IT&T SERVICE CATALOGUE

Fraport Greece

January 2022
## Version Control

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<th>Revision</th>
<th>Description of Revision (incl. list of changes)</th>
<th>Date</th>
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<tr>
<td>01</td>
<td>00</td>
<td>Initial release</td>
<td>31.01.2022</td>
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<th>Description</th>
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<tr>
<td>ADSL</td>
<td>Asymmetric Digital Subscriber Line</td>
</tr>
<tr>
<td>AODB</td>
<td>Airport Operational Database</td>
</tr>
<tr>
<td>BCBP</td>
<td>BarCoded Boarding Pass</td>
</tr>
<tr>
<td>CUCM</td>
<td>Cisco Unified Communications Manager</td>
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<tr>
<td>CUTE</td>
<td>Common Use Terminal Equipment</td>
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<tr>
<td>D</td>
<td>Dimension</td>
</tr>
<tr>
<td>DMR</td>
<td>Digital Mobile Radio</td>
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<tr>
<td>DSLAM</td>
<td>Digital Subscriber Line Access Multiplexer</td>
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<tr>
<td>ETSI</td>
<td>European Telecommunications Standards Institute</td>
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<td>FG</td>
<td>Fraport Greece</td>
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<tr>
<td>FIDS</td>
<td>Flight Information Display System</td>
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<tr>
<td>IATA</td>
<td>International Air Transport Association</td>
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<tr>
<td>IP</td>
<td>Internet Protocol</td>
</tr>
<tr>
<td>IP68</td>
<td>Ingress Protection 68</td>
</tr>
<tr>
<td>IT&amp;T</td>
<td>Information Technology &amp; Telecommunications</td>
</tr>
<tr>
<td>ITSM</td>
<td>Information Technology Service Management</td>
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<tr>
<td>ITT</td>
<td>IT &amp; Telecoms Dept. of FG</td>
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<tr>
<td>LAN</td>
<td>Local Area Network</td>
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<tr>
<td>MAC</td>
<td>Media Access Control</td>
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<tr>
<td>MDF</td>
<td>Main Distribution Frame</td>
</tr>
<tr>
<td>MPLS</td>
<td>Multi-Protocol Label Switching</td>
</tr>
<tr>
<td>NTE</td>
<td>Network Termination Equipment</td>
</tr>
<tr>
<td>PDA</td>
<td>Personal Digital Assistance</td>
</tr>
<tr>
<td>PDF</td>
<td>Portable Data File</td>
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<tr>
<td>PRN</td>
<td>Private Radio Network</td>
</tr>
<tr>
<td>PTT</td>
<td>Push-To-Talk</td>
</tr>
<tr>
<td>QR</td>
<td>Quick Response</td>
</tr>
<tr>
<td>SFTP</td>
<td>Shielded Foiled Twisted Pair</td>
</tr>
<tr>
<td>SIP</td>
<td>Session Initiation Protocol</td>
</tr>
<tr>
<td>UPS</td>
<td>Uninterruptible Power Supply</td>
</tr>
<tr>
<td>VDSL</td>
<td>Very high bit rate Digital Subscriber Line</td>
</tr>
<tr>
<td>VLAN</td>
<td>Virtual Local Area Network</td>
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<tr>
<td>VPN</td>
<td>Virtual Private Network</td>
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<tr>
<td>WAN</td>
<td>Wide Area Network</td>
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1. Local Area Network (LAN) Service

Fraport Greece (FG) is able to provide a secure, reliable and flexible connection between all the computers and peripheral devices of the customer within the campus of each airport operated by FG. LAN Service gives the customer the ability to access data from any of its devices and to share resources like printers, scanners, file servers etc.

LAN Service can be fully combined with the “Telephony Service” (see §3) for telephone connection and with “Wide Area Network (WAN) Service” (see §2) for internet access provisioning.

1.1. Technical Characteristics

- FG’s LAN infrastructure fully supports the transport of voice, data and video.
- Use of layer 2 Virtual Local Area Networks (VLANs) which provide logical and secure segregation of customers.
- VLANs are also used for functions segregation of the same customer, in which case the customer may utilize more than one VLAN.
- Application and deployment of Quality of Service in the entire switching infrastructure.
- All FG airport campus networks are deployed with fiber optics with network backbone capacity and bandwidth up to 2x1Gbps (multiple in specific locations). Especially the Rodos, Thessaloniki and Kerkira airport campuses have backbone capacity and bandwidth up to 2x10Gbps (and more if required).
- All access ports have Bridge Protocol Data Unit guard enabled (connection of switches with spanning tree protocol enabled will disable the port).
- All ports have built in and configured the port security functionality.
- Maximum number of MAC addresses per port is 2.
- By design oversubscription is common with frame and packet switching.

1.2. Options Offered

LAN Service has three options to select depending the speed required for the data transfer between the customer’s devices:

- 10 Mbps data port
- 100 Mbps data port
- 1000 Mbps data port

For the 1000Mbps option the LAN Service depends on the existing backbone bandwidth per airport. In case multiple 1000 Mbps access ports speeds are utilized, then they may add up to more than the speed of the backbone network, in which case the access port speed is not guaranteed.

1.3. Advantages

- Robust infrastructure in terms of design, redundancy and security according to standards.
- Free of charge Technical Support Services as these described in Technical Support Services (see §9).
- 24x7x365 monitoring of Fraport Greece systems to ensure their uninterrupted operation.
- No need for the customer to purchase, maintain and support own equipment within airport campus.
1.4. Billing Policy

The billing policy for the LAN Service includes the below:

i) a fixed one time activation fee for the Service, and
ii) a monthly fee for the Service dependent to the option chosen.

For more information on the charges, please see the “IT&T Services Pricelist”, send an e-mail to ITTCustomerCare@fraport-greece.com, or phone on +30214-4000314.

1.5. Terms and Conditions

- LAN Service is only offered to customers having a physical location within the airport campus.
- All the necessary works regarding installation, configuration, and operation of the equipment needed to provide the LAN Service are performed by FG designated personnel.
- Only end host devices are allowed to be connected with FG switching infrastructure.
- For security reasons switches are strictly prohibited to be connected with FG LAN infrastructure.
- The proper operation in terms of configuration and security of all customer equipment connected to FG network infrastructure is sole responsibility of the customer.
- In case a customer has more than one VLAN, then layer 3 networks and inter-VLAN routing is a sole responsibility of the customer.
- The estimated LAN Service delivery date is 3-5 working days.
2. Wide Area Network (WAN) Service

Fraport Greece is able to provide internet access to all devices located within the campus of the airports operated by FG through its upgraded network infrastructure (WAN edge), which is capable to fully support and satisfy the present and future operational needs of its customers. WAN Service gives the customer the flexibility to select between having a permanent connection with one or more locations (ends) or not, as well as having asymmetric or symmetric communication with the internet.

Asymmetric communication with the internet means that the transmission speeds for uploading and downloading are different, specifically greater towards the customer premises (downloading) than the reverse (uploading), while symmetric communication with the internet means that the transmission speeds for both directions are the same.

Symmetric communication can only be provided by a permanent WAN connection between two or more locations.

The WAN circuits are provided by OTE, which is the biggest telecommunications provider in Greece.

2.1. Standard WAN

2.1.1. Options Offered

Standard WAN Service provides asymmetric communication with the internet and has several options to select depending the speed required for the data transfer from and to the Internet and the need to have a static-IP or not to the modem/router.

In relation to the speed, the below options exists:

- ADSL connection (up to 24 Mbps:1 Mbps)
- VDSL connection (up to 50 Mbps:5 Mbps)
- 100 Mbps connection (up to 100Mbps:10 Mbps)

A router non-static IP, dynamic IP, is offered only for an ADSL connection, while for all the rest connection types a router static-IP is given by default.

A router static-IP is required only in the case the customer requires to enable remote users or systems located outside the airport campus (i.e. Headquarters, regional offices) to be connected to the customer’s Virtual Local Area Network (VLAN) located within the airport campus via a secure remote connection.

In case the customer requires to provide its own gateway router, it is possible; however it must be hosted to FG facilities. In such case, please refer to the “Equipment Hosting Service” (see §4).

In case the customer requires to transfer an already existing telephone number to be used for internet access within airport campus, it is possible with an one time charge for the transference.

2.1.2. Advantages

- DSLAMs are installed within airport’s Main Distribution Frame (MDF) rooms for eliminating the distance from the WAN modems/routers and thus gaining maximum upload and download speeds.
- Free of charge Technical Support Services as these described in Technical Support Services (see §9).
- 24x7x365 monitoring of FG systems to ensure their uninterrupted operation.
2.1.3. Billing Policy

The billing policy for the Standard WAN Service include the below:

i) a fixed one time activation fee for the Service, and

ii) a monthly fee for the Service dependent to the option chosen.

For more information on the charges, please see the “IT&T Services Pricelist”, send an e-mail to ITTCustomerCare@fraport-greece.com, or phone on +30214-4000314.

2.1.4. Terms and Conditions

- Standard WAN Service is only offered to customers having a physical location within the airport campus.
- All the necessary works regarding installation, configuration, and operation of the equipment needed to provide the Standard WAN Service are performed by FG designated personnel.
- The proper operation in terms of configuration and security of all customer equipment connected to FG network infrastructure is sole responsibility of the customer.
- Each internet access connection utilizes a telephone number as a circuit identifier.
- The Standard WAN Service “ADSL connection” and “VDSL connection” options are offered with an obligatory minimum period of provided service of 12 months. In case the customer terminates the Service earlier than 12 months, then an early termination fee is charged.
- The Standard WAN Service “100Mbps connection” option is offered without an obligatory minimum period of provided service.
- The estimated Standard WAN Service delivery date is 5-8 working days.

2.2. Premium WAN (Leased Lines)

Premium WAN Service or a leased line is a premium, internet connectivity product between two or more designated locations that is permanently connected all the times. Premium WAN Service provides privacy to the users and the maximum security since they do not carry third party communications. Premium WAN Service is ideal for customers that need to connect geographically distant offices one of which must be located within airport campus.

2.2.1. Options Offered

Premium WAN Service has several options to select depending the characteristics of the line required. The first characteristic to consider is the internet provider of the end not located at the airport campus, while the rest factors are the speed required for the data transfer, the type of communication with the internet and the number of locations required to connect.

For Premium WAN Service the router for layer 3 connectivity is provided by the customer and is hosted adjacent to the Network Termination Equipment (NTE) or DSLAM equipment within airport’s MDF rooms.

Metro Ethernet E-Line

Metro Ethernet E-Line is a Point-to-Point offering providing an exclusive end-to-end circuit meeting the requirement for guaranteed and symmetric data transfer speeds from 1Mbps to 10Mbps. Moreover, each end is given the ability to create and manage their own sub-networks, which may vary according to their own operational requirements.

Metro Ethernet E-line option is provided via a dedicated OTE NTE (LAN switch) which is installed within airport’s MDF rooms offering fiber feed connectivity.
IP VPN Fixed

IP VPN Fixed is a Point-to-Multi Point offering providing connection of customer’s airport campus location to OTE IP MPLS network at guaranteed and symmetric data transfer speeds from 1Mbps to 10Mbps.

IP VPN Fixed option is provided via a dedicated OTE NTE (LAN switch) or via dedicated DSLAM equipment which is installed within airport’s MDF rooms.

IP VPN Broadband

IP VPN Broadband is a Point-to-Multi Point offering providing connection of different customer’s airport campus locations to OTE IP MPLS network at not-guaranteed and asymmetric data transfer speeds of 24Mbps or 50 Mbps (download). The existence of IP VPN Fixed point is not required.

IP VPN Broadband option is provided via dedicated DSLAM equipment that is installed within airport’s MDF rooms for eliminating the distance from the WAN modems/routers and thus gaining maximum upload and download speeds.

The below table depicts the different offerings with their characteristics.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Metro Ethernet</th>
<th>IP VPN Fixed</th>
<th>IP VPN Broadband</th>
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<tbody>
<tr>
<td>Other end than the airport’s</td>
<td>Any provider, OTE</td>
<td>OTE</td>
<td>OTE</td>
</tr>
<tr>
<td>Type of communication with the internet</td>
<td>Symmetrical</td>
<td>Symmetrical</td>
<td>Asymmetrical</td>
</tr>
<tr>
<td>Number of ends</td>
<td>Point-to-Point</td>
<td>Point-to-Multi Point</td>
<td>Point-to-Multi Point</td>
</tr>
<tr>
<td>Data transfer speeds</td>
<td>1, 2, 4, 6, 8, 10 Mbps</td>
<td>1, 2, 4, 6, 8, 10 Mbps</td>
<td>24, 50 Mbps</td>
</tr>
<tr>
<td>Speed warranted</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

2.2.2. Advantages

- On demand large bandwidth and speed.
- A leased line is an always active connection.
- Better quality, as the connection does not carry third party communications.
- Free of charge Technical Support Services as these described in Technical Support Services (see §9).

Metro Ethernet E-Line

- Combines safety, quality and ease of interconnection between two points.

IP VPN Fixed

- The service is provided via the nationwide OTE IP MPLS network with quality and security features same as those of a closed private network.

IP VPN Broadband

- More affordable solution in relation to IP VPN Fixed.

2.2.3. Billing Policy

The billing policy for the Premium WAN Service includes the below:

i) a fixed one time activation fee for the Service dependent to the option chosen,

ii) a monthly fee for the Service dependent to the option chosen.
For Metro Ethernet offering the fixed one time activation fee and the monthly fee is charged per end, for the airport’s and for customer’s ends. In addition, as another factor affecting the recurring fees apart from the speed required for the data transfer is the distance between ends, there is an additional fee applied to the end not located at the airport's campus. These ends are distinguished to those that are near the airport “urban” and the distant ones, “long distance”.

For more information on the charges, please see the “IT&T Services Pricelist”, send an e-mail to ITTCustomerCare@fraport-greece.com, or phone on +30214-4000314.

2.2.4. Terms and Conditions

- Premium WAN Service is only offered to customers having a physical location within the airport campus.
- Premium WAN Service is only offered to customers purchasing the LAN Service as well.
- All the necessary works regarding installation, configuration, and operation of the equipment needed to provide the Premium WAN Service are performed by FG designated personnel.
- Relevant to Premium WAN Service, the router for layer 3 connectivity is provided by the customer.
- The proper operation in terms of configuration and security of all customer equipment connected to FG network infrastructure is sole responsibility of the customer.
- The Premium WAN Service “Metro Ethernet E-Line” and “IP VPN Fixed” options are offered with an obligatory minimum period of provided service of 12 months. In case the customer terminates the Service earlier than 12 months, then an early termination fee is charged.
- The Premium WAN Service “IP VPN Broadband” option is offered with an obligatory minimum period of provided service of 2 months. In case the customer terminates the Service earlier than 2 months, then an early termination fee is charged.
- The estimated Premium WAN Service delivery date is 30-40 working days.
3. Telephony Service

Fraport Greece is able to provide telephone connections within the campus of the airports operated by FG through its IP telephony voice network, which is connected to the Public Telecommunication Network having national and international access. Telephony Service is implemented through Cisco Unified Communications Manager (CUCM) infrastructure, which supports a wide range of dial up protocols with digital interconnection capability or analogue telephony, ensuring security and reliability in all services provided.

