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PROFESSIONAL SERVICES

Assistance - Maintenance - Support

for A/V Systems

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At tt group Visual Design® we set ourselves the goal of full customer satisfaction, trying to go beyond expectations. So that this satisfaction can be constant over time, we make available to our customers a one-of-a-kind assistance and maintenance services program, with special attention to:

- offer highly professional assistance solutions, because they are carried out by specialized personnel in the A/V sector;
- carry out in-depth diagnostic interventions - able to solve every customer problem - because they are carried out directly as the manufacturer or in direct collaboration with the main manufacturers in the sector;
- provide a very wide range of services, from simple system cleaning up to thermographic analysis of the systems;
- create “tailor-made” assistance services by customizing intervention times (SLA) based on the customer’s needs;
- add exclusive warranty extensions to cover phenomena excluded from standard warranty conditions and more demanding conditions of use than those provided for in the manuals.

Service levels

The formulation of the three service levels is the result of the evidence that each customer has different models of use of technological tools for visual communication, whether they are videowalls for conference rooms, control rooms, control centers, entrance halls, etc.
There are rooms with complex operational functions, and with specialized staff who know their management in depth, others in which it is necessary to pay extreme attention to operational simplicity and the care of form. For example, in a staffed operations room it is important to have constantly available a vast amount of information by having complex systems interact reliably, whereas in the meeting locations of a corporate, the immediate operability of every device is essential, and likewise in representative environments the care of form is essential both in the implementation of the solution and in the delivery of services. The program consists of three service levels: Bronze, Silver, Gold, which can then be further customized based on the needs of each customer.

Bronze

The Bronze plan is the ideal plan for customers who want to protect the investment. It includes a basic assistance program with scheduled maintenance and includes other core services such as, for example, telephone and email helpdesk, online trouble ticketing, and preventive on-site interventions.

Silver

The Silver plan adds to the benefits of the Bronze service the advantages of the warranty extension, a wider assistance time slot, a scheduled maintenance intervention with a complete preventive fault analysis, help desk assistance also via remote connection, on-site interventions in the event of a fault, and the possibility of making use of a technical in-depth session, so that operators are constantly updated in order to always be able to make the best use of our systems.

Gold

The Gold plan is suitable for control rooms with frequent use, and/or high criticality, or representative rooms where optimal operating levels and maximum availability must always be guaranteed. For this reason, scheduled maintenance interventions are doubled, the help desk is always available (24/365 plan), restoration is as fast as possible, and the service includes consumables and products that are usually not covered by warranty.

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Summary framework of service levels

In the following table, the services included in each level and the related intervention times are indicated.

		BRONZE	SILVER	GOLD
1	**Scheduled maintenance**	1 intervention/year	1 intervention/year with detailed analysis	2 interventions/year with detailed analysis
2	**Help Desk assistance hours**	Mon-Fri 9:00-13:00 holidays excluded	Mon-Fri 9:00-17:00 holidays excluded	H24/365
3	**Ticket opening**	online 24/365 max 3 tickets/year	online 24/365 max 10 tickets/year	online 24/365 unlimited tickets
4	**Help desk callback:**	YES	YES	YES
4.1	**- email**	within 12 hours (assistance hours)	within 8 hours (assistance hours)	within 4 working hours
4.2	**- telephone**	within 24 hours (assistance hours)	within 12 hours (assistance hours)	within 4 working hours
4.3	**- remote connection**	NO	within 12 hours (assistance hours)	within 4 working hours
5	**On-site intervention on non-blocking fault**	NO	within 5 working days	within 2 working days
6	**On-site intervention on blocking fault**	NO	within 2 working days	within 1 working day (NBD)
7	**Restoration**	best effort / on-center	best effort / on-site, within 30 days from the intervention	on-site, within 1 working day (NBD) from the intervention
8	**Temporary replacement product**	NO	NO	YES
9	**Warranty extension**	NO	YES	YES
10	**Extra warranty coverage**	NO	NO	Ad Hoc
11	**Consumables**	NO	NO	YES
12	**Technical focus (Q&A)**	NO	YES	YES

