

Offset max:	Maximum Offset allowed for auto-calibration.				
Calibration leak:	Value of the master leak that will be connected to the device for the volume measurement.				
Calibration pressure:	This parameter is the pressure applied when the leak was calibrated.				
Volume Min.:	Minimum reject for the calculated volume. If the calculated Volume is below the minimum volume " Volume Min. " parameter, an alarm is triggered.				
Volume Max.	Maximum reject for the calculated volume. If the calculated Volume is over the maximum volume " Volume Max. " parameter, an alarm is triggered.				

4. HEADS TEST CONTROL (DISPLAY TAB)

To use the test cycles network, select the "Display" tab.

This tab displays all needed about the selected device and the real time information.



Start the test cycle with two ways, click on the start button on the top left hand of the window, or after selecting the head in the network window, make appear the contextual

menu by right clicking, and then click on the "Start"

Same operation for stopping the cycle with the "**Stop**" button.

Start Acti	Stop	Hide/Sho	2 🔽 4 🗐 2 🗐 wo	icale with Auto Scale icale on va
	Start Start on C	[hannel/G	roup/Devi	ce
■ 4 El ■ 4	thernet ≽ Group → 井 379	1 -100 <u>001-0</u>	1.400	
	···· 🕂 379 ···· 🕂 379 ···· 🕂 379	-100 D	Start Stop	

	Real Time		
During the	Pressure	Prog 1	Leak
steps and the real time measurements		STABILIZA	TION
are displayed.	Temperature		Atmospheric pressure
	+26.87 °c		+ ([]]].4] hPa
	Auto-zero Pressure		Regulator Adjustment
Prog 1	The running program number is a	displayed.	

4.1. MEASUREMENT CURVES

To display the curves window, the **head** must be selected in the **network tree**.

If one of the "**Network**", "**Ethernet**" or "**Group X**" option is selected in the network tree the curves displaying function won't work.



In these cases, the "Hide/Show curves" button is gray.

Select the "Display" tab, and then click on the "**Hide/Show curves**" button. If all conditions are met, this button is available.

Press on the "**Start**" button to run a test cycle. The curves "**Pressure**" and "**Leak**" are display in real time.



••	Results	Network	Display	Informat	tion
Start Acti	Stop	Hide/Show] Scale with] Auto Scale] Scale on va	reject level alues	Pre Pre Pre
Network	letwork	Update 0	G <mark>roup</mark> selected gro	up	





Quick start - F28 Light



Pressure Max.	1.250000	Leak Max.	8.000000
Pressure Min.	0.750000	Leak Min.	2.000000
Pressure		Leak	

5. INFORMATION TAB

- F28 Light Control (Ethernet) V1.5.0.2			The second se	-	
Results Network Display	Informations Pa	rameters Update			Style 🝷 🕜
Network		AT	EO - F28 Liaht Control	Demonstration	
🚍 🔜 Network					
Ethernet	Device Inforn	nations			
= Croup 1		379-100001		541.15N	
	Serial Number	04 505	Hard Version	01.000	
= 379-100003-01.400	Version	01.505	Boot Version	01.003	
= 379-100004-01.400	Ethernet Version	01.500	IP Address	192.168.1.146	
	Subnet Mask	255.255.255.0	Ethernet Hard Version	521.41C	
= 379-100007-01.400	MAC Address	D8-80-39-55-2F-FE	Gateway	192.168.1.252	
····· 🛱 379-100008-01.400			,		
= 379-100009-01.400	Statistics				
□	Communicati	on Statistics	Cycle Statistics		
= 379-100011-01.400	communicati		Cycle Statistics		
= 379-100012-01.400	Transmited	6568	Total Cycle	2	
= 379-100013-01.400	Received	6568	Success Cycle	2	
= 379-100014-01.400	From	0	Fail Ovde	0	
H= 379-100050-01.400	LITOIS		i di Cycle		
🛱 379-100018-01.400					
🖶 379-100019-01.400					
·····					
= 🛹 Group 3					
= 379-100022-01.400					
= 379-100026-01.400					
μ- 373-100027-01,400					
Network					
»					
					ATEO

The "Device	Device Informa	tions		
Information"	Serial Number	379-100001	Hard Version	541.15N
the characteristics	Version	01.505	Boot Version	01.003
of the selected	Ethernet Version	01.500	IP Address	192.168.1.146
head, versions, IP	Subnet Mask	255.255.255.0	Ethernet Hard Version	521.41C
address etc	MAC Address	D8-80-39-55-2F-FE	Gateway	192.168.1.252

The "**Communication Statistics**" window allows checking the communication between the head and the software, the "**Transmitted**" and "**Received**" numbers must grow regularly, the "**Errors**" number may stay to 0 or stay small.