3.1. Technical Characteristics

- Use of FG’s Local Area Network infrastructure.
- Telephone sets can be managed, configured, and supported through the LAN without any end user involvement.
- The extension numbers and calling restrictions can be set up remotely without any end user involvement.

3.2. Options Offered

Telephony Service has two options to select depending the customer’s end device to be connected.

- **Basic Telephony**, which is based on the analogue technology and is preferred for certain devices, like fax machines and modems. Basic Telephony is always used in case that only ordinary telephone wiring (copper cabling) is in place.

- **Standard Telephony**, which is based on the IP technology and is preferred for telephone sets with advanced features for the user i.e. call diversion, call history, directory etc.

In both Basic and Standard Telephony Services the Caller ID capability is included, which enables the recipient to know who the caller is before the call is answered, as far as the telephone set used supports this feature.

3.3. Advantages

- Free of charge Technical Support Services as these described in Technical Support Services (see §9).
- 24x7x365 monitoring of FG systems to ensure their uninterrupted operation.
- Cisco Unified Communications Manager advanced features like call back, call pick up, immediate divert etc.
- Inter-airport communication with internal numbers.

3.4. Telephone Devices

The customer’s telephone device is obligatory to be purchased by FG due to the following reasons:

- Ensure no compatibility issues exist with the call manager for the provided features.
- Ensure preventive and corrective actions for security issues are performed effectively to the entire airport campus.
- Provisioning of the Technical Support Services.

FG has selected Cisco Systems, which is a major provider of IP phone devices, and specifically the IP phones of 7800 Series which can meet the needs of any business. The available options are those of 7811, 7821 and 7841 IP phones.
The Cisco IP Phone 7811 is a cost-effective, entry-level IP phone that addresses the need for basic voice communications. It supports caller ID, call history and phone information to enhance its user experience.

The Cisco IP Phone 7821 and 7841 belong to the 7800 Series, are audio-performing IP phones and are the ideal cost-effective solution for small-to-large companies offering:

- high-fidelity audio through speaker handset and headset,
- one-touch access, with fixed function keys, to common telephony features such as service, messaging, directory, hold/resume, transfer and conference,
- clear multi-party conferences for flexible, productive collaboration through a full-duplex speakerphone.

The difference between 7821 and 7841 models is that the first supports two lines, while the second supports four lines.

For more details on Cisco IP Phone 7800 Series please see the relevant data sheet “Cisco IP Phone 7800 Series” (see Annex I).

In order to connect a telephone device to the CUCM infrastructure, a Cisco license is required dependent to the type of the telephone device. This license is included in the purchase of the telephone set and is installed at the CUCM infrastructure, from where it cannot be revoked.

### 3.5. Billing Policy

The billing policy for the Telephony Service include the below:

i) a fixed one time activation fee for the Service,

ii) a monthly fee for the Service dependent to the option chosen,

iii) a monthly fee depending the use of the line (voice use charge).

For more information on the charges, please see the “IT&T Services Pricelist”, send an e-mail to ITTCustomerCare@fraport-greece.com, or phone on +30214-4000314.

### 3.6. Terms and Conditions

- Telephony Service is only offered to customers having a physical location within the airport campus.
- All the necessary works regarding installation, configuration, and operation of the equipment needed to provide the Telephony Service are performed by FG designated personnel.
- The end user device operation is responsibility of the customer.
- The estimated Telephony Service delivery date is 5-8 working days, if there is available telephone device. In case there is no available telephone device, then the estimated delivery date is 45 working days.
4. Equipment Hosting Service

Fraport Greece is able to provide dedicated rack space for customer’s network equipment, such as routers, servers, storage devices within airport’s telecommunication rooms, which are newly constructed with the highest standards for power and cooling conditions. In case the customer wants to offer dedicated services to its end host devices, such as interVLAN connectivity, Wide Area Network service, VPN remote access etc., Equipment Hosting Service gives the customer the ability to install its equipment in a secured environment and not to worry about its wellbeing.

4.1. Technical Characteristics

- 42U Rittal racks.
- Metallic baskets are used for cabling patching between racks.
- Use of 16A fuse per rack, which is also connected to the UPS.
- Full 4G mobile coverage to all FG telecommunication rooms.
- UPS existence having also redundancy.
- Power generator existence.
- Air conditioning existence having also redundancy.
- Bulging earthing existence.
- Use of FM 200 firefighting system type.
- Fire block out per cabling cable tray, so in case of fire it is restricted within the room.
- Use of star type fiber and copper cabling.

4.2. Advantages

- Controlled access to the telecommunication rooms – access is allowed only to accredited FG personnel, while customer’s authorized personnel are permitted only accompanied by FG personnel.
- Customer’s time and resources saving in case of relocation or refurbishments of the customer’s physical location within the airport.
- 24x7x365 monitoring of the telecommunication rooms and equipment to ensure proper environmental conditions for all the equipment hosted.
- Reduction of customer’s costs to maintain own equipment within airport campus.

4.3. Billing Policy

The billing policy for the Equipment Hosting Service includes a monthly fee for the Service dependent to the U height required within the rack. The monthly fee includes power, light, cooling and fire protection costs. The monthly fee also includes free of charge accompanying of customer’s authorized personnel to FG telecommunication rooms up to half an hour per month within airport’s IT&T field engineer working hours, upon arrangement.

In case of more than half an hour per month is required by the customer to access FG telecommunication rooms, then there is a charge related to the actual time FG personnel accompanied customer, which varies based on the hour of the day. The minimum charge for accompanying customer’s personnel to FG telecommunication rooms, above the initial half an hour, is 30 minutes.

In the event that additional equipment to the router is hosted, requiring connectivity with the airport’s LAN, then connectivity will be provided through LAN Service.

In the event that the customer prefers FG personnel to perform the installation of its equipment, then necessary works will be provided through Remote Hands Service.
4.4. Terms and Conditions

- Equipment Hosting Service is only offered to customers having one or more physical locations within the airport campus and want to offer dedicated services to their end host devices.
- Customer’s equipment can only be hosted to the FG Main Distribution Frame (MDF) rooms.
- Switches and access points customer equipment are not allowed to be hosted.
- All the necessary works regarding installation, configuration, operation and security of the customer’s hosted equipment is sole responsibility of the customer.
- Customer’s authorized personnel can have access to FG telecommunication rooms only accompanied by accredited FG personnel.
- The accompanying of customer’s authorized personnel to FG telecommunication rooms is mutually arranged between the parties.
5. **Private Radio Network (PRN) Service**

Fraport Greece is a licensed provider for radio communications by Hellenic Telecommunications and Post Commission for specific radio frequencies. In this framework, FG is able to provide ground-to-ground bidirectional voice communication between users of the same or different talk groups within the campus of the airports operated by FG through its upgraded Private Radio Network infrastructure, which provides coverage through the entire airport campus. PRN Service gives the customer’s personnel the ability to be in continuous private voice communication with each other in a quick, safe and efficient manner.

A voice channel is a frequency range that has been designated for use by a single signal at a time in Fraport Greece’s Private Radio Network.

A talk group is a way for grouping users to enable them share a voice channel at different times without being heard by other users on the same voice channel.

PRN Service provides different talk groups based on customer’s operational needs.

5.1. **Technical Characteristics**

- Fraport Greece’s PRN infrastructure is based on a digital, half-duplex Digital Mobile Radio system with fail safe mechanisms.
- Use of voice channels and talk groups, which provide logical and secure segregation of customers.
- Use of radio programming, only by authorized personnel, for the creation and monitoring of the talk groups.
- All voice communications are encrypted.
- Radio devices can be managed, configured and supported without any end user involvement.

5.2. **Options Offered**

PRN Service has four options to select depending the number of talk groups required based on customer’s operational needs: 1 to 4 talk groups.

5.3. **Advantages**

- Digital Mobile Radio system offers superior voice quality and coverage through the entire airport campus.
- Private voice communication, as one talk group cannot be interfered by another talk group.
- Easy to use, as with a single push of a button you can talk to an individual or an entire group.
- No customer’s personnel involvement, as PRN infrastructure is managed and administered by specialized FG personnel.
- Robust infrastructure in terms of design, redundancy and security according to standards.
- Free of charge Technical Support Services as these described in Technical Support Services (see §9).
- 24x7x365 monitoring of FG systems to ensure their uninterrupted operation.
- No need for the customer to maintain and support own equipment within airport campus.
- Under the hardware repair and replacement Service the radio devices replacement is performed by FG also in case of damaged equipment due to customer’s fault.

5.4. **Radio Devices**

FG has selected Motorola for radio devices, which is a leading company in this type of equipment and specifically the MOTOTRBO series, which is a family of ETSI DMR standards compliant digital radios that
delivers operation critical voice and data communications. Options exist for both handheld radio devices and mobile radio devices, which can be installed in a vehicle, to fulfill customer’s business needs.

In case the customer prefers instead of purchasing the radio device, to use the radio device and have a monthly cost, it is possible by leasing the radio device. The leasing period is mandatory for 3 years, after which the ownership of the radio device is transferred to the customer.

Only for the handheld devices, in case the customer does not require owning the handheld radio device or wants to use it for a limited period, it is possible by renting the handheld radio device; nevertheless, this option is subject of equipment availability. The minimum renting period is 3 months. Upon completion of the renting period, the rented handheld radio device is returned to FG.

The radio device to be used for the PRN Service requires an initial configuration. This configuration is performed by FG designated personnel and is included in the purchase / lease / rent of the radio device.

In order to connect a radio device to the centralized management infrastructure, a license is required. This license is included in the purchase / lease / rent of the radio device and is installed at the centralized management infrastructure, from where it cannot be revoked.

5.4.1. Handheld Radio Devices

The Motorola DP4401e and DP4601e belong to the DP4000e Series, which are rugged radio devices with robust, versatile infrastructure ideal for professionals in demanding environments offering:

- push-to-talk technology,
- integrated Wi-Fi,
- loud, clear speech, with industrial noise cancellation for better intelligibility through a powerful audio amplifier,
- up to 28 hours of battery life for 3-shift working,
- one-touch access to call help through the prominent orange emergency button by using transmit interruption to clear a channel when necessary,
- IP68 waterproofness,
- integrated accelerometer for optional Man Down.

The difference between DP4401e and DP4601e models is that the DP4401e does not have display and keypad.

For more details on Motorola DP4000e Series please see the relevant data sheet “Motorola DP4000e Series” (Annex II).
Depending the customer’s needs, the below accessories can also be purchased:

- Handheld radio device battery.
- Handheld radio device single battery charger.
- Ear receiver with in-line microphone and PTT.
- Noise cancellation heavy duty headset.

5.4.2. Mobile Radio Devices

![Motorola DM4601e](image)

The **Motorola DM4601e** belongs to the DM4000e Series, which have a rugged, durable design for everyday use, offering:

- push-to-talk technology,
- integrated Wi-Fi,
- loud, clear speech, with background noise cancellation for better intelligibility through a high powerful audio amplifier,
- one-touch access to call help through quick access buttons by using transmit interruption to clear a channel when necessary.

For more details on Motorola DM4601e please see the relevant data sheet “Motorola DM4000e Series” (see Annex III).

The works required for the installation of the mobile radio device in a vehicle are subject for agreement under the Cabling Service.

5.5. Billing Policy

The billing policy for the PRN Service is a monthly fee for the Service dependent to the option chosen.

For more information on the charges, please see the “IT&T Services Pricelist”, send an e-mail to ITTCustomerCare@fraport-greece.com, or phone on +30214-4000314.

5.6. Terms and Conditions

- PRN Service is only offered to customers having business operation within the airport campus.
- All the necessary works regarding installation, configuration, and operation of the equipment needed to provide the PRN Service are performed by FG designated personnel.
- The radio device always comes with a single battery charger.
- In case of radio device leasing, the radio device provided is a new one.
- In case of handheld radio device renting, the rented handheld radio device provided may be new or reused.
- The radio device lease option is offered with an obligatory period of provided service of 3 years. In case the customer terminates the Service earlier than 3 years, then an early termination fee is charged.
• The handheld radio device rent option is offered with an obligatory minimum period of provided service of 3 months. In case the customer terminates the Service earlier than 3 months, then an early termination fee is charged.
• In case the customer loses the leased handheld or mobile radio device or the rented handheld radio device, then a penalty fee is charged.
• The estimated PRN Service delivery date is 30-45 working days.
6. Flight Information Display System (FIDS) Service

Fraport Greece is able to provide flight information either to displays and customer’s Personal Computers located within the campus of the airports operated by FG, either to customer’s portable devices such as laptops and tablets, through the Flight Information Display System. FIDS is a system, which utilizes data from the Airport Operational Database (AODB) and formats it for real-time delivery on displays. FIDS Service gives the customer’s users a single, reliable source of flight information in an easy to understand format.

6.1. Options Offered

FIDS Service has two options to select depending the audience the service is addressed to, passengers or aviation business professionals:

- **Public content**, which includes all important arrival and departure flight information, such as flight number, airline, departure / arrival times, destination, boarding gate, baggage claim area, notifications of flight delays / cancellations, etc. This content can be filtered according to customer’s needs and is available to the public through standard displays at the customer’s premises within airport campus.

  This option is ideal for business lounges, retail and food and beverages shops where passengers can spend their time calmly following up their flight information as often as they want and be reassured they will arrive at the correct place at the correct time.

  In case there is no cabling to provide network connectivity at the customer’s premises where the display is to be installed, then the relevant works are subject for agreement under the Cabling Service.

- **Staff pages**, which includes all the information provided by the AODB and required for the airport operation, indicatively such as aircraft type, registration and call sign, the flight type, parking stand etc. Staff pages is available through a Personal Computer, laptop or tablet and is accessed through a secured way which requires the installation of an authentication software to the customer’s access device. This content can be adjusted according to customer’s needs.

  This option is ideal for the airlines and the ground handling companies as the real-time flight information provided is crucial for their smooth operation.

6.2. Advantages

- No customer’s personnel involvement, as FIDS infrastructure is managed and administered by specialized FG personnel.
- Free of charge Technical Support Services as these described in Technical Support Services (see §9).
- 24x7x365 monitoring of FG systems to ensure their uninterrupted operation.

6.3. Displays

The display is obligatory to be provided by FG due to the following reasons.

- Ensure no compatibility issues exist with the displays centralized management infrastructure.
- Ensure no compatibility issues exist with the format of the content to be displayed.
- Provisioning of the Technical Support Services.

FG has selected LG Electronics, which is a global leader and technology innovator in consumer electronics and specifically the professional displays of UH5F series, which can meet the needs of the airport environment and business. The available options are those of 43” and 55” inches.
For more details on LG UH5F Series displays please see the relevant data sheet “LG UH5F Series” (see Annex IV).

In case the customer prefers instead of purchasing the display, to use the display and have a monthly cost, it is possible by leasing the display. The leasing period is mandatory for 3 years, after which the ownership of the display is transferred to the customer.

In order to connect a display to the displays centralized management infrastructure, a license is required. This license is included in the purchase or lease of the display and is installed at the displays centralized management infrastructure, from where it cannot be revoked.