Table 1: Summary framework of Service levels

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Glossary

1 - Scheduled maintenance

It is a set of activities carried out on-site with the aim of keeping the visualization system in the best possible operating conditions, to optimize the lifespan of the components and protect the investment.
All control and visualization devices are inspected carefully, from displays to graphic servers, analyzing the most significant operating parameters so as to be able to evaluate the overall health status of the system as a whole and act proactively to resolve potential failures.
In addition, all the necessary activities are carried out so that the system always works efficiently, a careful cleaning of the internal components of the system is carried out, including the optical parts, mechanical and colorimetric alignments are checked and corrected, system and software configuration backups are performed, security patches, firmware updates and minor releases of the main software.
In the Silver and Gold service levels, a photographic, thermographic, color and brightness survey of the entire visualization system is performed and in particular of the areas deemed to be of greater criticality.
The analysis of color and brightness is carried out with professional meters that represent the market reference. Brightness (luminance) values, color temperature, color space coordinates according to the international CIE1931 reference are detected, then an accurate adjustment is carried out that allows the visualization to be made uniform among the different modules of a videowall or of a ledwall.
The thermographic analysis allows the preventive identification of alarm situations or the onset of any problems in a non-invasive way and without stopping activities, allowing the accurate verification of the operating temperatures of the various products (regulatory scope not ISO 9712).
The scheduled maintenance intervention is agreed at least two weeks in advance and is carried out at the installation site by our specialized personnel. At the end of the intervention a complete report is delivered to the customer.

2 - Help desk assistance hours

Our help desk in Italian provides assistance in the time slots dedicated to each service level. The people who answer are highly specialized technicians, the same ones who carry out assistance and maintenance interventions also on-site.

3 - Ticket opening

Our customers with a service contract can request support by sending an email to support@tt-group.it. The request automatically generates a ticket in our systems, and the customer receives a unique ID confirming that the ticket has been successfully processed by our support center.

4 - Help desk follow-up

Once an assistance ticket has been opened, the customer will be contacted again by our personnel for any further details regarding the request, to carry out initial functional tests and/or to guide the customer to an immediate resolution of the problem. The follow-up takes place within the times specified by the relevant service contract, and can be carried out, based on the availability of technical support and the customer’s preferences, via email or by phone. In the Silver and Gold service levels, following the phone follow-up, the technical staff may carry out further diagnostics via remote access with a direct connection to the system’s control devices (with dedicated software such as Anydesk, Windows Remote Desktop, VNC, and others) in order to set up even more effective assistance. If the customer’s policies require it, with this service level custom connection modes are also managed as well as the management of tokens, OTP and other security devices provided by the customer.

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5/6 - On-site intervention non-blocking/blocking fault

By on-site intervention we mean the intervention of our technical staff directly at the site where the malfunction was detected. The intervention is aimed at diagnosing the cause of the problem and starting the activities necessary to restore normal operating functionality. We classify our on-site interventions based on the severity of the fault and we react with different intervention times that depend on the service level.
Non-blocking fault: this category includes all faults that, while reducing the performance or reliability of the system, do not completely prevent its operation. For example, the following faults are considered non-blocking:
-malfunction/shutdown of one or more displays/modules that make up a videowall/ledwall (no more than half of the displays of the videowall/ledwall);
-failure of one of the power supplies of a graphic controller (tt-wbc, tt-ldc, tt-man) in the case of redundant power supply
-failure or disconnection of a cable or of a signal extender
-failure of one or more sdvoe nodes (TT-SDVOE-HTRA)
-failure of one of the graphic controllers in the case of configuration with graphic controllers in hot-backup/teaming
-interruption of the connection with the server of the management software, crash of the management software, inability to change configurations on the videowall or ledwall
-failure of the brightness or color adjustment system
-geometric and/or colorimetric calibrations not suitable
-fault touch board table TT-TABLE-T5 and TT-TABLE-T3
-console fault (TT-FUR-CNS)
Blocking fault: this category includes all faults that completely prevent the operation of the visualization system in its primary functionalities and for this reason require faster intervention times. For example, the following are considered blocking faults:
-inability to turn on the graphic controller (TT-WBC), TT-LDC, TT-MAN
-inability to use the sdvoe nodes (TT-SDVOE-HTRA) over 50%
-operating system crash of the graphic controller (TT-WBC), TT-MAN
-simultaneous shutdown of over 50% of the displays/modules that make up a videowall/ledwall (3 out of 4, 4 out of 6, etc.)
-shutdown and inability to use TT-TABLE-T5 and TT-TABLE-T3