Communication	Statistics
Transmited Received	6568 6568
Errors	0
Cycle Statistics	
Total Cycle	2
Success Cycle	2

0

The "**Cycle Statistics**" window displays the test cycle results number, total cycle, pass cycles and fail cycles.

Fail Cycle

6. RESULTS TAB

The results tab displays the last results of the measurements of the selected head.

Results Network Display	Informations Parameters Undate	Style
		,
Save auto 🛛 🖾 Common	iles	
🖉 🛛 CSV extension 🔲 Files by de	vice	
ear TXT extension		
Ontions		
een Options		
	ATEQ - F28 Light Control Demonstration	
🛃 Network		
🙀 🛱 Ethernet	Results	
🧧 🧼 Group 1		
4 379-100002-01.400	1 1 - 00 - Leak=+0.0004 sccm - Pressure= -5.37 mbar - Pass - 2015/11/19 15:05:27	
- 379-100003-01 400	1 2 - 00 - Leak=+0.0000 sccm - Pressure= -4.75 mbar - Pass - 2015/11/19 15:05:27	
H- 279-100004-01.400	1 3 - 00 - Leak=+0.0000 sccm - Pressure= -3.44 mbar - Pass - 2015/11/19 15:05:28	
	1 4 - 00 - Leak=+0.0000 sccm - Pressure= -2.48 mbar - Pass - 2015/11/19 15:05:28	
	16 - 00 - Leak=+0.0000 sccm - Pressure= -1.42 mbar - Pass - 2015/11/19 15:05:28	
	1 7 - 00 - Leak=+0.0000 sccm - Pressure= -5.75 mbar - Pass - 2015/11/19 15:05:28	
····· 🖶 379-100007-01.400	18 - 00 - Leak = +0.0000 sccm - Pressure = -3.75 mbar - Pass - 2015/11/19 15:05:29	
= 379-100008-01.400	19-00-Leak=+0.0000 scm - Pressure=-5.14 mbar - Pass - 2015/11/19 15:05:29	
🖶 379-100009-01.400	2 11 · 00 · Leak=+0.0000 scm · Pressure= -1.74 mba · Pass - 2015/11/19 15:06:09	
i 379-100010-01.400	2 12 - 00 - Leak=+0.0000 sccm - Pressure= -3.97 mbar - Pass - 2015/11/19 15:06:10	
Group 2	2 13 - 00 - Leak = +0.0000 sccm - Pressure = -3.33 mbar - Pass - 2015/11/19 15:06:10	
H 379-100011-01 400	2 14 - 00 - Leak=+0.0000 sccm - Pressure= -2.91 mbar - Pass - 2015/11/19 15:06:10	
270 100012 01 400	2 19 00 - Leak = +0.0000 sccm - Pressure = -2.59 mbar - Pass - 2015/11/19 15:06:11	
	2 17 - 00 - Leak=+0.0000 sccm - Pressure= -4.29 mbar - Pass - 2015/11/19 15:06:11	
····· 🗭 379-100013-01.400	2 18 - 00 - Leak = +0.0000 sccm - Pressure = -4.77 mbar - Pass - 2015/11/19 15:06:11	
···· 🖶 379-100014-01.400	2 19 - 00 - Leak=+0.0000 sccm - Pressure= - 6.08 mbar - Pass - 2015/11/19 15:06:11	
= 379-100050-01.400	2 20 - 00 - Leak = +0.0000 sccm - Pressure = 2.37 mbar - Pass - 2015/11/19 15:06:12 3 21 - 00 - Leak = +0.0000 sccm - Pressure = 4.96 mbar - Pass - 2015/11/19 15:06:32	
🖶 379-100016-01.400	3 22 - 00 - Leak = +0.0000 scm - Pressure = -3.23 mbar - Pass - 2015/11/19 15:06:32	
i	3 23 - 00 - Leak=+0.0000 sccm - Pressure= -4.87 mbar - Pass - 2015/11/19 15:06:32	
	3 24 - 00 - Leak=+0.0000 sccm - Pressure= -2.91 mbar - Pass - 2015/11/19 15:06:32	
379-100019-01 400	3 25 - 00 - Leak = +0.0000 sccm - Pressure = -3.02 mbar - Pass - 2015/11/19 15:06:33	
	3 27 - 00 - Leak = +0.0000 scm - Pressure = -7.22 mbar - Pass - 2015/11/19 15:06:33	
	3 28 - 00 - Leak=+0.0000 sccm - Pressure= -4.85 mbar - Pass - 2015/11/19 15:06:33	
Group 3	3 29 - 00 - Leak=+0.0000 sccm - Pressure= -2.78 mbar - Pass - 2015/11/19 15:06:34	
	4 31 - 00 - Leak=+0.0000 sccm - Pressure= -3.51 mbar - Pass - 2015/11/19 15:06:34	
···· 🕂 379-100022-01.400	4 32 - 00 - Leak=+0.0000 sccm - Pressure= -4.23 mbar - Pass - 2015/11/19 15:07:14	
🕂 🕂 379-100023-01.400	4 33 - 00 - Leak=+0.0000 sccm - Pressure= -4.31 mbar - Pass - 2015/11/19 15:07:15	
= 379-100024-01.400	4 34 - 00 - Leak=+0.0000 sccm - Pressure= -4.29 mbar - Pass - 2015/11/19 15:07:15	
= 379-100025-01.400	4 36 - 00 - Leak=+0.0000 sccm - Pressure= -5.30 mbar - Pass - 2015/11/19 15:07:15	
🛶 🛱 379-100026-01.400	4 37 - 00 - Leak=+0.0000 sccm - Pressure= -3.79 mbar - Pass - 2015/11/19 15:07:16	
1 270 400007 of 400	4 38 - 00 - Leak=+0.0000 sccm - Pressure= -2.75 mbar - Pass - 2015/11/19 15:07:16	
Naturals	4 39 - 00 - Leak=+0.0000 sccm - Pressure= -3.35 mbar - Pass - 2015/11/19 15:07:16	
Network	3 10 00 Ceak - 10,0000 Stelli - FIESSUIC1,03 IIIDai - Fass - 2013/11/15 13,07,30	
1	>	