6.4. Billing Policy

The billing policy for the FIDS Service is a monthly fee for the Service dependent to the option chosen.

For more information on the charges, please see the “IT&T Services Pricelist”, send an e-mail to ITTCustomerCare@fraport-greece.com, or phone on +30 214-4000314.

6.5. Terms and Conditions

- FIDS Service can not be provided to mobile phones, as the content to be displayed will not be viewable.
- For better visibility FIDS Service is provided to tablets having at least 10” display.
- All the necessary works regarding installation, configuration, and operation of the equipment needed to provide the FIDS Service are performed by FG designated personnel.
- Relevant to the FIDS Service “Staff pages” option, the proper operation in terms of configuration and security of the end user access device is sole responsibility of the customer.
- Relevant to the FIDS Service “Staff pages” option, each customer user authorized to have access to FG infrastructure / resources is mandatory to sign the FG “VPN Access Request Form” and to comply with all the terms and responsibilities included in the form.
- Relevant to the FIDS Service “Staff pages” option, for security and compliance reasons, it is strongly recommended the provided accounts to be personalized. If this is not feasible for operational reasons then all users that are accessing FG infrastructure through a generic account need to sign the FG “VPN access request form” and to comply with all the terms and responsibilities included in the form. All remote access forms will be reviewed and renewed on an annual basis.
- In case of display leasing, the display provided is a new one.
- The display lease option is offered with an obligatory period of provided service of 3 years. In case the customer terminates the Service earlier than 3 years, then an early termination fee is charged.
- The estimated FIDS Service public content option delivery date is 3 working days, if there is available display. In case there is no available display, then the estimated delivery date is 45 working days.
- The estimated FIDS Service staff pages option delivery date is 5 working days.
7. Dedicated Common Use Terminal Equipment (CUTE) Service

Fraport Greece is able to provide the infrastructure that is used for the passengers check-in and boarding, also to customer’s office within the campus of the airports operated by FG, through its Common Use Terminal Equipment system, which is a shared platform from where all customer’s applications required for passengers processing can be accessed.

Dedicated CUTE Service is primarily addressed to the airlines and the ground handling companies who would like to have the flexibility of the exclusive use of CUTE platform at its office, i.e. operation office, load control, sales desk, and not only at the common use designated airport locations.

In case there is no cabling to provide network connectivity at the customer’s premises where the CUTE equipment is to be installed, then the relevant works are subject for agreement under the Cabling Service.

7.1. Advantages

- No customer’s personnel involvement, as CUTE system is managed and administered by specialized FG personnel.
- Free of charge Technical Support Services as these described in Technical Support Services (see §9).
- 24x7x365 monitoring of FG systems to ensure their uninterrupted operation.

7.2. CUTE Equipment

The minimum CUTE equipment necessary for the Dedicated CUTE Service is a Personal Computer. FG has selected HP for Personal Computers, which is a leading company in business desktops. Specifically the Elite Desk 800 model, which is a compact powerful solution, along with a 20,7” monitor, V213a model, for clear views in every day use, are provided.

For more details on the Personal Computer please see the relevant datasheets “HP Elite Desk 800 G2” and “HP V213a” (see Annex V).

Depending the customer’s needs, the below peripherals can be rent.

- **Boarding pass printer**
  FG has selected the IER 401-01 boarding pass reader, which is a multi-functional, direct thermal printer and is configured according to the need (boarding pass or bag tag). It prints all 1D and 2D barcodes including PDF417, Datamatrix, Aztec and QR code.
  For more details on IER 401 model please see the relevant data sheet “IER 401” (see Annex VI).
Figure 7: IER 401

- **Bag tag printer**
  FG has selected the IER 401-03 bag tag reader, which is a multi-functional, direct thermal printer and is configured according to the need (boarding pass or bag tag). It prints all 1D and 2D barcodes including PDF417, Datamatrix, Aztec and QR code.

  For more details on IER 401 model please see the relevant data sheet “IER 401” (see Annex VI).

- **Document printer**
  FG has selected the OKI ML3320eco document printer, which is ideal for demanding environments due to its outstanding reliability, ease-of-use and barcoding facilities. It is a dot matrix printer with a high durability 9-pin printhead, quick print speed and multi-part paper-handling capability (original + 4 copies).

  For more details on OKI ML3320eco document printer please see the relevant data sheet “OKI ML3320eco” (see Annex VII).

Figure 8: OKI ML3320eco

- **Boarding pass gate reader**
  FG has selected the Access IS BGR750 boarding pass gate reader, which is a modern boarding pass gate reader for all barcoded boarding passes (BCBPs), designed specifically to allow intuitive use with all media types including the latest smart phones, tablets and smart watches. It reads IATA-recommended PDF417, QR, Aztec and other 2D and linear barcode symbologies.

  For more details on Access IS BGR750 boarding pass gate reader please see the relevant data sheet “Access IS BGR750” (see Annex VIII).
Document reader

FG has selected the Access IS LSR130 document reader, which is able to read barcodes, magnetic swipes and machine readable travel documents like passports and visas through different media types such as airline and home-printed documents, smart phones and PDAs. It reads IATA-recommended linear, PDF417, Aztec, DataMatrix and QR symbologies, while the magnetic swipe reader complies with IATA ATB2 722C format, T1, T2, T3 and T4.

For more details on Access IS LSR130 document reader please see the relevant data sheet “Access IS LSR130” (see Annex IX).

7.3. Billing Policy

The billing policy for the Dedicated CUTE Service is a monthly fee which includes the Personal Computer rent and the access to the CUTE system.

For more information on the charges, please see the “IT&T Services Pricelist”, send an e-mail to ITTCustomerCare@fraport-greece.com, or phone on +30214-4000314.

7.4. Terms and Conditions

- All the necessary works regarding installation, configuration, and commissioning of the equipment needed to provide the Dedicated CUTE Service are performed by FG designated personnel.
- The Dedicated CUTE Service is offered with an obligatory minimum period of provided service of 5 years. In case the customer terminates the Dedicated CUTE Service earlier than 5 years, then an early termination fee is charged.
• The equipment provided for the Dedicated CUTE Service can be either new or reused and its ownership remains to FG.
• In case the customer loses any of the devices used for the Dedicated CUTE Service, then a penalty fee is charged.
• Each customer user authorized to use equipment under the Dedicated CUTE Service is mandatory to comply with all the terms and responsibilities mentioned in FG "Airport User Regulations Manual".
• The estimated Dedicated CUTE Service delivery date is 3 working days, if there is available CUTE equipment. In case there is no available CUTE equipment, then the estimated delivery date is 45 working days.
8. Cabling Service

Fraport Greece as operator of 14 regional airports is responsible for the installation, maintenance and improvement of the cable infrastructure of the entire campus of each airport operated by FG. As such, FG is able to provide network cabling infrastructure works between any two points across the airport’s campus. Cabling Service gives the customer the ability to obtain network connectivity at its premises within the airport’s campus for both landside and airside.

All airports’ cable infrastructure and future extensions:

- are based on a star topology which provides a local area network for all nodes individually connected to a central connection point, i.e. switch,
- are certified according to international standards,
- are SFTP Cat6.

8.1. Billing Policy

The billing policy for the Cabling Service is a one time fee for the Service connected to the works required to be performed and includes all materials needed.

For more information on the charges, please send an e-mail to ITTCustomerCare@fraport-greece.com, or phone on +30214-400315.

8.2. Terms and Conditions

- Cabling Service is only offered to customers having a physical location within the airport campus.
- Cabling Service is offered upon agreement of what works are required to be performed and is mutually scheduled between the parties.
9. Technical Support Services

Fraport Greece for all its IT&T Services provides to its customers free of charge the below Technical Support Services:

- Customer support request registration and technical assistance
- Troubleshooting and incident resolution
- Hardware repair and replacement

All incidents are handled taking into account their announcement date and time and their priority. In addition, FG personnel perform necessary actions for the as quickly as possible incident resolution or a temporary solution until the permanent one is provided.

Incident Prioritization

Incidents are assigned a priority used to identify the relative importance of each incident. The prioritization is determined by the incident’s impact. In the table below the incident prioritization is depicted.

<table>
<thead>
<tr>
<th>Incident Priority</th>
<th>Incident Type</th>
<th>Incident Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>High</td>
<td>Service has halted completely</td>
</tr>
<tr>
<td>2</td>
<td>Medium</td>
<td>Service has partially stopped or it is in intermittent state</td>
</tr>
<tr>
<td>3</td>
<td>Low</td>
<td>Some components of the service do not function</td>
</tr>
</tbody>
</table>

9.1. Customer Support Request Registration and Technical Assistance Service

Customer support request registration and technical assistance Service is provided on a 24x7x365 basis, remotely through the dedicated function within IT&T Department, the IT&T Service Desk. Under this Technical Support Service FG provides to FG customers the below:

- Incident registration in the IT Service Management (ITSM) tool
- Basic technical information and clarifications
- In case of simple technical issues, incident resolution through telephone communication with the customer responsible person for the incident
- Escalation actions

9.1.1. Terms and Conditions

- Customer support request registration and technical assistance Service is only offered to FG customers for the IT&T Service purchased.
- Customer support request registration and technical assistance Service is activated by contacting the FG IT&T Service Desk with any of the following means:
  - by the Self Service Portal: https://itt.fraport-greece.com
  - by e-mail to ITT-ServiceDesk@fraport-greece.com
  - by phone to +30 21440 88888
9.2. Troubleshooting and Incident Resolution Service

Technical assistance and incident resolution is provided during airport operating hours* through the IT&T Department experienced personnel on different technologies. Under this Technical Support Service FG provides to FG customers the below:

- Incident investigation and analysis
- If required for the incident investigation and resolution, involvement of the provider / manufacturer of the IT&T system affected by the incident
- Incident resolution either through telephone communication with the customer responsible person for the incident either through an on-site visit
- All the necessary works for implementing the incident resolution such as de-installation, installation, configuration and commissioning of equipment and software updates

In case troubleshooting and incident resolution is required outside airport operating hours, then this will be evaluated on an ad hoc basis.

*For more information on the airport operating hours, please see at https://www.fraport-greece.com/eng/our-expertise-and-services/aviation/operating-hours.

9.2.1. Terms and Conditions

- Troubleshooting and incident resolution Service is activated automatically by the IT&T Service Desk in case the incident reported can not be resolved by the IT&T Service Desk.

9.3. Hardware Repair and Replacement Service

Hardware repair and replacement is provided only for the hardware purchased, leased or rented by FG, specifically for telephone devices, radio devices, displays and CUTE equipment. Under this Technical Support Service FG provides to FG customers the below:

- Incident registration in the IT Service Management (ITSM) tool
- Receive and deliver equipment on-site
- All the necessary works for the de-installation of the faulty equipment and the installation of the repaired or replaced equipment
- All the necessary works for the repair or replacement of the faulty equipment

9.3.1. Terms and Conditions for Telephone Devices

- The hardware repair and replacement Service for the telephone devices is provided for 3 years from the date of the hardware delivery to the customer.
- The hardware repair and replacement Service for the telephone devices is not applied for the below cases:
  - The device has been altered by a non authorized FG personnel.
  - The device has not been operated, repaired or maintained in accordance with the manufacturer’s instructions.
  - The device has been subjected to abnormal physical or electrical stress, abnormal environmental conditions, misuse, negligence or accident.

9.3.2. Terms and Conditions for Radio Devices

- In case of purchased radio devices, the hardware repair and replacement Service is provided for 5 years from the date of the hardware delivery to the customer.
- In case of leased radio devices, the hardware repair and replacement Service is provided for the entire leasing period, 3 years from the date of the hardware delivery to the Customer.
In case of rented radio devices, the hardware repair and replacement Service is provided for the entire renting period.

Radio devices replacement is performed by FG also in case of damaged equipment due to customer’s fault.

Radio devices batteries replacement is not included in the hardware replacement service.

9.3.3. Terms and Conditions for Displays

- In case of purchased displays, the hardware repair and replacement Service is provided for 5 years from the date of the hardware delivery to the customer.
- In case of leased displays, the hardware repair and replacement Service is provided for the entire leasing period, 3 years from the date of the hardware delivery to the Customer.
- The hardware repair and replacement Service for the displays is not applied for the below cases.
  - The display has been altered by a non authorized FG personnel.
  - The serial number of the display has been altered or removed.
  - The display has been damaged due to external and unforeseen causes such as accident or lightning.
  - Damages of the glass, plastics, batteries and other consumables components due to normal use.

9.3.4. Terms and Conditions for CUTE Equipment

- The hardware repair and replacement Service for the CUTE equipment is provided for the entire period the Dedicated CUTE service is provided.
10. Remote Hands Service

Fraport Greece IT&T Department experienced personnel located at the 14 regional airports can assist customer on IT&T matters by collaborating with the customer’s IT personnel which is not possible to be present on site. Remote Hands Service gives the customer, that has its IT personnel located in a different geographical location than its infrastructure, the ability to have at its disposal local IT&T technology savvy personnel to perform under its guidance support tasks without having to travel.

Remote Hands Service is based on the communication between the on-site FG IT&T personnel and the remote authorized customer’s IT personnel that is specialized in the tasks to be performed. During the Remote Hands Service provision, remote hands field engineer strictly follows the instructions given and performs only the actions indicated by the remote authorized customer’s IT personnel.

Remote Hands Service can be used to provide support for communication and networking equipment, personal computing equipment and peripherals. Under Remote Hands Service tasks such as the below can be performed:

- **Assist in troubleshooting**, i.e. visual verification of equipment status, swapping equipment, plug-in console/serial cable for remote connection, resetting/rebooting or power cycling the equipment at the request of the customer, capturing equipment status with photos, performing PC diagnostic hardware and software checks, installing additional software with default settings, until the equipment is reachable remotely.
- **Rack and stack**, i.e. installing or de-installing equipment, installing or removing hardware components.
- **Cabling**, i.e. cable termination and moving, securing, swapping or auditing existing cabling, labeling, tracing cross connects, patching equipment to a patch panel based on a supplied patching schedule.
- **Asset management**, i.e. inventory of equipment, recording serial number, capturing equipment status with photos, equipment labeling.
- **Scheduled maintenance**, i.e. equipment inspection, perform PC basic diagnostic hardware and software checks with PC’s build in tools.

The Remote Hands Service is initiated by contacting the FG IT&T Service Desk, allowing a single point of contact for all customers’ requests. Before proceeding to the implementation of the request, the FG Customer Care representative will agree with the customer as to what actions the customer wishes the remote hands field engineer to perform and record them within the registered request performed by the FG IT&T Service Desk.

Remote Hands Service is provided through the IT&T Department experienced personnel located at the 14 regional airports within airport's IT&T field engineer working hours.

10.1. Advantages

- Reduction of customer’s costs to employ IT personnel, even temporary one, within airport campus.
- No need for the customer’s IT personnel to travel to remote offices for support.
- No need for the customer to rely on local non-technical staff for assistance and distract them from their core activities by handling issues out of their objective.
- Availability of on-site IT&T experienced personnel on demand.
- Immediate assistance and quicker issues resolution.
- 24x7x365 customer support request registration.
10.2. Billing Policy

The billing policy for the Remote Hands Service is a fee connected to the actual time FG personnel occupied by the customer, which varies based on the hour of the day. The minimum charge for the Remote Hands Service is 30 minutes.