7 - Restore

Under the item “Restore” in the General Services Framework, time references are indicated within which the problem will be resolved.
In the Bronze level, the restore time is intended as “best effort/on-center”. Our personnel do not intervene on-site in the fault issue. By choosing this level, the customer takes charge and is responsible for diagnosing the problem, uninstalling, proper packaging and shipping of the damaged product to our warehouse; once the product is repaired or replaced, the customer takes charge and is responsible for shipping and the related re-installation and configuration. Once it arrives at our warehouse, the time necessary for the repair of the fault is not guaranteed; it will depend on the workload queue at that moment and on the occurrence of any other repairs that have a higher-priority service level; furthermore there is no guarantee that the components necessary for the repair are present in the factory, therefore in addition to those for the actual processing, additional time may be necessary for the procurement of components from subcontractors. With these premises, the diagnosis and the repair/replacement of the faulty component will be carried out in the shortest possible time.

Different is the concept of restore for the Silver level: the mode is always “best effort”, i.e. in the shortest possible time, but this time it is our personnel who directly take charge of the problem on-site. Uninstallation, transport, repair/replacement, re-installation and re-configuration are included. There is also the guarantee that within the time limit of 30 days the problem will be resolved.
In the Gold level, not only do we take full charge of the management of the problem but we guarantee the restoration of normal operation within one single working day (NBD, Next Business Day) from the on-site intervention.

8 - Temporary replacement product

If provided for in the chosen service level, the availability of a temporary replacement product is guaranteed in case of fault. This ensures service continuity, in the time interval required to repair or replace the malfunctioning product.

9 - Warranty extension

During the coverage period of the Silver and Gold service levels it is possible to extend the standard factory warranty of the products (limited to the duration of the subscribed service) also beyond the legal expiry that starts from the delivery of the product.

10 - Extra-warranty coverage

The supplied material is covered by a standard warranty equal to 24 months starting from the delivery of the products; the warranty coverage limitations and the operating conditions of each product are reported in the user manuals.
In some products, certain phenomena of degradation of performance quality considered intrinsic to the technology or occurring due to obsolescence are excluded from the warranty (such as for example Mura/Image Retention effect in LCDs, or the progressive degradation of hard-disks, the shutdown of some pixels in Ledwall, the H24 use of some multitouch tables, etc.) and all damages caused by use outside the parameters provided by the user manuals.
In the Gold service level it is optionally possible to extend the scope of the warranty to more demanding conditions of use than those specified in the manuals or to phenomena normally not included in the warranty scope.
Each scope of warranty extension must be explicitly mentioned in the service contract both in qualitative terms (type of phenomenon or covered use condition) and in quantitative terms, i.e. the extent of the phenomenon in a product or in a system (standard up to max 25% of the system components, rounded down to the lower unit).
For example, it may be decided to include in warranty:
-LCD displays that are used in H24 mode;
-systems that work in demanding temperature conditions (example from 0°C to 50°C) for 16 hours/day
-LCD displays with Mura/Image Retention effect on over 5% of the matrix and up to 25% of the displays of the system
-failure of more than 1 pixel/led per 1,000,000 pixels/led in Ledwall systems

11 - Consumables

By consumables we mean all those components intended to wear out during use. The following fall into this category: air filters for controllers and LCD displays, desiccant bags for electronic components, gasket sets for IP-protected systems, etc. LED or Laser sources of rear projectors are not included.

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12 - Technical Focus (Q&A session)

In conjunction with each on-site maintenance activity, our technical staff will be available to users and system administrators to deliver an ad hoc training session, or respond to specific usage requests, for simple clarifications and to deliver informative sessions on the system to new personnel. The maximum number of participants in the Q&A sessions is 4 people, and it will have a maximum duration of 2 hours. The topics of the sessions may be agreed in advance between the parties.

Guide to choosing the service level

The best service must be chosen based on the usage modes of the visualization systems and the operational needs of the room.
In the table below a summary between specific needs and service level can be viewed.

Needs	Bronze	Silver	Gold
Investment protection	✅	✅	
Reduction of service disruptions	✅	✅	✅
Presentation room with frequent use	✅	✅	
Operations room not h24		✅	✅
Redundant h24 operations room		✅	✅
Non-redundant h24 operations room			✅
High-representation function		✅	✅
Boardroom		✅	✅
Mission critical crisis rooms			✅

Table 2: Guide to choosing the Service level

Contacts

To receive further clarifications regarding our services, we invite you to contact your sales consultant.
Below are the main help desk contacts:
Email: support@tt-group.it
Phone number: +39 06 7919720