



LED PITCH PERIMETER BOARDS

UEFA LED technical specifications for club competitions

(valid as of July 2024)

LED pitch perimeter boards

LED technical specifications for UEFA Champions League, UEFA Europa League, UEFA Conference League and UEFA Women's Champions League

2024-2027 cycle

During the 2024-2027 cycle, UEFA will operate LED pitch perimeter advertising boards to all matches in each UEFA Champions League season from the Play Off round until the Final. In the UEFA Europa League, UEFA will continue its operation and use LED pitch perimeter advertising boards at all matches as of the group stage and this will now be the same for the UEFA Conference League. For the UEFA Women's Champions League, all matches as of the Quarter Finals should be delivered with LED pitch perimeter boards. For all competitions, UEFA plans to use as many existing club LED pitch perimeter boards as possible however, technical specs will be different between UEFA Champions League (incl. Club Finals and SuperCup) and UEFA Europa League, UEFA Europa Conference League and UEFA Women's Champions League as shown below.

Wherever stadia or clubs which are due to host matches in these competitions acquire a LED system meeting the minimum criteria outlined below, UEFA will survey the system and power set-up once in place, with a view to using it for those matches. Clubs or agencies can also request advice from UEFA ahead of any system purchase or rental deal, although it is the responsibility of the club or agency to make sure any system meets the specifications provided.

Full approval from UEFA can only be given once a system can be surveyed on-site.

System reviews and acceptance visits will be conducted by UEFA's independent LED pitch perimeter boards consultant agencies O'Neill Modern Media (OMM) and ATMOS.

UEFA Champions League

New for the UEFA Champions League, at all rounds from the Play-off stage onwards, UEFA would like to use as many club LED pitch perimeter systems as possible according to the technical specs below incl. the operator and technicians. Wherever a club LED system could be used, UEFA will survey the system and power set-up in advance. Once a system is considered suitable and a rental fee has been agreed (incl. technicians and operator), an agreement will be offered by UEFA, in which the system owner takes responsibility and liability for the delivery of a fully functioning system for each match period from midday MD-2 to midday MD+1. As no external overlay supplier (like the previous UEFA Champions League cycle) will be appointed, the club's LED play out system/software should be used by the usual club's LED operator. In this case, UEFA would send out a supervisor to assist the Club operator with the playout of UEFA's partner and corporate messages as long as it is needed.

Set-up

Systems which meet the specifications must be set-up in such a way as to conform to UEFA's needs. This means one continuous system, at least 246m long and 90 cm high, with fully closed corners and no gaps. Boards must be fully visible from the main camera position, ideally running under the crossbar of each goal, or if need be, over the cross-bar, but in no cases should the cross-bar bi-sect the board artworks. Content should be fully legible under floodlights, and a system test to match artwork colours and calibrate the host broadcast main camera to those colours will be required on MD-1 in the evening under full match light conditions, whenever possible.

Controller Unit & Payout Software

New for this cycle is the introduction of a minimum requirement for Payout software. As clubs who have an approved LED system will be responsible for the overall delivery of a UCL match, the Payout software which handles the artwork for the LED boards will need to be capable of a few key operations. For example: to be able to PAUSE the running order if there is a penalty during the match, this is needed as to not distract the player taking the penalty. Equally, once the penalty has been taken, the running order must be able to continue from the same moment of the initial pause.

Power

Where pitch side power capacity and security of supply can be guaranteed, UEFA will use the club's existing house power. Consumption costs are to be covered by the clubs. Where the existing house power capacity is not sufficient, or where there is no back-up power source at Semi-Final and Final venues, then UEFA will, at its own cost, bring in a dedicated twin-pack generator to guarantee the operation of the boards.

External systems

In the event that a club is unable to provide a LED advertising system meeting the required technical or set-up specifications then UEFA shall provide and install an appropriate system and shall deduct EUR 25'000 per match for such provision from the distribution due to the club for its participation in the competition. Removal of any non-compliant system will be the responsibility of the club and at the cost of the club: the appropriate clean stadium principles continue to apply. In either case, UEFA will cover operational staff costs and costs for artwork adaptation or management.