For more information on the charges, please see the “IT&T Services Pricelist”, send an e-mail to ITTCustomerCare@fraport-greece.com, or phone on +30214-4000314.

10.3. Terms and Conditions

- Remote Hands Service is only offered to customers having a physical location within the airport campus.
- Remote Hands Service is offered upon agreement of what actions the customer wishes the remote hands field engineer to perform and is scheduled upon availability of the remote hands field engineer.
- Remote Hands Service is requested by contacting the FG IT&T Service Desk with any of the following means:
  - by the Self Service Portal: https://itt.fraport-greece.com
  - by e-mail to ITT-ServiceDesk@fraport-greece.com
  - by phone to +30 21440 88888
- The responsibility of the actions performed by the remote hands field engineer remains with the remote authorized customer's IT personnel.
- In relation to the remote connection to the customer’s equipment, the customer will provide the device (i.e. laptop, tablet etc.) installed with the suitable software (i.e. teamviewer, putty etc.) to enable the remote hands field engineer to provide the remote connection.
- Remote hands field engineer reserves the right not to perform the actions agreed with the customer under the request for reasons exceeding the service terms and conditions and/or in other cases like, but not limited to, the following:
  - when the requested actions may cause additional damage to equipment or people,
  - when equipment removal might affect other services and/or cause additional equipment damage,
  - in case of broken AC cables that might cause electrocution etc.,
  - when additional works need to be completed before offering the service.
- Remote hands field engineer reserves the right to suspend the remote hands works in case he/she must be involved in an important incident that impacts the airport’s operation and is not scheduled.
Annex I Cisco IP Phone 7800 Series

Cisco IP Phone 7800 Series

The Cisco® IP Phone 7800 Series is a cost-effective, high-fidelity voice communications portfolio designed to improve your organization's people-centric communications, while reducing your operating costs.

It combines an attractive new ergonomic design with “always-on” reliability and secure encrypted communications. The Cisco® IP Phone 7800 Series delivers advanced IP Telephony features and crystal clear wideband audio performance to deliver an easy-to-use, full-featured voice communications experience on Cisco on-premises and hosted infrastructure platforms and third-party hosted call control.

The Cisco® IP Phone 7800 Series introduces four models to the Cisco IP Phone portfolio. From left-to-right (Figure 1), they are:
- Cisco IP Phone 7811 supporting one line (available in charcoal only)
- Cisco IP Phone 7821 supporting two lines (available in charcoal and white)
- Cisco IP Phone 7841 supporting four lines (available in charcoal and white)
- Cisco IP Phone 7861 supporting sixteen lines (available in charcoal and white)

Figure 1. Cisco IP Phone 7800 Series
The line keys on each model are fully programmable. You can set up keys to support either lines, such as directory numbers, or call features like speed dialing. You can also boost productivity by handling multiple calls for each directory number, using the multi-call per-line appearance feature. Tri-color LEDs on the line keys support this feature and make the phone simpler and easy to use.

Fixed function keys on all models give you one-touch access to service, messaging, directory, hold/resume, transfer, and conference features. A full-duplex speakerphone lets you set up clear multi-party conferences for flexible, productive collaboration.

The Cisco IP Phone 7800 Series sets a new standard in usability and delivers a context-sensitive user experience. It features a high-resolution 3.5" (396x162) greyscale display with white backlighting on the IP Phone 7821, 7841 and 7861, and a 3.2" (384x106) display without backlighting on IP Phone 7811, for easy reading. Localized language support, including right-to-left onscreen text, meets the needs of global users.

The Cisco IP Phone 7800 Series is also more energy-efficient and eco-friendly, to support your green initiatives. Each phone supports Power-over-Ethernet (PoE) Class 1 and Cisco’s EnergyWise™, and is Energy Star certified. A standard power-save option is available on the IP Phone 7821, 7841 and 7861 to reduce power consumption during off-hours, save money and maximize energy efficiency.

The IP Phone 7800 Series portfolio is ideal for any mid-sized to large enterprise company that wants to update its phone system from a traditional analog or digital-based system to an IP Communications system. It’s also an excellent choice if you’re seeking to expand your voice communications support with your current Cisco Unified Communications solution. Small businesses who have interest in the Cisco IP Phone 7800 Series, but have investment in or are considering third party hosted call control services, are also candidates for the IP Phone 7800 Series.
## Features and Benefits

Table 1 lists features and benefits of the Cisco® IP Phone 7800 Series.

<table>
<thead>
<tr>
<th>Features</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hardware Features</strong></td>
<td></td>
</tr>
<tr>
<td>Ergonomic design</td>
<td>The phone offers an easy-to-use interface and provides a traditional</td>
</tr>
<tr>
<td></td>
<td>telephone-like user experience.</td>
</tr>
<tr>
<td>Graphical display</td>
<td>White backlit, greyscale, 3.5” 364 x 128 pixel-based display on the</td>
</tr>
<tr>
<td></td>
<td>IP Phone 7821, 7841 and 7861.</td>
</tr>
<tr>
<td></td>
<td>• Nin-backlit, greyscale, 3.2” 384 x 128 pixel-based display on IP</td>
</tr>
<tr>
<td></td>
<td>Phone 7811.</td>
</tr>
<tr>
<td></td>
<td>• Provide scalable access to calling features and text-based XML</td>
</tr>
<tr>
<td></td>
<td>applications.</td>
</tr>
<tr>
<td>Handset</td>
<td>The handset is a standard wideband-capable audio handset (connects</td>
</tr>
<tr>
<td></td>
<td>through an RJ-9 port) for the IP Phone 7821, 7841 and 7861.</td>
</tr>
<tr>
<td></td>
<td>• The default handset is a standard narrowband-capable audio handset</td>
</tr>
<tr>
<td></td>
<td>(connects through an RJ-9 port) for the IP Phone 7811, and widespread</td>
</tr>
<tr>
<td></td>
<td>on handset is available with purchase of additional wideband handset.</td>
</tr>
<tr>
<td></td>
<td>• The handset is hearing aid-compatible (HAC) and meets Federal</td>
</tr>
<tr>
<td></td>
<td>Communications Commission (FCC) loudness requirements for the</td>
</tr>
<tr>
<td></td>
<td>Americans with Disabilities Act (ADA). You can achieve Section 508</td>
</tr>
<tr>
<td></td>
<td>loudness requirements by using industry-standard inline handset</td>
</tr>
<tr>
<td></td>
<td>amplifiers such as Walker Equipment W-10 or CE-103 amplifiers. The</td>
</tr>
<tr>
<td></td>
<td>dial pad is also ADA-compliant.</td>
</tr>
<tr>
<td>Headset</td>
<td>The analog headset jack is a standard wideband-capable RJ-9 audio port</td>
</tr>
<tr>
<td></td>
<td>for the IP Phone 7821, 7841, and 7861.</td>
</tr>
<tr>
<td>Backlit Indicator</td>
<td>The phone supports backlight indicators for the audio path keys</td>
</tr>
<tr>
<td></td>
<td>(handset, headset and speakerphone), select key, line keys, and</td>
</tr>
<tr>
<td></td>
<td>message waiting.</td>
</tr>
<tr>
<td></td>
<td>• Headset key is not available on the IP Phone 7811.</td>
</tr>
<tr>
<td>Volume control</td>
<td>A volume control toggle provides easy decibel-level adjustments of the</td>
</tr>
<tr>
<td></td>
<td>handset, monitor speaker, and ringer.</td>
</tr>
<tr>
<td>Full duplex speakerphone</td>
<td>Full-duplex speakerphone allows you flexibility in placing and</td>
</tr>
<tr>
<td></td>
<td>receiving calls. For added security, the audible dual-tone multiplexing</td>
</tr>
<tr>
<td></td>
<td>(DTMF) tones are masked when the speakerphone mode is used.</td>
</tr>
<tr>
<td>Bezel</td>
<td>The IP Phone 7821, 7841 and 7861 include a default black bezel</td>
</tr>
<tr>
<td></td>
<td>(replaceable), and an optional silver bezel is also available separately.</td>
</tr>
<tr>
<td></td>
<td>• The IP Phone 7811 is available with a black bezel.</td>
</tr>
<tr>
<td>Dual-position foot stand</td>
<td>The display is easy to view and the buttons and keys are easy to use.</td>
</tr>
<tr>
<td></td>
<td>The two-position foot stand supports viewing angles of 30 degrees and</td>
</tr>
<tr>
<td></td>
<td>45 degrees, you can remove the foot stand for wall mounting, with</td>
</tr>
<tr>
<td></td>
<td>mounting holes located on the base of the phone. (IP Phone 7821, 7841</td>
</tr>
<tr>
<td></td>
<td>and 7861).</td>
</tr>
<tr>
<td></td>
<td>• Only 1 foot-stand position (45 degrees) is supported on the IP Phone</td>
</tr>
<tr>
<td></td>
<td>7811.</td>
</tr>
<tr>
<td>Wall-mountable</td>
<td>The phone can be installed on a wall using optional wall-mount kit</td>
</tr>
<tr>
<td></td>
<td>(available separately).</td>
</tr>
<tr>
<td>Electronic hook switch</td>
<td>The hookswitch can be controlled electronically with a third-party</td>
</tr>
<tr>
<td></td>
<td>headset connected to the auxiliary port for the IP Phone 7821, 7841,</td>
</tr>
<tr>
<td></td>
<td>and 7861.</td>
</tr>
<tr>
<td>Keys</td>
<td>The phone has the following keys</td>
</tr>
<tr>
<td></td>
<td>• Line keys</td>
</tr>
<tr>
<td></td>
<td>• Softkeys</td>
</tr>
<tr>
<td></td>
<td>• Two-way navigation and select keys</td>
</tr>
<tr>
<td></td>
<td>• Hold/Remote, Transfer and Conference keys</td>
</tr>
<tr>
<td></td>
<td>• Messaging, Service and Directory keys</td>
</tr>
<tr>
<td></td>
<td>• Standard key pads</td>
</tr>
<tr>
<td></td>
<td>• Volume control key</td>
</tr>
<tr>
<td></td>
<td>• Speakerphone, headset and mute keys (Headset key is not available on</td>
</tr>
<tr>
<td></td>
<td>the IP Phone 7811).</td>
</tr>
<tr>
<td>Ethernet cables</td>
<td>The IP Phone 7811, 7821, 7841, and 7861</td>
</tr>
<tr>
<td></td>
<td>• Category 3/5e/S/5 for 10-Mbps cables with 4 paires</td>
</tr>
<tr>
<td></td>
<td>• Category 5/5e/S/5 for 100-Mbps cables with 4 paires</td>
</tr>
<tr>
<td></td>
<td>• The IP Phone 7841</td>
</tr>
<tr>
<td></td>
<td>• Category 5/5e/S/5 for 1000-Mbps cables with 4 paires</td>
</tr>
</tbody>
</table>
Features | Benefits
--- | ---
IEEE PoE class 1 | The phone supports IEEE 802.3at PoE (Class 1); power consumption does not exceed 3.64 watts.
AC Power Adapter | Cisco power cube 3 (CP-PWR-CUBE-3) and Cisco power adapter 3 (CP-PWR-ADPT-3) are used as standard Cisco IP Phone Power Supplies for non-PoE deployments.
Cisco power injector | The IP Phone 7811, 7821 and 7861 are compatible with Cisco Unified IP Phone Power Injector (CP-PWR-INJ1), and 7861 is compatible with Cisco Aironet Power Injector (AIR-PWRINJ-1).

Call Control Support

| Cisco Unified Communications Manager | 1.5.1 | 3.6.2 | 4.1.2 | 5.1.2 | 6.x and later |
| Cisco Business Edition 6000 | 4.x and later |
| Cisco Hosted Collaboration Solution | 3.6.2 and later (using supported UCM versions above) |
| Cisco Unified Survivable Remote Site Telephony | 4.x and later |

 Licensing

The Cisco IP Phone 7811 and 7821 require a Basic User Connect License (UCL) in order to connect to Cisco Unified Communications Manager. The Cisco IP Phone 7841 and 7861 require an Enhanced User Connect License (UCL) in order to connect to Cisco Unified Communications Manager.

Product Specifications

Table 2 lists the features and specifications of the Cisco® IP Phone 7800 Series.

Table 2. Features and Specifications

<table>
<thead>
<tr>
<th>Features</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signaling protocol support</td>
<td>Session Initiation Protocol (SIP)</td>
</tr>
<tr>
<td>Codec support</td>
<td>G.711a, G.711, G.722, G.729a, ILBC</td>
</tr>
<tr>
<td>Key call features support</td>
<td>Dialing (E.164)</td>
</tr>
<tr>
<td></td>
<td>Call back</td>
</tr>
</tbody>
</table>
## Features

<table>
<thead>
<tr>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dial from the list</td>
</tr>
<tr>
<td>Direct transfer</td>
</tr>
<tr>
<td>Do not disturb</td>
</tr>
<tr>
<td>Extension Mobility (EM)</td>
</tr>
<tr>
<td>Forced access codes and client matter codes</td>
</tr>
<tr>
<td>Group call pickup</td>
</tr>
<tr>
<td>Hold/resume</td>
</tr>
<tr>
<td>Immediate direct</td>
</tr>
<tr>
<td>Intercom (Not available on the IP Phone 7811)</td>
</tr>
<tr>
<td>Join (Not available on the IP Phone 7811)</td>
</tr>
<tr>
<td>Message-waiting indicator</td>
</tr>
<tr>
<td>Meet me conference</td>
</tr>
<tr>
<td>Modality</td>
</tr>
<tr>
<td>Music on hold</td>
</tr>
<tr>
<td>Mute</td>
</tr>
<tr>
<td>Network profiles (automatic)</td>
</tr>
<tr>
<td>On- and off-network distinctive ringing</td>
</tr>
<tr>
<td>Personal directory</td>
</tr>
<tr>
<td>Privacy</td>
</tr>
<tr>
<td>Private Line Automated Ringdown (PLAR)</td>
</tr>
<tr>
<td>Ring</td>
</tr>
<tr>
<td>Ring tone per line appearance</td>
</tr>
<tr>
<td>Shared line</td>
</tr>
<tr>
<td>Silent monitoring and recording</td>
</tr>
<tr>
<td>Speed-dial</td>
</tr>
<tr>
<td>Time and date display</td>
</tr>
<tr>
<td>Transfer</td>
</tr>
<tr>
<td>Voicemail</td>
</tr>
<tr>
<td>Whisper coaching</td>
</tr>
</tbody>
</table>