Clear the result window by clicking on the "Clear" button.

Folder: C:\ATEQ\F28LightDemoEth\Results (automatic installation) or the "Results" folder where the "F28DemoEth.exe" file is installed (manual installation).



The "**Save auto**" option, if checked, will save automatically all the results in a file, one by day, which can be read with "**Excel©**" or "**LibreOffice Calc**" softwares.

The format of the result file can be in CSV or TXT files, following the users' preferences.

	CSV extension
1	TXT extension



The results can be recorded into a common file or several files, one by device.

Common filesFiles by device

Example of CSV results file, Res_20151109.csv (Res_YYYYMMDD.csv):

	C26	- (•		f_{sc}								
	А	В	С	D	E	F	G	Н	1	J	K	L
1	Serial Nb	IP Address	Group	Module	Status	Leak	Unit	Pressure	Unit	Date	Time	
2		192.168.1.146	1	1	Pass	0.00	Pa	0.24	mbar	01/02/2016	11:35:38	
3		192.168.1.146	1	1	Pass	0.00	Pa	1.14	mbar	01/02/2016	11:47:56	
4		192.168.1.146	1	1	PRESSURE TOO LOW	399.9999	sccm	0.00	bar	01/02/2016	16:27:08	
5		192.168.1.146	1	1	Pass	-0.0056	sccm	-0.13	mbar	01/02/2016	16:27:53	
6		192.168.1.146	1	1	Pass	0.0000	sccm	0.00	mbar	01/02/2016	16:28:08	
7		192.168.1.146	1	1	Pass	-0.0063	sccm	0.00	mbar	01/02/2016	16:28:22	
8		192.168.1.146	1	1	Pass	0.0017	sccm	0.00	mbar	01/02/2016	16:29:10	
9												
10												