UEFA Europa League & UEFA Conference League

In UEFA Europa League, at all rounds from the group stage onwards, UEFA would like to use as many club LED pitch perimeter systems as possible according to the technical specs below incl. the operator and technicians. Wherever a club LED system could be used, UEFA will survey the system and power set-up in advance. Once a system is considered suitable and a rental fee has been agreed (incl. technicians and operator), an agreement will be offered by UEFA, in which the system owner takes responsibility and liability for the delivery of a fully functioning system for each match period from midday MD-2 to midday MD+1. As no external overlay supplier (like the previous UEFA Champions League cycle) will be appointed, the club's LED play out system/software should be used by the usual club's LED operator. In this case, UEFA would send out a supervisor to assist the operator with the payout of UEFA's partner and corporate messages as long as it is needed.

Set-up

Systems which meet the specifications must be set-up in such a way as to conform to UEFA's needs for this competition. This means a minimum of 200m covering the touchline and goallines incl the goals and a minimum height of 80 cm. Boards must be fully visible from the main camera position, ideally running under the cross-bar of each goal, or if need be, over the cross-bar, but in no cases should the cross-bar bi-sect the board artworks. Content should be fully legible under floodlights, and a system test to match artwork colours and calibrate the host broadcast main camera to those colours will be required on MD-1 in the evening under full match light conditions, whenever possible.

Controller Unit & Payout Software

New for this cycle is the introduction of a minimum requirement for Payout software. As clubs who have an approved LED system will be responsible for the overall delivery of a UEL/UECL match, the Payout software which handles the artwork for the LED boards will need to be capable of a few key operations. For example: to be able to PAUSE the running order if there is a penalty during the match, this is needed as to not distract the player taking the penalty. Equally, once the penalty has been taken, the running order must be able to continue from the same moment of the initial pause.

External systems

Should a stadium not have a system which, at UEFA's sole discretion, matches UEFA's required standards, UEFA's external overlay supplier will bring, install and operate an external system for each such match equal to or better than the quality levels indicated below. Such an operation will be fully at UEFA's cost. However, clubs are responsible for the cost and operation of removing any existing boarding: for all matches, the appropriate clean stadium principles continue to apply.

Power

Where pitch side power capacity and security of supply can be guaranteed, club's existing house power should be used. Consumption costs are to be covered by the clubs. Where the existing house power capacity is not sufficient, or where there is no back-up power source at Semi-Final and Final venues, then UEFA will, at its own cost, bring in a dedicated twin-pack generator to guarantee the operation of the boards.

UEFA Women's Champions League

In UEFA Women's Champions League, at all rounds from the Quarter Finals onwards, UEFA would like to use as many club LED pitch perimeter systems as possible according to the technical specs below. Wherever a club LED system could be used, UEFA will survey the system and power set-up in advance. Once a system is considered suitable and a rental fee has been agreed (incl. technicians and operator), an agreement will be offered by UEFA, in which the system owner takes responsibility and liability for the delivery of a fully functioning system for each match period from midday MD-2 to midday MD+1. As no external overlay supplier (like in UEFA Champions League) will be appointed, the club's LED play out system should be used by the usual club's LED operator. In this case, UEFA would send out a supervisor to help the operator with the payout of UEFA's partner and corporate messages as long as it is needed.

Set-up

Systems which meet the specifications must be set-up in such a way as to conform to UEFA's needs for this competition. This means a minimum of 200m covering the touchline and goallines incl the goals and a minimum height of 80 cm. Boards must be fully visible from the main camera position, ideally running under the cross-bar of each goal, or if need be, over the cross-bar, but in no cases should the cross-bar bi-sect the board artworks. Content should be fully legible under floodlights, and a system test to match artwork colours and calibrate the host broadcast main camera to those colours will be required on MD-1 in the evening under full match light conditions, whenever possible.

Controller Unit & Payout Software

New for this cycle is the introduction of a minimum requirement for Payout software. As clubs who have an approved LED system will be responsible for the overall delivery of a UWCL match, the Payout software which handles the artwork for the LED boards will need to be capable of a few key operations. For example: to be able to PAUSE the running order if there is a penalty during the match, this is needed as to not distract the player taking the penalty.