## Language support

<table>
<thead>
<tr>
<th>Arabic (Arabic Area)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulgarian (Bulgaria)</td>
</tr>
<tr>
<td>Catalan (Spain)</td>
</tr>
<tr>
<td>Chinese (China)</td>
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<tr>
<td>Chinese (Hong Kong)</td>
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<tr>
<td>Chinese (Taiwan)</td>
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<tr>
<td>Croatian (Croatia)</td>
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<tr>
<td>Czech (Czech Republic)</td>
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<tr>
<td>Danish (Denmark)</td>
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<tr>
<td>Dutch (Netherlands)</td>
</tr>
<tr>
<td>English (United Kingdom)</td>
</tr>
<tr>
<td>Estonian (Estonia)</td>
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<tr>
<td>French (France)</td>
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<tr>
<td>Finnish (Finland)</td>
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<td>German (Germany)</td>
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<td>Greek (Greece)</td>
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<td>Hebrew (Israel)</td>
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<td>Hungarian (Hungary)</td>
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<td>Italian (Italy)</td>
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<tr>
<td>Japanese (Japan)</td>
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<td>Latvian (Latvia)</td>
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<tr>
<td>Lithuanian (Lithuania)</td>
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<tr>
<td>Korean (Korea Republic)</td>
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<tr>
<td>Norwegian (Norway)</td>
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<tr>
<td>Polish (Poland)</td>
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<tr>
<td>Portuguese (Portugal)</td>
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<tr>
<td>Portuguese (Brazil)</td>
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<tr>
<td>Features</td>
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<td></td>
</tr>
<tr>
<td>Multiple ring tones</td>
</tr>
<tr>
<td>Directions</td>
</tr>
<tr>
<td>Quality-of-service (QoS) options</td>
</tr>
<tr>
<td>Security</td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
</tr>
<tr>
<td>Configuration options</td>
</tr>
<tr>
<td>Physical dimensions</td>
</tr>
<tr>
<td>(HWWD)</td>
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<tr>
<td></td>
</tr>
<tr>
<td>Weight</td>
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<tr>
<td></td>
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<td></td>
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<tr>
<td></td>
</tr>
<tr>
<td>Display</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Ethernet switch</td>
</tr>
<tr>
<td>Phone casing composition</td>
</tr>
<tr>
<td>Power requirements</td>
</tr>
<tr>
<td>Operational temperature</td>
</tr>
<tr>
<td>Nonoperational temperature</td>
</tr>
<tr>
<td>Humidity</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Cosmetic</td>
</tr>
</tbody>
</table>

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### Features

### Specifications

**Certification and compliance**
- Regulatory Compliance
  - CE Markings per directives 2004/108/EC and 2006/95/EC
- Safety
  - UL 60950-2 Second Edition
  - CAN/CSA-C22.2 No. 60950 Second Edition
  - EN 60950 Second Edition (including A11 & A12)
  - IEC 60950 Second Edition (including A11 & A12)
  - AS/NZS 60950
  - GB4943
- EMC: Emissions
  - AS/NZS CISPR22 Class B
  - CISPR22: 2005 w/Amendment 1: 2005 Class B
  - EN55022: 2005 w/Amendment 1: 2007 Class B
  - ICES003 Class B
  - VCCI Class B
  - EN61000-3-2
  - EN61000-3-3
  - KN22 Class B
- EMC: Immunity
  - EN55024
  - CISPR24
  - EN61000-4-2
  - KN24
  - Armed/802.3 Light
- Telecom
  - FCC Part 68 HAC
  - GS-10-HAC
  - AS/ACIF 5604
  - AS/ACIF 5640
  - NZ PTC 220
- Industry Standards: TIA-8108 and TIA-526
- Industry Standards: IEEE 802.3 Ethernet, IEEE 802.3af and 802.3at

**Product Specifications**

Table 3 gives ordering information for the phone and its accessories.

### Table 3. Ordering Information

<table>
<thead>
<tr>
<th>Product Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP-7811-K9</td>
<td>Cisco IP Phone 7811</td>
</tr>
<tr>
<td>CP-7821-K9</td>
<td>Cisco IP Phone 7821</td>
</tr>
<tr>
<td>CP-7841-K9</td>
<td>Cisco IP Phone 7841</td>
</tr>
<tr>
<td>CP-7861-K9</td>
<td>Cisco IP Phone 7861</td>
</tr>
<tr>
<td>CP-7811-W9</td>
<td>Cisco IP Phone 7811, White</td>
</tr>
<tr>
<td>CP-7841-W9</td>
<td>Cisco IP Phone 7841, White</td>
</tr>
<tr>
<td>CP-7861-W9</td>
<td>Cisco IP Phone 7861, White</td>
</tr>
<tr>
<td>CP-DX6S-NB</td>
<td>Spare Narrowband Handset for Cisco IP Phone 7811</td>
</tr>
<tr>
<td>CP-DX6S</td>
<td>Spare Wideband Handset for Cisco IP Phone 7800 Series</td>
</tr>
<tr>
<td>CP-DXW-HB</td>
<td>Spare Wideband Handset for Cisco IP Phone 7800 Series</td>
</tr>
<tr>
<td>CP-7801-HB-CORD</td>
<td>Spare Handset Cord for Cisco IP Phone 7800 Series</td>
</tr>
<tr>
<td>CP-DXW-CORD</td>
<td>Spare White Handset Cord for Cisco IP Phone 7800 Series</td>
</tr>
<tr>
<td>Product Number</td>
<td>Description</td>
</tr>
<tr>
<td>----------------</td>
<td>-------------</td>
</tr>
<tr>
<td>CP-7696-HS-HOOK</td>
<td>Spare Handset Hook for Cisco IP Phone 7800 Series, 20 Pieces</td>
</tr>
<tr>
<td>CP-7611-WMK-10</td>
<td>Spare Wallmount Kit for Cisco IP Phone 7811</td>
</tr>
<tr>
<td>CP-7695-WMK-10</td>
<td>Spare Wallmount Kit for Cisco IP Phone 7800 Series</td>
</tr>
<tr>
<td>CP-7661-WMK-10</td>
<td>Spare Wallmount Kit for Cisco IP Phone 7891</td>
</tr>
<tr>
<td>CP-7611-FS-10</td>
<td>Spare Foot stand for Cisco IP Phone 7811</td>
</tr>
<tr>
<td>CP-7630-FS-10</td>
<td>Spare Foot stand for Cisco IP Phone 7800 Series</td>
</tr>
<tr>
<td>CP-7661-FS-10</td>
<td>Spare Foot stand for Cisco IP Phone 7891</td>
</tr>
<tr>
<td>CP-7621-B-BEZEL-10</td>
<td>Spare Black Bezel for Cisco IP Phone 7821</td>
</tr>
<tr>
<td>CP-7621-S-BEZEL-10</td>
<td>Spare Silver Bezel for Cisco IP Phone 7821</td>
</tr>
<tr>
<td>CP-7641-B-BEZEL-10</td>
<td>Spare Black Bezel for Cisco IP Phone 7841</td>
</tr>
<tr>
<td>CP-7641-S-BEZEL-10</td>
<td>Spare Silver Bezel for Cisco IP Phone 7841</td>
</tr>
<tr>
<td>CP-7681-B-BEZEL-10</td>
<td>Spare Black Bezel for Cisco IP Phone 7881</td>
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<tr>
<td>CP-7681-S-BEZEL-10</td>
<td>Spare Silver Bezel for Cisco IP Phone 7881</td>
</tr>
<tr>
<td>CP-PWR-CUBE-3</td>
<td>Cisco Power Cube 3</td>
</tr>
<tr>
<td>CP-PWR-CORD-AP-10</td>
<td>Power Cord Asia Pacific</td>
</tr>
<tr>
<td>CP-PWR-CORD-AR-10</td>
<td>Power Cord Argentina</td>
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<tr>
<td>CP-PWR-CORD-AU-10</td>
<td>Power Cord Australia</td>
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<td>CP-PWR-CORD-BZ-10</td>
<td>Power Cord for Brazil</td>
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<tr>
<td>CP-PWR-CORD-CE-10</td>
<td>Power Cord European</td>
</tr>
<tr>
<td>CP-PWR-CORD-CN-10</td>
<td>Power Cord China</td>
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<tr>
<td>CP-PWR-CORD-JP-10</td>
<td>Power Cord Japan</td>
</tr>
<tr>
<td>CP-PWR-CORD-NA-10</td>
<td>Power Cord North America</td>
</tr>
<tr>
<td>CP-PWR-CORD-SW-10</td>
<td>Power Cord Switzerland</td>
</tr>
<tr>
<td>CP-PWR-CORD-UK-10</td>
<td>Power Cord United Kingdom</td>
</tr>
<tr>
<td>CP-PWR-ADPT-3-AR-10</td>
<td>Cisco Power Adapter 3 with Argentina Clip</td>
</tr>
<tr>
<td>CP-PWR-ADPT-3-AU-10</td>
<td>Cisco Power Adapter 3 with Australia Clip</td>
</tr>
<tr>
<td>CP-PWR-ADPT-3-BZ-10</td>
<td>Cisco Power Adapter 3 with Brazil Clip</td>
</tr>
<tr>
<td>CP-PWR-ADPT-3-CN-10</td>
<td>Cisco Power Adapter 3 with China Clip</td>
</tr>
<tr>
<td>CP-PWR-ADPT-3-EU-10</td>
<td>Cisco Power Adapter 3 with European Clip</td>
</tr>
<tr>
<td>CP-PWR-ADPT-3-IN-10</td>
<td>Cisco Power Adapter 3 with India Clip</td>
</tr>
<tr>
<td>CP-PWR-ADPT-3-KR-10</td>
<td>Cisco Power Adapter 3 with Korea Clip</td>
</tr>
<tr>
<td>CP-PWR-ADPT-3-NA-10</td>
<td>Cisco Power Adapter 3 with North America Clip</td>
</tr>
<tr>
<td>CP-PWR-ADPT-3-UK-10</td>
<td>Cisco Power Adapter 3 with United Kingdom Clip</td>
</tr>
</tbody>
</table>

**Warranty**

The Cisco® IP Phone 7800 Series are covered by a Cisco standard 1-year replacement warranty.

**Cisco Unified Communications Services**

Cisco and our certified partners can help you set up a secure, dependable Cisco Unified Communications solution, meeting aggressive deployment schedules and accelerating business advantage. Cisco's portfolio of services is based on proven methodologies for unifying voice, video, data, and mobile applications on fixed and mobile networks.
Our unique lifecycle approach to services defines what’s needed at each phase of the solution lifecycle. Customized planning and design services help you create a solution that meets your business needs. Award-winning technical support helps you boost your operational efficiency. Remote management services simplify day-to-day operations. And optimization services let you modify and improve your network solution when business needs change.

Cisco Capital
Flexible Payment Solutions to Help you Achieve your Objectives
Cisco Capital makes it easier to get the right technology to achieve your objectives, enable business transformation and help you stay competitive. We can help you reduce the total cost of ownership, conserve capital, and accelerate growth. In more than 100 countries, our flexible payment solutions can help you acquire hardware, software, services and complementary third-party equipment in easy, predictable payments. Learn more.

More Information
For additional details on the Cisco® IP Phone 7800 Series, go to https://www.cisco.com/go/ipphones/7800.
Motorola DP4000e Series

YOU'RE COMPLETELY CONNECTED

With this dynamic evolution of MOTOTRBO digital two-way radios, you’re better connected, safer and more productive. The DP4000e Series is designed for the skilled professional who refuses to compromise. With high performance integrated voice and data, and advanced features for efficient operation, these next-generation radios deliver complete connectivity to your organisation.

CONNECTED
The MOTOTRBO DP4000e Series is a family of ETSI DMR Standards compliant digital radios that delivers operation-critical voice and data communications. Bluetooth® audio lets you talk without wires, integrated Wi-Fi® enables remote software updates, and indoor and outdoor location-tracking capabilities give you total visibility of your resources. With support for trunking as well as legacy analogue technology, you can keep your organisation connected as it grows.

SAFE
Safeguard your staff with responsive push-to-talk technology. The prominent orange emergency button on DP4000e Series radios summons help with one touch, using Transmit Interrupt to clear a channel when necessary. An integrated accelerometer senses if you’ve fallen, and can initiate a call for assistance. The radio is tested tough to military standards and is waterproof to IP68. It won’t let you down.

PRODUCTIVE
Text messaging and Work Order Ticketing simplify complex communications, and data capabilities support advanced applications. Featuring a powerful audio amplifier, these radios deliver loud, clear speech, with industrial noise cancellation for better intelligibility. The latest energy technology delivers up to 28 hours of battery life for 3-shift working, and an improved receiver boosts range by up to 8% compared to previous models.
## PRODUCT DATA SHEET

**MD 1131RSM™ PD4000w SERIES**

**DIGITAL TWO-WAY RADIOS**

### Full Keypad (FKP) Model
- **Model Number**: DP4800, DP4400
- **Frequency**: 136-174 MHz, 380-390 MHz, 403-407 MHz, 136-174 MHz, 380-390 MHz, 403-407 MHz
- **Power Output**: 5 W, 4 W, 4 W
- **Weight with Battery**: 130 x 55 x 38 mm
- **Weight with Battery**: 300 g
- **Digital / Analogue Battery Life**: 16 h / 12 h

### Limited Keypad (LKP) Model
- **Model Number**: DP4600, DP4300
- **Frequency**: 136-174 MHz, 380-390 MHz, 403-407 MHz
- **Power Output**: 5 W, 4 W
- **Weight with Battery**: 130 x 55 x 38 mm
- **Weight with Battery**: 300 g
- **Digital / Analogue Battery Life**: 10 h / 7.5 h

### No Keypad (NKP) Model
- **Model Number**: DP4100, DP4000
- **Frequency**: 136-174 MHz, 380-390 MHz, 403-407 MHz
- **Power Output**: 5 W, 4 W
- **Weight with Battery**: 130 x 55 x 41 mm
- **Weight with Battery**: 300 g
- **Digital / Analogue Battery Life**: 8 h / 6 h

### Technical Specifications

- **Power Source**: 12.5, 20, 25, 40, 50 kHz
- **Chemical Capacity**: 1000 mAh
- **Dimensions** (w x h x d): 130 x 55 x 38 mm

### Additional Features

- **Li-ion 18650Ahx2 Battery**
- **Dimensions with Battery**: 150 x 56 x 77 mm
- **Weight**: 150 g

- **Li-ion 18650Ahx2 Low Temp P25 Battery**
- **Dimensions with Battery**: 150 x 56 x 77 mm
- **Weight**: 150 g

- **Li-ion 18650Ahx2 P25 Battery**
- **Dimensions with Battery**: 150 x 56 x 77 mm
- **Weight**: 150 g

### Compatibility

- **IMPRES Li-ion 2100Ahx2 Battery**
- **Dimensions with Battery**: 150 x 55 x 38 mm
- **Weight with Battery**: 450 g

- **IMPRES Li-ion 2100Ahx2 P25 Battery**
- **Dimensions with Battery**: 150 x 55 x 41 mm
- **Weight with Battery**: 450 g

### Additional Options

- **Digital / Analogue Battery Life (Li-ion)**: 21.9 h / 18.5 h
- **IMPRES Li-ion 2100Ahx2 UV P25 Battery**
- **Dimensions with Battery**: 150 x 55 x 41 mm
- **Weight with Battery**: 450 g