7. UPDATE TAB

Results Network Display	Informations Para	meters Update Style 🕶 🛞
General Update Device Sunnor	ot mode	
Network		ATEO - E28 Light Control Demonstration
E Network		
Group 1 Group 1 379-100001-01.400 379-100002-01.400 379-100003-01.400 379-100004-01.400 4 379-100004-01.400 4 379-100005-01.400		Update File Browse
⇒ 379-10006-01.400 ⇒ 379-10007-01.400 ⇒ 379-100008-01.400 ⇒ 379-100009-01.400 ⇒ 379-100010-01.400 ⇒ Group 2	E	Device Number
= 379-100011-01.400 = 379-100012-01.400 = 379-100013-01.400 = 379-100013-01.400 = 379-100050-01.400 = 379-100017-01.400 = 379-100013-01.400 = 379-100013-01.400		
⇒ 379-100020-01.400 ⇒ Group 3 ⇒ 379-100021-01.400 ⇒ 379-100022-01.400 ⇒ 379-100024-01.400 ⇒ 379-100024-01.400 ⇒ 379-100025-01.400 ⇒ 379-100025-01.400 ⇒ 379-100028-01.400 ⇒ 379-100028-01.400 ⇒ 379-100028-01.400 ⇒ 379-100028-01.400 ⇒ 379-100028-01.400 ⇒ 379-100028-01.400 ⇒ 379-100028-01.400 ⇒ 379-100028-01.400		
= Group 4	*	ATEQ
<u>e</u>		Update Device
In the Update tab, click on the	Update File	Browse
Browse button to select the update file.	Device Number	
-	Updating	

To update the firmware's heads, select the "Update" tab.

Quick start - F28 Light



CALIBRATION PROCESS

1. PRINCIPLE

This process is to calibrate the device in its environment. It allows adjusting the offset and the complete test volume.

First, in the "**Display**" tab, make appear the Calibration window, click on the *Solution*.

If the button is gray, it seems that all the conditions are not met, see the § 2.3. "Auto-Calibration conditions" below.

Following the mode, it appears the window with two calibration modes: **Offset** and **Offset + Volume**. Two means: Auto-calibration for one device or for a group of devices.

 F28 Light Control (Ethernet) V1.5.0.3 	The second	
Results Network Display	Informations Parameters Update	Style 🔻 🕢
Start Stop Actions	reject level Pressure Max. 1.500000 Leak Max. 200.000000 Show Points Pressure Min. 0.000000 Leak Min. 0.000000 alues Pressure Leak Curves	
Network	ATEQ - F28 Light Control	
■ ● Network ■ ☆ Ethernet ■ ☆ Group 1 ↓ # 379-104740-01.510	Real Time Pressure + 1,00 bar Fog 1 Fog 1 Fog 1	
	Pass	
	Temperature Atmospheric pressure	
	+ 1003.38 hPa	
	Auto-zero Pressure Regulator Adjustment	•
	Dump Time 1 Start AZ Learning Reg.	
	Auto-Calibration	
	Offset	
	EOC Cycles number 10 Intercycle time 30 s	
	Volume EOC Cydes number 10 Intercyde time 30 s	
Network >>	Start Auto-Cal Start Offset Start Offset Start Offset Stop Auto-Cal Stop Auto-Cal	
		ATEQ

One F28Light device selected

 F28 Light Control (Ethernet) V1.5.0.3 		
Results Network Display	Informations Parameters Update	Style 🔻 🕻
Start Stop Actions	zject level Pressure Max, 1.500000 Leak Max, 200.00000 Pressure Min, 0.000000 Leak Min, 0.000000 ues Pressure Leak Curves	Show Points
Network		ATEQ - F28 Light Control
=	379-104740-192.168.1.91 +1.00 bar ♥ +0.0324 sccm Pass	
	Auto-Calibration	
	Offset	
	EOC Cydes number 10	Intercycle time 30 s
	EOC Cycles number 10	Intercycle time ³⁰ s
Network	Start Auto-Cal	Offset+Volume Group Stop Auto-Cal Group
		ATEQ

Group selected

The **Offset** mode will carry on an offset calibration; the **Offset + Volume** mode will carry on the offset calibration and then the volume measurement. In SCCM unit only.

The light **EOC** shows the current cycle status at any time.

Blue = Cycle in progress.

EOC = End of Cycle.

Orange = Alarm.



2. CALIBRATIONS PROCESSES

2.1. OFFSET CALIBRATION

This first cycle calculates the "Offset" parameter.

Select the "**Display**" tab, the "**Cycle number**" is the number of calibration cycles that will be carry on, for the result, the software take in account the half last results for its mean, for example, if the parameter is 10, the results 6 to 10 will enter in the calculation of the mean.

The parameter "Intercycle time" is the time of standing by between two measurements cycles.