LED pitch perimeter boards – technical specifications

Equally, once the penalty has been taken, the running order must be able to continue from the same moment of the initial pause.

External systems

Should a stadium not have a system which, at UEFA's sole discretion, matches UEFA's required standards, UEFA will setup static boards or bring in a LED system. In this case clubs are responsible for the cost and operation of removing any existing boarding: for all matches, the appropriate clean stadium principles continue to apply.

Power

Where pitch side power capacity and security of supply can be guaranteed, club's existing house power should be used. Consumption costs are to be covered by the clubs. Where the existing house power capacity is not sufficient, or where there is no back-up power source at Semi-Final and Final venues, then UEFA will, at its own cost, bring in a dedicated twin-pack generator to guarantee the operation of the boards.



KEY DIMENSIONS

| | UCL and club competition finals (incl, SuperCup) | UEL/UECL/UWCL |
|------------------------------|--|--|
| Pixel pitch (3-in-1 SMD) | 12.5mm or less | 16mm or less |
| Length | Min 246m, closed corners | Touchline and goalline to near 6m line, open corners allowed (total min of 200m) |
| Display height (screen only) | Min 90cm Max 120cm | Min 80cm Max 120cm |
| Refresh rate | Min 2.800 Hz (Still photography must be clearly visible with an exposure of 1/2000 at 10% brightness level of the LED system) | Min 1.800 Hz |







OPTICAL

| | UCL and club competition finals (incl, SuperCup) | UEL/UECL/UWCL |
|--------------------------|---|--|
| Horizontal viewing angle | min 140°, ideal 160° (to ensure full visibility of goal-line boards from 16m and 5m cameras, with good visibility even from corner flag) | Goalline boards need to be visible from the 16m camera |

LED pitch perimeter boards – technical specifications

| | | |
|---|---|-----------|
| Vertical viewing angle | min 60° | min 60° |
| Luminance | min 5500 Nit, ideal 6000 Nit | preferred |
| Pixel-by pixel fine-tuning, adjustable using software on-site |  | preferred |
| Systems pre-calibrated to white at 6000K; |  | preferred |



MECHANICAL

| | UCL and club competition finals (incl, SuperCup) | UEL/UECL/UWCL |
|--|---|---|
| At least 1 spare cabinets in set-up, location freely configurable. |  | preferred |
| Quick-changeable modules. Module / cabinet change time <1 min, without affecting running system – i.e. hot-swappable. |  | preferred |
| Mechanism for access gates at several locations (if required), with no signal interruption. |  | preferred |
| Safety / emergency exit gates at several locations possible (if required), with signal interruption accepted in case of emergency use. |  |  |
| Mechanical connectors to align the system and minimise gaps between cabinets. |  | preferred |

LED pitch perimeter boards – technical specifications

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|--|---|---|
| Black non-glare finishing on faceplate, and black/dark neutral colours on cabinet. No Brand name (or covered with black sticker/tape) |  |  |
| Weather-protection to IP-65 (front) and IP-54 (back) standard. |  |  |
| Foot stands must be safely covered with rubber protection. |  |  |
| Impact protection for LEDs and players. |  |  |
| Rubber louvers front and top to protect cabinets from impact and players from injuries. |  |  |
| Rubber padding to fill any gaps between pitch and system. |  |  |
| Maintenance and failure records available. | preferred | preferred |
| Transport casing designed for efficient storage and shipping (for transportable systems). |  |  |
| Complete system can fit into one standard European 40' truck (for transportable systems). |  |  |