### Valid as of: 31.01.2022

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### PRODUCT DATA SHEET

**Motorola** DM4600e Series II Digital Two-Way Radios

**TRANSMITTER SPECIFICATIONS**
- Channel Spacing: 12.5, 25, 50 kHz
- FSK Digital Modulation: 12.5 kHz (Data: 75 kHz and 70 kHz), 25 kHz (Data: 75 kHz and 70 kHz), Combination of 12.5 kHz and 25 kHz
- Digital Protocol: TETRA TO 1002 381-1, -2, -3
- Adjacent Channel Power: ≤ 18 dBc
- Frequency Stability: ± 1.5 ppm

**RECEIVER SPECIFICATIONS**
- Average Sensitivity (Type A): 11.6 dB
- Digital Sensitivity (Type B): 14 dB
- Intermodulation (THA100): 70 dB
- Adjacent Channel Selectivity: (THA100): 70 dB
- Adjacent Adjacent Channel Selectivity, (THA100): 70 dB
- Spurious Rejection (THA100): 70 dB

**DATA SPECIFICATIONS**
- Digital Version Type: AMBE+2
- Audio Response: THA100
- Radios Audio: 0.5 W
- Audio Distortion at Rated Audio: 3%
- Hum and Noise: ≤ 40 dB
- Conducted Spurious Emissions (THA100): ≤ 5 dB

**BLUETOOTH SPECIFICATIONS**
- Version: 4.0
- Supported Profiles: Bluetooth Headset Profile (HSP), Serial Port Profile (SPP), Bluetooth hands-free profile (HFP)
- Encryption: Optional

**CSS SPECIFICATIONS**
- Constellation Support: 64-QAM
- Time To First Fix, Cold Start: < 10 s
- Time To First Fix, Hot Start: < 1.5 s
- Horizontal Accuracy: ≤ 5 m

**Wi-Fi SPECIFICATIONS**
- Standards Supported: IEEE 802.11b, 802.11g, 802.11n
- Security Protocol Supported: WEP, WPA-2, WPA2
- Maximum Number of SSIDs: 128 (64-bit WEP and 128-bit)

**ENVIRONMENTAL SPECIFICATIONS**
- Operating Temperature: -30°C to 60°C
- Storage Temperature: -40°C to 85°C
- Electromagnetic Discharge: ESD (ESD2)
- Dust and Water Immersion: IPX6 (2 m for 2 hrs)
- Packaging Type: MIL-STD-810G

**RADIO CERTIFICATION**
- When properly equipped with Motorola U Approved battery, U approved to TIA-405B for use in hazardous locations, Division 1, Class I, Group D, Division 2, Class 1, Groups B, C, D, T5C, T6C, T3C, T4C, T5C, T4C, T2C, T5C, T4C, T2C, T1C

**MILITARY STANDARD**

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>METHOD</td>
<td>PROCEDURE</td>
<td>METHOD</td>
<td>PROCEDURE</td>
<td>METHOD</td>
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<tr>
<td>Low pressure</td>
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<td>900.2</td>
<td>900.3</td>
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<td>Shock</td>
<td>900.2</td>
<td>900.2</td>
<td>900.2</td>
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</tr>
</tbody>
</table>

**SPECIAL FEATURES**
- Wireless Headset Support
- Ethernet Support
- Bluetooth Support
- Wi-Fi Support
- GPS Support
- Pre-programmed Security Features
- Programmable Key Features

**CONNECTION**
- USB Port
- Ethernet Port

**PERSONALISATION**
- Wireless Headset Support
- Ethernet Support
- Bluetooth Support
- Wi-Fi Support
- GPS Support
- Pre-programmed Security Features
- Programmable Key Features

**SAFETY**
- Integrated Accelerometer
- Drop Test
- Vibration Test
- Humidity Test
- Shock Test
- Durability Test

**SYSTEMS**
- Wireless Headset Support
- Ethernet Support
- Bluetooth Support
- Wi-Fi Support
- GPS Support
- Pre-programmed Security Features
- Programmable Key Features

**MANAGEMENT**
- Radio Management
- Deck-On-Deck Programming
- Desk-Top Desktop Software Update
- IMPS Energy
- IMPS Battery Management
- Desk-Top Battery Management

**VALIDITY**: 31.01.2022

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**MSD 8.50.5.6-41**

**Version number**: 01.00

**Valid as of**: 31.01.2022

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<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>DESCRIPTION</th>
</tr>
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<tbody>
<tr>
<td>BLUETOOTH</td>
<td>Connect to your radio without wires, for extra comfort and safety. A full portfolio of Bluetooth headsets and earpieces is available.</td>
</tr>
<tr>
<td>REMOTE SPEAKER MICROPHONE</td>
<td>Improve usability with a Remote Speaker Microphone (RSM). Choose from standard, heavy duty and noise-cancelling models, with or without secondary earpiece connector.</td>
</tr>
<tr>
<td>SMART ENERGY</td>
<td>Motorola’s patented IMPRES™ Energy technology gives you smart batteries to keep your radio powered for longer. Choose from a range of batteries, chargers, and management tools.</td>
</tr>
<tr>
<td>EARPieces</td>
<td>For all-day comfort, choose from a range of earpieces. Lightweight or heavy duty, discreet or rugged, with or without bulk-in-the-ear protection.</td>
</tr>
<tr>
<td>CARRY SOLUTIONS</td>
<td>However you choose to wear or carry your radio, we have a solution for you. From leather cases to belts and belt clips to bags, straps and pouches.</td>
</tr>
<tr>
<td>HEADSETS</td>
<td>In a noisy workplace, you need to protect your workers’ hearing. Whether it’s heavy duty noise reduction or innovative temple transducer technology, our headsets can help.</td>
</tr>
<tr>
<td>VIBRATING BELTCLIP</td>
<td>When it’s unacceptable to miss calls in a noisy environment, equp your radio with a powerful vibrating belt clip for an extra physical alert.</td>
</tr>
</tbody>
</table>

To get connected with MOTOTRBO, visit [www.motorolasolutions.com/mototrbo](http://www.motorolasolutions.com/mototrbo) or find your closest Motorola representative or authorised Partner at [www.motorolasolutions.com/contactus](http://www.motorolasolutions.com/contactus).
Annex III  Motorola DM4000e Series

MOTOTRBO™
DM4000e SERIES

YOU’RE COMPLETELY CONNECTED

With this dynamic evolution of MOTOTRBO digital two-way radios, you’re better connected, safer and more productive. The DM4000e Series is designed for the skilled professional who refuses to compromise. With high performance integrated voice and data, and advanced features for efficient operation, these next-generation radios deliver complete connectivity to your organisation.

CONNECTED
The MOTOTRBO DM4000e Series is a family of ETSI DMR Standards compliant digital radios that delivers operation critical voice and data communications. Bluetooth® audio lets you talk without wires, integrated Wi-Fi® enables remote software updates, and indoor and outdoor location-tracking capabilities give you total visibility of your resources. With support for trunking as well as legacy analogue technology, you can keep your organisation connected as it grows.

SAFE
Safeguard your staff with responsive push-to-talk technology. The quick access buttons on DM4000e Series radios can summon help with one touch, using Transmit Interrupt to clear a channel when necessary. A range of safe driving accessories allow your workers to communicate hands-free, and Text-to-Speech technology helps your drivers keep their eyes on the road.

PRODUCTIVE
Text messaging and Work Order Ticketing simplify complex communications, and data capabilities support advanced applications. Featuring a high power audio amplifier, these radios deliver loud, clear speech, with background noise cancellation for better intelligibility. DM4000e Series radios are also ideal as a dispatcher solution, with desktop microphones and a rugged, durable design for everyday use.

WHAT’S NEW
IN THESE NEXT GENERATION RADIOS
- Bluetooth 4.0
- Indoor location tracking
- Multi-collaborative EADS for increased location accuracy
- Integrated Wi-Fi®
- Over-the-air software updates

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## PRODUCT DATA SHEET
MOTORTRBO™ DMA4000e SERIES
DIGITAL TWO-WAY RADIOS

### Product Details
- **Model Number:** DMA4001u / DMA4002u
- **Band:** VHF 300MHz / UHF Band 1

#### MINERAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Frequency</th>
<th>DMA4001u / DMA4002u</th>
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<tbody>
<tr>
<td>Low Power Output</td>
<td>1-25 W</td>
</tr>
<tr>
<td>High Power Output</td>
<td>25-45 W</td>
</tr>
<tr>
<td>Channel Spacing</td>
<td>12.5, 25, 50 kHz</td>
</tr>
<tr>
<td>Dimensions (H x W x D)</td>
<td>175 x 230 x 45 mm</td>
</tr>
</tbody>
</table>

### Specifications
- **Dimensions:** 12.5 x 25 x 50 mm
- **Weight:** 1.6 kg
- **Power Supply (Nominal):** 12 V
- **Max Current Drain, Standby:** 0.8 A
- **Max Current Drain, Receivers:** 2 A
- **Max Current Drain, Transmitter (Low Power):** 11 A
- **Max Current Drain, Transmitter (High Power):** 14.5 A

---

**IT&T Service Catalogue**

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**PRODUCT DATA SHEET**

**MUSTERFIBER™ NA0100e SERIES**

**DIGITAL TWO-WAY NA0103**

### ALL MODELS

#### TRANSMISSION SPECIFICATIONS

- **8 kHz Digital Modulation**
  - 2.76 kHz Band (NA0100 and NA0101)
  - 2.1 kHz Band (NA0102 and NA0103)
- **Digital Protocol**
- **Combined Bandwidth Efficiency (CBW)**
  - 30 kHz to 10 kHz
- **Adjacent Channel Power**
  - 8 dBc (12.5 kHz)
- **Interference Sensitivity (IS)**
  - 10 dBmC (25 kHz)

#### RECEIVER SPECIFICATIONS

- **Analog Sensitivity (F.M. 2/2)**
  - 3.5 mV
- **Digital Sensitivity (F.M. 2/2)**
  - 3.5 mV
- **Interference Sensitivity (IS)**
  - 10 dBmC (25 kHz)
- **Adjacent Channel Sensitivity (IS)**
  - -45 dBc (25 kHz)
- **Power Deliver (P.D.)**
  - 500 mW (output power)
- **Total Harmonic Distortion (THD)**
  - < 50 dB

### NETWORK SPECIFICATIONS

- **Version**
  - 1.0
- **Range**
  - Class 2, 10 km
- **Simultaneous Connections**
  - 5 x audio accessory + 1 x data device
- **Network Protocol**
  - Optional

#### CONNECTIVITY

- **Invalid, 8V W**
- **Valid, 8V W**
- **Invalid, 12V W**
- **Valid, 12V W**
- **Invalid, 24V W**
- **Valid, 24V W**
- **Invalid, 48V W**
- **Valid, 48V W**

### ENVIRONMENTAL SPECIFICATIONS

- **Operating Temperature**
  - -40°C to +60°C
- **Storage Temperature**
  - -40°C to +85°C
- **Electrostatic Discharge**
  - 8kV (human body model)
- **Dust and Water Ingress**
  - IPX30 (IP6X)
- **Packaging Test**
  - MIL-STD-810C, D, E, F, and G

---

**NOTES**

1. 20 kHz channel not available for 30 kHz models.

---

**MILITARY STANDARDS**

<table>
<thead>
<tr>
<th>NA-STD 810G</th>
<th>NA-STD 810D</th>
<th>NA-STD 810K</th>
<th>NA-STD 810H</th>
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<tr>
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<td>5016</td>
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<td>5017</td>
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<td>2</td>
<td>5023</td>
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<td>Salt Spray</td>
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<td>5027</td>
<td>2</td>
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<td>Sand and Abrasion</td>
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<td>2</td>
<td>5033</td>
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<td>Rain</td>
<td>5036</td>
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<td>5037</td>
<td>2</td>
<td>5038</td>
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<td>Humidity</td>
<td>5041</td>
<td>1</td>
<td>5042</td>
<td>2</td>
<td>5043</td>
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<td>Shock</td>
<td>5046</td>
<td>1</td>
<td>5047</td>
<td>2</td>
<td>5048</td>
</tr>
</tbody>
</table>

---

**SAFETY**

- Long Term
- Basic Privacy
- Enhanced Privacy
- AES256 Encryption
- Transient Protection
- Digital Emergency
- Emergency Search Tone
- Power Mirror
- Output Power
- Power On Off
- Low Voltage
- High Voltage

---

**SYSTEMS**

- Direct Mode (including Dual Call and Multi-Call)
- IP (Connecting and Multi-Call)
- Capacity Plus (Single and Multi-Call)
- Connect Plus

---

**PERSONALISATION**

- Wide Range of Accessories
- Programmable Buttons

---

**MANAGEMENT**

- Time Management
- Over-the-Air Programming

---

**AUDIO**

- Intelligent Audio
- MP3/ES Audio
- DPOC Audio
- Acoustic Feedback Suppression
- Microphone Distortion Control
- User-Selectable Audio Profiles
- Talk Enhancement

---

**PROTOCOL**

- Wide Range of Accessories
- Programmable Buttons

---

**VALID AS OF:** 31.01.2022
PRODUCT DATA SHEET
MOTORTRBO™ EMA4060e SERIES
DIGITAL TWO-WAY RADIOS

LONG RANGE WIRELESS MOBILE MICROPHONE

Designed for customers who depend on their high power mobile radio but must work outside of their vehicle, the Long Range Wireless Mobile Microphone keeps you connected and communicating up to 100m (328 ft) from your vehicle. With instant touch pairing and in-vehicle charging cradles, you can maintain critical communications even on remote job sites.

HANDHELD CONTROL HEAD

When space is tight, and you need the flexibility to operate your radio from anywhere in the vehicle, opt for the Handheld Control Head. Its colour screen, full keypad and extendable cord gives you complete control within 8 m (26 ft) of the radio.

BLUETOOTH AUDIO

Improve the mobility of your work teams without wires getting tangled. Your delivery driver can sort through packages on the back of the delivery truck, your bus driver can check students in the back of the bus, and your limousine driver can open the door for their passengers and stay connected.

CONNECT AND COORDINATE EFFORTLESSLY

IMPRES™ Smart Audio accessories communicate with the radio to suppress ambient noise, improve voice intelligibility and amplify loudness. Choose from a range of standard and heavy duty microphones, with or without keypads and navigation buttons.

INTERACT SAFELY WITHOUT DISTRACTIONS

To help your drivers keep their eyes on the road, you can customise your installation with the IMPRES Visor Microphone and Remote Push-to-Talk.

To get connected with MOTOTRBO, visit www.motorolasolutions.com/mototrbo or find your closest Motorola representative or authorised Partner at www.motorolasolutions.com/contactus

Motorola Solutions Ltd. Jaya Drive, Hadley Industrial Estates, Basildon, Essex, SS14 7FD, UK
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Annex IV  LG UH5F Series

LG UHD Signage Captures Customer’s Attention

The UH5F series is a UHD signage that has been optimized for various indoor environments. It features superior UHD quality dim design, external dust protection, and various convenience for users.

- Superb Picture Quality
- Sleek and Practical Design
- Product Reliability
- Easy Installation

*All images are for illustrative purposes only.*
SUPERB PICTURE QUALITY

ULTRA HD Resolution

With the resolution that is 4 times higher than FHD, it makes the color and details of the contents more vivid and realistic. In addition, the wide viewing angle applied with LG IPS Panel, provides clear contents with no distortion.