Click on the "Start Offset" button. The Offset calibration cycle will run.

	Start Offset
Þ	Start Offset Group

The results are displayed in the "Results" tab at each end of cycle until the last one.

Results
1 1 - 00 - Leak = +0.026 sccm - Pressure = 151 59 mbar - Pass - 2015/11/16 13:53:16
1 1 - 00 - Leak = +0.025 sccm - Pressure = 152.26 mbar - Pass - 2015/11/16 12:52:20
1 1 - 00 - Leak - +0.023 sccill - Plessure - 132.30 mbai - Pass - 2013/11/10 13.33.23
1 1 - 00 - Leak=+0.025 sccm - Pressure=152.23 mbar - Pass - 2015/11/16 13:53:42
1 1 - 00 - Leak=+0.025 sccm - Pressure=151.72 mbar - Pass - 2015/11/16 13:53:55
1 1 - 00 - Leak=+0.025 sccm - Pressure=150.97 mbar - Pass - 2015/11/16 13:54:08
1 1 - 00 - Leak=+0.025 sccm - Pressure=150.20 mbar - Pass - 2015/11/16 13:54:21
1 1 - 00 - Leak = +0.025 sccm - Pressure = 149.47 mbar - Pass - 2015/11/16 13:54:34
1 1 - 00 - Leak = +0.025 sccm - Pressure = 149.23 mbar - Pass - 2015/11/16 13:54:47
1 1 - 00 - Leak=+0.024 sccm - Pressure=149.28 mbar - Pass - 2015/11/16 13:55:00
1 1 - 00 - Leak=+0.024 sccm - Pressure=149.83 mbar - Pass - 2015/11/16 13:55:14



At the end of the process, the message of successful calibration appears.

The mean of the second half of the results (in our example the 5 lasts results) is calculated and the parameter is sent to the device.

Leak							
Unit	sccm 👻	Test Reject	1000]	Ref. Reject	0]
Offset	0.024	Standard P.Atm	1013	hPa	Standard Temperature	20	°⊂
Volume	0	Unit	cm3	•	Reject Calc	Pa/s	-

2.1. OFFSET AND VOLUME CALIBRATIONS (SCCM UNIT ONLY)

Select the "Display" tab, the "Cycle number" of the "Offset" section is the number of calibration cycles that will be carry on, for the result, the software take in account the half last results for its mean, for example, if the parameter is 10, the results 6 to 10 will enter in the calculation of the mean.

The "Cycle number" of the "Volume" section is the number of volume measurements cycles that will be carry on.

Offset			
EOC Cycles number	10	Intercycle time 30	s
Volume			
EOC Cycles number	10	Intercycle time 30	s

The number of cycles for the "Offset" calibration and for the "Volume" measurement can be different.

The parameter "Intercycle time" is the time of standing by between two measurements cycles.

The "Calibration leak" parameter is the value of the master leak that will be connected to the device for the volume measurement.

	Real Time
The " Calibration pressure " parameter is the pressu applied when the leak was calibrated.	re Pressure mbar
Click on the " Start Offset + Volume " button. calibration cycle will run followed by the Volume meas	The Offset urement. Start Offset+Volume Start Offset+Volume Group
When the " Offset " calibration is finished, the software prompts you to connect the master leak and then click on the " OK " button. The " Volume " measurement will start.	Auto-Calibration Volume (1) Disconnect your master no-Leak product. (2) Connect your master leak (3) Click on OK button to start volume calibration OK Cancel
At the end of the process, the message of successful calibration appears.	F28DemoEth Auto-Calibration succeed. News values saved. OK

The results are displayed in the "**Results**" tab.