ELECTRICAL

| | UCL and club competition finals (incl, SuperCup) | UEL/UECL/UWCL |
|---|---|--|
| European-voltage system (220-240V / 380-415V, 50Hz). |  |  |
| CEE standard power connectors for 400V, alternative power lock connectors in main power distribution. |  |  |
| Professional power connectors like Neutrik powerCon TRUE1 with IP 65 protection. |  |  (other connectors brands accepted if CE certification is reached) |
| Heavy, high flex rubber cabling for outdoor use (cable type: H07RN-F). |  | preferred |
| All exposed cabling (incl. data cabling) must be protected. Power and Data on separate cables |  |  |
| Min one breaker (16 A or less) incl. one RCD 30mA per 4m. (Power loss must be limited to 4m) |  | preferred (Power loss must be limited to 27m per breaker/RCD) |
| Adjustable RCD 300mA on final 125A/63A circuits 3P + N including surge protection. |  | 30mA accepted if no other RCD are installed between stadium main source and LED |
| EMC protection to highest EU standards and regulations. |  | low voltage European standard CE certification is sufficient |
| CE, ROHS, EN, TÜV certifications required plus |  | certifications required for local technical standard(s) to |

LED pitch perimeter boards – technical specifications

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| additional required local technical standard(s) to operate the system in the relevant venue where it will be used. | | operate the system in the relevant venue where it will be used. |
| quick-changeable power-supplies installed within each LED module. | preferred | preferred |
| systems should avoid having power distribution boxes up against the rear of the LED systems: such boxes should be set back from the systems so as not to be in the way of system maintenance or photographers / TV camera positions. | preferred | preferred |

CONTENT CONTROL – DATA INTERFACING

| | UCL and club competition finals (incl, SuperCup) | UEL/UECL/UWCL |
|--|---|----------------------|
| Individual control of brightness, gamma, colours of every single module/cabinet. |  | preferred |
| <i>Default graphics</i> (auto-switch feature) installed and enabled (set to static <i>shared-rotation</i>) in case of total data connection loss with server. |  | preferred |
| In the event of a single cabinet change, current data, colours, brightness |  | preferred |




LED pitch perimeter boards – technical specifications

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| information must be stored in the cabinets. | | |
| System viewed and operated as one single screen by control software. | ✓ | ✓ |
| Control signal connection via two redundant feeding points. Fibre optic data cabling from dedicated controller locations to the two return side corners. | ✓ | preferred |
| Data ring loop configured; if one connection fails an automatic switch activates data source from the opposite section. | ✓ | preferred |
| Neutrik Ethercon data connectors or similar adequate brands with RJ-45 IP 65 protection. | ✓ | ✓ (other connectors brands can be accepted if reach the CE certification) |
| Neutrik optical single mode fibre optic cabling (IP 65 rated) preferred. | ✓ | ✓ (other connectors brands can be accepted if CE certification is reached. Double mode also accepted) |
| Remote data monitoring and analysis. | preferred | preferred |
| Dual signal servers each on UPS. | ✓ | ✓ |
| Converter between fibre and RJ45 on UPS (if not on system power) | preferred | preferred |
| System back to full spec control after pitch power loss in < 25 sec. | ✓ | ✓ |
| External controller software overlay possible; even number of sending cards | ✓ | preferred |







LED pitch perimeter boards – technical specifications

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| preferred, with symmetrical set-up (e.g. 2, 4 or 6). | | |
|--|--|--|



POWER

| | UCL and club competition finals (incl, SuperCup) | UEL/UECL/UWCL |
|---|---|---|
| Safe, secure and demonstrably reliable pitch-side power required for system. |  |  |
| Fully backed-up power / two independent power sources. | preferred (for SF and F essential) | preferred |
| Potential to implement and connect a fully redundant twin-pack generator if existing power is not sufficient or not considered reliable enough by UEFA. |  | preferred |

PLAYOUT SOFTWARE

| | UCL and club competition finals (incl, SuperCup) | UEL/UECL/UWCL |
|--|---|---|
| Ability to pause the Running order (for a penalty) and then continue at the same moment. |  |  |
| Basic colour controls in order to calibrate colours to a HB Camera |  |  |
| Ability to include a UEFA Competition Centre Board which is a continuous |  |  |

LED pitch perimeter boards – technical specifications

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|---|---|---|
| element throughout all UEFA matches | | |
| To play 20 second slots without interruption grouped together in different phases (Pre-match, 1 st half, Half-time, 2 nd half & Post-match) |  |  |

In case you have further questions, please send an email to signage@uefa.ch



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