High Efficiency Video Coding

The UH5F series supports HEVC which efficiently compresses/decompresses high-capacity UHD contents, playing ultra-high quality videos with half the network traffic when compared to the existing H.264 codec.

* HEVC : High Efficiency Video Coding
SLEEK AND PRACTICAL DESIGN

Narrow Bezel & Slim Depth

The UH5F series has a smaller bezel size and thickness, which saves space and enables easy installation. In addition, it increases the immersive experience from the screen and provides a sophisticated design, improving the decor of the space where the product is installed.

Detachabe Logo and Built-in Speaker

The UH5F series is equipped with a new transparent logo which is well organized with surroundings. Also, its removable feature gives users flexibility for installation. Contents will be enriched with sound effects from built-in speakers, without the need for purchasing or installing external speakers.
## PRODUCT RELIABILITY

### IP5x Certified Design

The IP5x Dust-Proof Certification ensures that the product is completely protected from dust, eliminating the risk of performance degradation.

### 30° Tilting Installation

When a display is installed at high places, it is usually tilted for the user's comfort viewing. In consideration of this, the UH5F series supports the installation with 30 degrees of tilt*.

---

*Tilt installation of up to 30 degrees face down is supported. (in conditions within 30°C temperature, 50% humidity)
EASY INSTALLATION

Auto Screen Rotation

The UH5F series automatically detects its orientation (landscape or portrait mode) in the initial installation step, so manual rotation set-up isn't required. The direction of OSD and background contents will be already set when you turn on a display at first.

Fine Adjustment

The UH5F series is equipped with a “horizontal sensor” which shows users how the device is tilted, so that it can be precisely installed.
Remote Monitoring

The UH5F series can email notifications to users when there is a problem, such as tilting of the product by external impact, so users can operate the product in a safer manner as they can get the information about the problem right away.

Simple Accessibility

Unlike previous models where various buttons have to be pressed for control, the UH5F series provides a single joystick to easily facilitate power on/off, input/setting operation, volume control, etc.
SMART FUNCTION

High-Performance with webOS

Built-in Quad Core SoC can execute several tasks at once while providing smooth content playback without the need for a media player. Also, LG webOS platform enhances user convenience with intuitive GUI and simple app development tools.

Various Sensor Applications

LG webOS smart signage platform easily supports connections with external sensors such as GPIO, NFC/RFID, temperature sensors, etc., via USB plug-in. The overall cost for maintenance is reduced as there's no need to purchase additional software or media players for creating value-added solutions.
SMART FUNCTION

Compatibility with AV Control System

The UH5F series has been certified Crestron Connected® for high compatibility with professional AV controls to achieve seamless integration and automated control®, boasting business management efficiency.

Compatibility with Video Conference System

For the optimum visual meeting, the UH5F series has certified its compatibility with Cisco System that offers powerful and integrated control® for a smarter video conference, eliminating a waste of time for setting up the picture quality or changing input on incoming calls.

* Network based control

* Using an HDMI cable connection
## DIMENSION (unit: mm)

<table>
<thead>
<tr>
<th>Dimension</th>
<th>UHD Signage</th>
<th>UH5F Series</th>
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</thead>
<tbody>
<tr>
<td>65&quot;</td>
<td></td>
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<tr>
<td>55&quot;</td>
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<tr>
<td>49&quot;</td>
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<td>43&quot;</td>
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### CONNECTIVITY

<table>
<thead>
<tr>
<th>Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: LAN</td>
</tr>
<tr>
<td>2: HDMI IN1</td>
</tr>
<tr>
<td>3: HDMI IN2</td>
</tr>
<tr>
<td>4: DVI IN</td>
</tr>
<tr>
<td>5: DVI OUT</td>
</tr>
<tr>
<td>6: RS-232C IN</td>
</tr>
<tr>
<td>7: HDMI IN3</td>
</tr>
<tr>
<td>8: RS-232C OUT</td>
</tr>
<tr>
<td>9: USB IN</td>
</tr>
<tr>
<td>10: AUDIO IN</td>
</tr>
<tr>
<td>11: AUDIO OUT</td>
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</tbody>
</table>

*Dimensions & Jack Panels (Real) may differ from the above maps, so please contact IT&S sales team to verify before ordering.*
## Specifications

### UHD Signage | UH5F Series

<table>
<thead>
<tr>
<th>Model</th>
<th>65UH5F</th>
<th>55UH5F</th>
<th>49UH5F</th>
<th>43UH5F</th>
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<td>Screen Size</td>
<td>65&quot;</td>
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<tr>
<td>Panel Technology</td>
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<td>FHD</td>
<td>FHD</td>
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<td>Aspect Ratio</td>
<td>16:9</td>
<td>16:9</td>
<td>16:9</td>
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<td>Resolution</td>
<td>UHD 2160p (3840 x 2160)</td>
<td>UHD 2160p (3840 x 2160)</td>
<td>UHD 2160p (3840 x 2160)</td>
<td>UHD 2160p (3840 x 2160)</td>
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<td>3000 cd/m²</td>
<td>3000 cd/m²</td>
<td>3000 cd/m²</td>
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</tr>
<tr>
<td>Viewing Angle (H/V)</td>
<td>178°(L) / 178°(R)</td>
<td>178°(L) / 178°(R)</td>
<td>178°(L) / 178°(R)</td>
<td>178°(L) / 178°(R)</td>
</tr>
<tr>
<td>Response Time</td>
<td>8ms (G to G)</td>
<td>8ms (G to G)</td>
<td>8ms (G to G)</td>
<td>8ms (G to G)</td>
</tr>
<tr>
<td>Connectivity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input</td>
<td>HDMI x 3, DisplayPort x 1, USB x 3, Audio x 1</td>
<td>HDMI x 3, DisplayPort x 1, USB x 3, Audio x 1</td>
<td>HDMI x 3, DisplayPort x 1, USB x 3, Audio x 1</td>
<td>HDMI x 3, DisplayPort x 1, USB x 3, Audio x 1</td>
</tr>
<tr>
<td>Output</td>
<td>DisplayPort x 1, Audio x 1</td>
<td>DisplayPort x 1, Audio x 1</td>
<td>DisplayPort x 1, Audio x 1</td>
<td>DisplayPort x 1, Audio x 1</td>
</tr>
<tr>
<td>Mechanical Specification</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mounting</td>
<td>Wall Mount</td>
<td>Wall Mount</td>
<td>Wall Mount</td>
<td>Wall Mount</td>
</tr>
<tr>
<td>Dimensions (WxDxH)</td>
<td>1510mm x 99mm x 210mm</td>
<td>1270mm x 81mm x 170mm</td>
<td>1040mm x 75mm x 134mm</td>
<td>870mm x 65mm x 122mm</td>
</tr>
<tr>
<td>Weight (incl. stand)</td>
<td>42kg</td>
<td>37.2kg</td>
<td>31kg</td>
<td>24kg</td>
</tr>
<tr>
<td>Key Features</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-Wall (wall mount)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Energy Star</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Special Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>65UH5F</th>
<th>55UH5F</th>
<th>49UH5F</th>
<th>43UH5F</th>
</tr>
</thead>
<tbody>
<tr>
<td>4K Frame Rate</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Environmental Conditions

- Temperature: -10°C to 40°C
- Humidity: 10% to 90%

### Power

- Power Supply: 100-240VAC, 50/60Hz
- Power Consumption: 195W (Typ), 200W (Max)

### Certification

- ENERGY STAR
- TUV | CE | CQC | FCC

### Accessories

- Remote Control
- Wall Mount
- Media Player
- Media Hub
- HDMI Cable
- Power Cord
- VESA Mounting Kit

---

Technical specifications may vary. Please refer to the product manual for detailed information.
Annex V  HP Elite Desk 800 G2 and HP V213a

Datasheet
HP EliteDesk 800 G2 Small Form Factor PC

Pack a performance punch in a small footprint

Experience top-notch productivity plus industry-leading reliability, security, and manageability, plus a unique portfolio of solutions in a compact, space-saving design with the powerful HP EliteDesk 800 SFF.

- Windows 10 Pro
- 5th Gen Intel® Core™ Processors

Designed for every demand
- Built through your most demanding challenges with the uncompromising performance of 5th Gen Intel® Core™ processors, Intel® HD Graphics, and optional high-end discrete graphics and HP Turbo Drive.

Seriously secure
- Help protect your PC and maintain maximum uptime with a suite of solutions that help stop security breaches, including HP D3O2mover with SureStart.

Make dependability a reality
- Get the reassurance of a PC that goes through 1,100,000 hours of HP Total Test Process and is designed to pass MIL-STD testing.
- Add an optional D3O2mover Solution for enhanced reliability in dusty environments.

Expand with ease
- Extend the life of your investment with a tool-less chassis and a range of expansion slots, bays, ports, and connectors for the most demanding business needs.

Featuring
- Help secure the future of your modern business. Modern PCs from HP make the most of Windows 10 Pro to help protect you from today’s security threats and maximize management and productivity features for business.
- Enjoy easy world-class manageability with integrated solutions that include Intel® vPro™ and Windows 10 Pro plus HP Common Core BIOS, which enables easy management of your entire fleet of HP devices.
- Simplify IT rollout and bug deployments with an 18-month lifecycle and global availability in more than 180 countries where HP conducts business.
- Make confirming from your PC as simple as the touch of a button with the optional HP Conference Keyboard and HP Wired Headset.
- Keep everything running right and be up to 35% more productive with support for up to three external HP Elite Displays.
- Support your environmental initiatives with energy-efficient PCs that are ENERGY STAR® certified and EPEAT® Gold registered.
- Increase storage and performance with an optional powerful HP Turbo Drive that handles your growing and complex workloads.
**Datasheet**

**HP EliteDesk 800 G2 Small Form Factor PC**

**Specifications Table**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Form Factor</strong></td>
<td>Small Form Factor</td>
</tr>
<tr>
<td><strong>Available Processors</strong></td>
<td>Intel® Core™ i5-4570 with Intel HD Graphics 4400 (2.99 GHz, up to 3.40 GHz with Intel Turbo Boost, 4 MB cache, 4 cores, Intel® Core™ i7-4770 with Intel HD Graphics 4400 (3.40 GHz, up to 3.90 GHz with Intel Turbo Boost, 8 MB cache, 4 cores), Intel® Core™ i7-4770K with Intel HD Graphics 4400 (3.40 GHz, up to 4.00 GHz with Intel Turbo Boost, 8 MB cache, 4 cores), Intel® Core™ i7-4790K with Intel HD Graphics 4400 (3.60 GHz, up to 4.40 GHz with Intel Turbo Boost, 8 MB cache, 4 cores), Intel® Core™ i7-4820K with Intel HD Graphics 4400 (3.60 GHz, up to 4.40 GHz with Intel Turbo Boost, 8 MB cache, 4 cores)</td>
</tr>
<tr>
<td><strong>Chipset</strong></td>
<td>Intel® Q170</td>
</tr>
<tr>
<td><strong>Maximum Memory</strong></td>
<td>Up to 64GB (2x 32GB), 1333 MHz, Standard memory: 8GB or 16GB</td>
</tr>
<tr>
<td><strong>Memory slots</strong></td>
<td>2 x DIMM 240-pin</td>
</tr>
<tr>
<td><strong>Internal Storage</strong></td>
<td>120 GB up to 500 GB SATA 6Gb/s, 2.5&quot;</td>
</tr>
<tr>
<td><strong>Communications</strong></td>
<td>10/100/1000 Ethernet, 10/100/1000 Ethernet, 10/100/1000 Ethernet, 10/100/1000 Ethernet, 10/100/1000 Ethernet</td>
</tr>
<tr>
<td><strong>Ports and Connectors</strong></td>
<td>2x Gigabit Ethernet, 2x Gigabit Ethernet, 2x Gigabit Ethernet, 2x Gigabit Ethernet, 2x Gigabit Ethernet</td>
</tr>
<tr>
<td><strong>Expansion Slots</strong></td>
<td>1x PCIe x16, 1x PCIe x1, 1x PCIe x1, 1x PCIe x1</td>
</tr>
</tbody>
</table>
| **Internal Drive Bays**              | 2 x 3.5" (3.5"), 2 x 3.5" (3.5"

**Power**

200 W up to 82% efficient, active PFC

**Weight**

56.7 kg (125 lbs)

**Environmental**

Low TCO

**Energy Efficiency Compliance**

EEMUA 599 and ESMA Gold registered configurations available. 

**Warranty**

3-year limited warranty including 3 years parts, labour and next business day onsite service. Terms and conditions vary by country. Certain restrictions and exclusions apply.
Datasheet

**HP EliteDesk 800 G2 Small Form Factor PC**

**Accessories and services (not included)**

<table>
<thead>
<tr>
<th>HP 5-year Next business day</th>
<th>HP Care Pack</th>
<th>With high-quality remote assistance or convenient onsite support available 24x7, help is there when you need it—so you can get back to work.</th>
</tr>
</thead>
<tbody>
<tr>
<td>w/Onsite Hardware Service</td>
<td>Product number: 07899E</td>
<td></td>
</tr>
</tbody>
</table>
IT&T Service Catalogue

Datasheet

HP EliteDesk 800 G2 Small Form Factor PC

Messaging Footnotes

1. Full view features are available in all editions or variants of Windows. System may require upgrade and/or additional purchase for hardware, drivers, software of OS update to take full advantage of Windows functionality. Windows 10 is automatically updated.

2. Features may vary by model, and system configuration. System may require additional purchase for hardware, drivers, software or OS update to take full advantage of Windows functionality. Windows 10 is automatically updated.

3. No direct warranty support. Visit our website for additional information.

Technical specifications disclaimers

1. Please refer to the Microsoft product page for additional specifications.

Learn more at

www.hp.eu/desktops

Engage HP Financial Services

Explore monthly payment options and technology refresh plans that can provide more flexibility to help you meet your IT goals. More information on www.hp.com/go/hpfs.

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www.go/updated

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43A6-109E8EE, November 2015
Datasheet

HP V213a 52.57 cm (20.7") Monitor

Business-class affordability in a large screen.

Enjoy stunning Full HD presentation of your visuals and quality, integrated speakers with the stylish HP V213a 52.57 cm (20.7") diagonal monitor, a budget-friendly display that’s just right for everyday business.

Spectacular world of color
- Enjoy crisp, clear views with Full HD 1920 x 1080 resolution and 5 ms response time on an ample 20.7-inch diagonal screen.

Create an efficient workspace
- Attach your HP Desktop Mini or select Thin Client directly behind the display for an affordable, compact, integrated workspace that’s perfect for small spaces. Or use the integrated VESA mount to place the display on a wall or stand.

Easy connectivity
- Get legacy compatibility with a VGA connector, or use DVI to connect to your newer technology.