Results
1 1 - 00 - Leak= +8.30 Pa/s - Pressure=147.25 mbar - Pass - 2015/11/16 14:27:20 1 1 - 00 - Leak= +7.90 Pa/s - Pressure=147.14 mbar - Pass - 2015/11/16 14:27:33
11-00-Leak= +8.00 Pa/s - Pressure=146.75 mbar - Pass - 2015/11/16 14:27:46 11-00-Leak= +7.80 Pa/s - Pressure=147.19 mbar - Pass - 2015/11/16 14:27:59
11 - 00 - Leak = +7.70 Pa/s - Pressure = 146.06 mbar - Pass - 2015/11/16 14:28:25 11 - 00 - Leak = +7.70 Pa/s - Pressure = 146.06 mbar - Pass - 2015/11/16 14:28:38
1 1 - 00 - Leak= +7.70 Pa/s - Pressure=146.47 mbar - Pass - 2015/11/16 14:28:51 1 1 - 00 - Leak= +7.80 Pa/s - Pressure=145.98 mbar - Pass - 2015/11/16 14:29:04
11-00-Leak= +7.90 Pa/s - Pressure=146.81 mbar - Pass - 2015/11/16 14:29:17 11-00-Leak=+106.20 Pa/s - Pressure=142.89 mbar - Pass - 2015/11/16 14:30:04 11-00-Leak=+105.50 Pa/s - Pressure=142.73 mbar - Pass - 2015/11/16 14:30:17
11-00-Leak=+105.00 Pa/s - Pressure=142.73 mbai - Pass - 2015/11/16 14:30:30 11-00 - Leak=+105.20 Pa/s - Pressure=142.73 mbai - Pass - 2015/11/16 14:30:43
1 1 - 00 - Leak=+105.50 Pa/s - Pressure=142.78 mbar - Pass - 2015/11/16 14:30:56 1 1 - 00 - Leak=+105.40 Pa/s - Pressure=142.47 mbar - Pass - 2015/11/16 14:31:09
1 1 - 00 - Leak=+105.30 Pa/s - Pressure=143.02 mbar - Pass - 2015/11/16 14:31:22 1 1 - 00 - Leak=+105.40 Pa/s - Pressure=143.08 mbar - Pass - 2015/11/16 14:31:35

The calculated "Offset" calibration (mean of the second half of the results) and the measured volume are sent to the parameters' device.

Leak					
Unit	sccm 🔻	Maximum	1000	Minimum	0
Offset	0.071	Standard P.Atm	1013 hPa	Standard Temperature	20 ₀C
Volume	16.9328	Unit	cm3 🔹	 Reject Calc 	Pa/s 🔻



The master leak used must be calibrated at the test pressure (Pressure instruction)

2.2. AUTO-CALIBRATION ALARMS

An alarm can be triggered if the following conditions appear:



- the calculated offset is over the maximum offset "Offset max" parameter configured (Calc offset > Offset max),
- the calculated Volume is below the minimum volume "Volume Min." parameter configured (Calc vol < Vol min),</p>
- the calculated Volume is over the maximum volume "Volume Max." parameter configured (Calc vol > Vol max),
- the Leak Differential Pressure is below the Offset Differential Pressure x 5 (DPleak < DPoffset x 5).</p>

Auto-Calibration							
Offset max	0.071	sccm					
Calibration leak	0.5	sccm	Volume Min.	2	cm3		
Calibration pressure	0.5	bar	Volume Max.	10	cm3		

2.3. AUTO-CALIBRATION CONDITIONS

To have the Auto-Calibration option available, it's important to consider the following conditions.

If these conditions are not respected, the Auto-Calibration function will be gray, its parameters can't be configured and the cycle can't be carried on.

The Auto-Calibration function is under the "Display" tab.

The **head** or a **Group** must be selected in the **network tree**.

If one of the "**Network**" or "**Ethernet**" option is selected in the network tree the Auto-Calibration option is not available.



Results

- (La)

The Auto-Calibration function is not available for configuration or starting. Please check the conditions.

are

met,

and

buttons

lf

the

all

are available.

conditions

"Start Offset + Volume"

"Start Offset"



Available

Display

Network

OPERATIONNAL PROBLEMS AND ERROR CODES

1. IN CASE OF OPERATION DOUBT

If a test machine begins to detect too many fail parts (more than three consecutively), it is advisable to carry out a **check on the whole unit.** The quality of the manufacture and operation of the leak detector should be the last things considered.

There is a possibility that the seals may be cut by shavings or worn by repetitive squashing. This can be prevented by regular servicing and replacement of the seals.

If all the other checks do not resolve the problem, the instrument's circuit may be checked.

ATEQ does not accept any liability in regard to calibrations and settings to its instruments which are not carried out by its own personnel.

2. RESULT STATUS AND ALARMS

Element	Data type	Code value	Descript	ion	Leak result value*
tus	AR	0	STATUS_GOOD_PART	Pass part	Value
ucSta	UCH,	1	STATUS_TEST_FAIL_PART	Test fail part. Not used (Reject level at 999)	Value
		2	STATUS_REF_FAIL_PART	Reference fail part	Value
		3	STATUS_ALARM_EEEE	Large leak on Test side, over full scale	Value
		4	STATUS_ALARM_MMMM	Large leak on Reference side, over full scale	Value
		5	STATUS_ALARM_PPPP	Pressure over the maximum pressure range (Tester error)	-399.99
		6	STATUS_ALARM_MPPP	Pressure below the minimum pressure range (Tester error)	-399.99
		7	STATUS_ALARM_OFFD_FUITE	Differential sensor auto-zero error (Tester error)	-399.99
		8 STATUS_ALARM_OFFD_PRESSION		Piezo sensor auto-zero error (Tester error)	-399.99
		9	9 STATUS_ALARM_PST	Over maximum pressure (pressure too high)	-399.99
				if "Sign" is checked (vacuum or indirect test)	Value
		10	10 STATUS_ALARM_MPST	Below minimum pressure (pressure too low)	Value
				if "Sign" is checked (vacuum or indirect test)	-399.99
		11	STATUS_ALARM_CS_VOLUME_PE TIT	Fail Sealed components volume too small (Tester error)	-399.99
		12	STATUS_ALARM_CS_VOLUME_ GRAND	Fail Sealed components volume too large (Tester error)	-399.99
		13	STATUS_ALARM_ERREUR_PRESS _ CALIBRATION	Calibration pressure error (Tester error)	-399.99
		14	STATUS_ALARM_ERREUR_LEAK_ CALIBRATION	Calibration leak error (Tester error)	-399.99
		15	STATUS_ALARM_ERREUR_LINE_ PRESS_CALIB	Calibration line pressure error (Tester error)	-399.99
		16	STATUS_ALARM_APPR_REG_ ELEC_ERROR	Electronic regulator learning fail	-399.99
		17	STATUS_ALARM_TEST_PART_ LARGE_LEAK	Large leak on Test side Alarm (no value)	+998.00
		18	STATUS_ALARM_REF_SIDE_ LARGE_LEAK	Large leak on Reference side Alarm (no value)	-399.99

Element	Data type	Code value	Descript	ion	Leak result value*
			STATUS_ALARM_P_TOO_LARGE_	Over maximum pressure (pressure too high). Case A1	-399.99
		19	See diagrams below	If "Sign" is checked (vacuum or indirect test) and over max pressure. Case A2	+999.00
			STATUS_ALARM_P_TOO_LOW_	Pressure Below min pressure (pressure too low). Case B1	+999.00
		20	FILL See diagrams below	If "Sign" is checked (vacuum or indirect test) and below min pressure. CaseB2	-399.99
		21	STATUS_ALARM_JET_CHECK_FAIL	Jet Check out of limits (Jet air supply out of limits or Jet damaged).	-399.99
		22	STATUS_ALARM_JET_CHECK_PASS	Jet Check special cycle succeed	-399.99

*The "Leak result value" is sent in the result frame, these specific values are only available from the 1.500 DLL version.



ACCESSORIES AND CHARACTERISTICS

1. TECHNICAL CHARACTERISTIC OF THE F28 LIGHT

Case dimensions H x L x D (mm):	141.5 x 200 x 97
Overall dimensions (mm):	155.5 x 225 x 97
	24 V DC – 1.2 A
Electric power supply:	The F28Light device has no power switch and works as soon as it is plugged in.
Overvoltage category:	Ш
Protection:	Device protection level IP2.
Pneumatics connections:	2.7/4
Weight:	about 3.5 kg (7.7lb)
Running temperature:	+5°C to +45°C (+41°F to 113°F)
Storage temperature:	0°C to +60°C (32°F to 140°F)
Running altitude:	Up to 2000m (6500 feet)
Relative humidity	80% at 31°C (87°F) and 50% at 40°C (104°F)



2. OPTIONAL ACCESSORIES

Master leaks: the master leaks are used to check the device calibration.

Micrometer valve and Leak Calibrator (CDF).

Filtration kit.

24 V DC power supply (option):

The **F28Light** device has no power switch and works as soon as it is plugged in.



Power supply reference:

MEANWELL GS25E24–P1J AC/DC Switching adaptor with phoenix (2 pins), see connector above.

Power supply characteristics:

INPUT: 100-240V AC, 50/60Hz, 0.7A OUTPUT: 21-27V DC, 1.19-0.92A (SET AT 24V DC, 1.04A) 25W MAXIMUM

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