Features
- Reduce power consumption and help lower your costs with an intelligent, energy-efficient design that is ENERGY STAR® certified and EPEAT® Silver registered. The display also includes mercury-free display backlights and arsenic-free display glass.
- Rest assured that your IT investment is supported by a one-year standard limited warranty. To extend your protection, select optional HP Care Pack Services.
## HP V213a 52.57 cm (20.7") Monitor

### Specifications Table

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Color</td>
<td>Black</td>
</tr>
<tr>
<td>Display size (Diagonal)</td>
<td>52.57 cm (20.7&quot;)</td>
</tr>
<tr>
<td>Display Type</td>
<td>TN w卒LED backlight</td>
</tr>
<tr>
<td>Panel Active Area</td>
<td>457.92 x 257.58 mm</td>
</tr>
<tr>
<td>Viewing Angle</td>
<td>90° horizontal, 65° vertical</td>
</tr>
<tr>
<td>Brightness</td>
<td>200 cd/m²</td>
</tr>
<tr>
<td>Contrast Ratio</td>
<td>600:1 static, 5000000:1 dynamic</td>
</tr>
<tr>
<td>Response Ratio</td>
<td>5 ms (60Hz)</td>
</tr>
<tr>
<td>Aspect Ratio</td>
<td>16:9</td>
</tr>
<tr>
<td>Native Resolution</td>
<td>1920 x 1080 @ 60Hz</td>
</tr>
<tr>
<td>Resolution Supported</td>
<td>1920 x 1080, 1600 x 900, 1440 x 900, 1280 x 1024, 1152 x 864, 1024 x 768, 800 x 600, 720 x 480</td>
</tr>
<tr>
<td>Display Features</td>
<td>Anti-glare, Language selection, LED Backlights, On-screen controls, Plug and Play, User program/mode</td>
</tr>
<tr>
<td>User Controls</td>
<td>Power: 4-button D (Auto Menu, Exit, Menu)</td>
</tr>
<tr>
<td>Input signal</td>
<td>1 VGA, 1 DVI-D (with HDCP support)</td>
</tr>
<tr>
<td>Ports and Connectors</td>
<td>1 audio INPUT</td>
</tr>
<tr>
<td>Input power</td>
<td>Input voltage: 100 to 240 VAC</td>
</tr>
<tr>
<td>Power consumption</td>
<td>Panel, Power-saving: 45.752 x 257.58 mm; Power consumption Description: 29 W (maximum), 23 W (typical), 0.5 W (standby); Screen resolution: 1920 x 1080 @ 60Hz</td>
</tr>
<tr>
<td>Dimensions with Stand (W x D x H)</td>
<td>48.94 x 48.94 x 33.05 cm</td>
</tr>
<tr>
<td>Dimensions without Stand (W x D x H)</td>
<td>48.94 x 19.76 x 36.27 cm</td>
</tr>
<tr>
<td>Weight</td>
<td>3 kg (with stand)</td>
</tr>
<tr>
<td>Ergonomic Features</td>
<td>Tilt: -5 to +15</td>
</tr>
<tr>
<td>Multimedia</td>
<td>Audio input with integrated 1 W per channel speakers</td>
</tr>
<tr>
<td>Certification and Compliance</td>
<td>CE, CB, FCC, TUV-GS, ISO 9241-307, EAC, CCC, CECC, VCCI, FCC, aWEEE</td>
</tr>
<tr>
<td>Environmental</td>
<td>Anti-glare, thin display glass, Mercury-free display backlights</td>
</tr>
<tr>
<td>Energy Efficiency Compliance</td>
<td>ENERGY STAR certified</td>
</tr>
<tr>
<td>What’s in the box</td>
<td>AC power cable, VGA cable, Audio cable, CD (includes User Guide, Warranty, drivers)</td>
</tr>
<tr>
<td>Warranty</td>
<td>1-year limited warranty including 1 year of parts and labour. Certain restrictions and exclusions apply</td>
</tr>
</tbody>
</table>
Datasheet

**HP V213a 52.57 cm (20.7”) Monitor**

Accessories and services (not included)

**HP Single-Monitor Arm**
The HP Single Monitor Arm is the perfect desk accessory for your work life. Sleek and streamlined, the HP Single Monitor Arm is designed to complement the way you work.

*Product number: BT861AA*

**HP Quick Release**
A secure and easy-to-use mounting solution for your VESA-compliant HP thin clients, compatible HP flat panel monitors and other HP desktop products. Attach to any a compatible stand, bracket or wall mount and make the most of your workspace.

*Product number: EP870AA*

**HP Integrated Work Center 3 for Small Form Factor**
Maximize your work space with the HP Integrated Work Center for Small Form Factors v3. Customize an “all-in-one” solution by combining an HP Small Form Factor or Workstation with an LED monitor up to 24 diagonal inches.

*Product number: FP966AA*

**HP Integrated Work Center for Desktop Mini and Thin Client**
Make the most of small work spaces with an HP FMC Desktop Mini/Thin Client that lets you create a compact desktop solution by combining a display with an HP Desktop Mini, HP Thin Client or HP Chromebox and giving you convenient front access to all of its inputs.

*Product number: G1V61AA*

**HP UHD USB Graphics Adapter**
Boost your productivity by extending or mirroring your desktop to a UHD display with the HP UHD USB Graphics Adapter.

*Product number: KZUB1AA*

**HP 3 year Next business day onsite Standard Monitor Hardware Support**
Receive 3 years of next business day onsite repair from an HP-qualified technician for your computing device, if the issue cannot be solved remotely.

*Product number: U9650E*

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**Learn more at**

[www.hp.eu/hpoptions](http://www.hp.eu/hpoptions)
Datasheet

HP V213a 52.57 cm (20.7"") Monitor

Messaging Footnotes
1. High-definition (HD) content required to view HD images.
2. All performance specifications represent the typical specifications provided by HP's component manufacturers; actual performance may vary either higher or lower.
3. See product QuickSpecs for each PC and thin client compatibility. HP Quick Release required and sold separately. Mounting hardware sold separately. Options sold separately.
4. Energy Star and/or Energy Star qualified registration marks vary by country. See www.energystar.gov or www.epa.gov/energy/greenpower for details.
5. HP Care Pack services are sold separately. Service levels and response times for HP Care Pack services may vary depending on your geographic location. Service starts from date of hardware purchase. Restrictions and limitations apply. See www.hp.com/go/llp for details.

Technical specifications disclaimers
All specifications represent the typical specifications provided by HP's component manufacturers; actual performance may vary either higher or lower.

Learn more at
www.hp.eu/monitors

Engage HP Financial Services
Explore monthly payment options and technology refresh plans that can provide more flexibility to help you meet your IT goals. More information on www.hp.com/go/llp.

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EAMG-62096EE, June 2016
High Availability Check-in Counter Printer

IER 401

BAG TAG AND BOARDING PASS PRINTER
MAXIMUM OPERATIONAL EFFECTIVENESS WITH CENTRALLY MANAGED SOFTWARE DISTRIBUTION
BENEFITS

- Versatile single feed printer for boarding pass and bag tag
- Compact, simple and robust design
- Fast paper supply change
- Automatic set up of printing mode
- Centralized software management: AEA software upgrade and reconfiguration based on standard Windows remote management tools
- Configuration, diagnostics and monitoring via web browser
- CUPPS and OUS6 compliant with all existing platforms
- AEA 2011 compliant
- Single paper roll holder
- Boarding pass stacker
- USB device

DESCRIPTION

The IER 401 is a multi-functional, direct thermal printer that facilitates the check-in process. It is specifically designed to be configured for both airlines’ host systems and shared-use platforms. Based on standard Windows remote management tools, AEA applications can be very easily upgraded and reconfigured, ensuring 100% up-to-date printers in all locations at no extra cost. This unique capability avoids inconsistent versions, service disruptions and costly on-site interventions.

PRODUCT SPECIFICATIONS

- Print method: Thermal Direct
- Print density: 203 dpi
- Supported protocol: AEA 2011
- Barcode printing: All 1D and 2D barcodes including PDF417, Datamatrix, Actec and QR code
- Graphical user interface (optional): 4 lines LCD display (20 characters per line)
- Connectivity: 1 × USB device
- Print speed: Selectable: 3 to 6 inches / second
- Paper separation: Tear-off (standard), cutter (optional)
- Paper loading: Automatic loading mechanism on paper detection
- Paper feed: 1 feed
- Boarding pass paper & large receipt:
  - Width: 24.5 to 83 mm (0.96” to 3.27”) Length: 100 to 203 mm (3.94” to 8’)
  - Weight: 80 g/m² to 200 g/m²
- Bag tag paper:
  - Width: 24.5 to 83 mm (0.96” to 3.27”) Length: 50 to 600 mm (1.97” to 23.62”)
  - Weight: 80 g/m² to 200 g/m²
- Roll paper dimension (optional):
  - Diameter: 159 mm max/min (6.26”)
- Dimensions (w x d x h):
  - 206 x 278 x 191 mm (8.11” x 10.91” x 7.52”)
  - 206 x 510 x 250 mm with optional roll holder and roll (8.11” x 20.1” x 9”)
- Weight: 8 kg (17.6 lbs)
- Power: 100V-240V, 50Hz/60Hz
- Operating temperature:
  - 0°C to 45°C (32°F to 113°F) (20% to 60%, non condensing)
  - Storage: -20°C to +60°C (4°F to 140°F)
- Reliability
  - Printer life: 10 years (excluding consumables)
  - MTBF: 27,000 hours
  - MCOF: 350,000 cycles
  - Pinhead:
  - 100 km or 100 million dots
- Agency approvals:
  - CE, CB, cETLus, FCC, ICES, GOST, CCC, IEC, HOC
- Warranty: 1 year standard

PRODUCT ACCESSORIES

<table>
<thead>
<tr>
<th>Designation</th>
<th>Single bag tag roll holder</th>
<th>Boarding pass ATB stacker</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (w x d x h) (printer + accessories)</td>
<td>206 x 510 x 230 mm (8.11” x 20.1” x 9”)</td>
<td>206 x 430 x 191 mm (8.11” x 16.61” x 7.52”)</td>
</tr>
<tr>
<td>Reference</td>
<td>S54091B</td>
<td>S59906A</td>
</tr>
</tbody>
</table>
Annex VII  OKI ML3320eco

ML3320eco/ML3321eco Specifications

The versatile, eco-friendly 9-pin printers for dedicated forms printing

High speed, high volume, outstanding reliability

The ML3320eco and wide carriage ML3321eco printers are suited to high speed, high volume data and word processing applications, where fast throughput and flexible paper management are required.

These 9-pin, impact printers are engineered to be tough enough for dedicated printing in the most demanding environments. With outstanding reliability, ease-of-use and backing facilities as well as the ability to run twice as long as most printers in their class, they are ideal for customer service points in wholesale and service environments.

Precision, Flexibility and Resilience

The ML3320eco/ML3321eco can accommodate multipart forms and stock that are up to twice as thick as those that fit our nearest competitor. Their relentless performance comes from Oki’s unique, high durability printhead design, and a light, strong, efficient motor. The long-lasting rack and pinion drive system and a protective, impact-resistance chassis, make it resilient even in the toughest environments.

With a patented optical sensor that places the printhead for precise output, and the auto-feed feature that accurately positions your continuous forms for a clean tear, right at the perforation - eliminating wasted forms and facilitating your day-to-day forms printing.

Eco-friendly and cost effective

The ML3320eco/ML3321eco have been developed to be eco-friendly. With power consumption at just 1.5W in sleep mode, your running costs and energy consumption are kept to a minimum, as well as reducing your carbon footprint.

OKI’s commitment to customers

The OKI brand is one of proven reliability and value. We provide printers that increase our customers’ long-term business performance without impacting their budget.

With almost half a century of experience in the impact printer industry, with OKI you are guaranteed a best-in-class, low cost, reliable and easy to use printer.

Variants available:
ML3320eco
Narrow carriage
ML3321eco
Wide carriage

Highlights:
- 80/136 column dot matrix printers
- OKI’s unique, high durability 9-pin printhead
- Multi-part paper handling (original + 4 copies)
- Up to 435 characters per second (cps) print speed
- ML3321eco is ideal for accounts applications
- 3 million character ribbon life
- Low-tear and auto-pick help eliminate wastage
- Eco-friendly technology, sleep mode consumes just 1.5W
- Manufactured at a CarbonZero facility
ML3320eco and ML3321eco - Dot Matrix Printers

**General Features**

- **Input buffer**: 1 MB/4MBs
- **Power supply**: Single phase 220 to 240VAC, +/- 10%, frequency 50/60Hz
- **Power consumption**: ISO/IEC 10161-1: Draft, Range: 37.9W; Sleep mode (in operation) 11.5W
- **Noise level**: 52dB(A) (quiet mode)
- **Dimensions (WxDxH)**:
  - ML3320eco: 116 x 330 x 240mm
  - ML3321eco: 116 x 330 x 250mm
- **Weight**: 5.9 kg (approx: ML3321eco: 7.6 kg approx)
- **Print head life**: 200 billion characters
- **Reliability**: 10,000 hours
- **Warranty**: 1 year
- **Product order numbers**:
  - ML3320eco: 01365200; ML3321eco: 01365202

**Accessories**

- **Single bin collate feeder**
- **Pull tractor**
- **Roll paper stand**
- **Bottom paper stand**
- **Serial RS232C**
- **OkiLAN 7100e Network Card**

**Consumables**

- **Cassettes**
- **Roll paper**
- **Cable (3 million characters)**

---

**Compatibility**: Only use genuine Oki Printing Solutions Original consumables to ensure the best quality and performance from your hardware. Non-Oki Printing Solutions Original products may damage your printer’s performance and invalidate your warranty.

---

**Note**: This product complies with EN55022 Class B. However, when fitted with the optional network interface card or optional cut sheet feeder, compliance to EN55022 is Class A. In a domestic environment this configuration may cause radio interference, in which case the user may be required to take adequate measures.
Annex VIII  Access IS BGR750

BGR750 Flatbed 2D BCBP Boarding Gate Reader

Description
The BGR750 is a modern, flatbed boarding gate reader for all barcoded boarding passes (BCBP’s), designed specifically to allow intuitive use with all media types including the latest phones, tablets and smart watches.

Barcode tickets are presented, face-down, over the scanning window. The large window, wide viewing angle and depth-of-field creates a large barcode reading area. This makes positioning of a barcode easy and results in fast detection and reading even before the document touches down.

The BGR750 has been designed with a very low profile, making it the ideal solution for desktop or embedded use. Installation flexibility is further extended by the choice of angled, flat or no screen at all (for OEM) to suit the application.

Designed for future-proof operation, the BGR750 can be equipped for contactless operation. Additionally, the BGR’s large scanning window has been designed to allow for optional passport MRZ reading — that can be purchased as a software license.

Ease of use by passengers and operators has been paramount in the device’s design. The colour screen is utilised to display text and instructional icons to the user to enhance user interaction. Feedback is also given by twin banks of four bright LEDs down each side of the display, plus via a loud audio beeper. Each of the eight multicolour LED indicators can be illuminated individually, although typically all would be illuminated either green or red to indicate permission to board or not.

A wide range of configurations are available for connection to Common Use Terminal Equipment (CUTE®) or dedicated systems. Additionally, to ensure that the unit is future-proofed, new firmware can be remotely downloaded.

Features
• Fast, powerful, omnidirectional 1D/2D barcode imager
• Angled or flat colour LCD display
• Reads IATA-recommended PDF417, QR, Aztec and other 2D and linear barcode symbologies
• Wide range of emulations available
• RS-232, USB or Ethernet connection to host
• Green and red indicator beacons and audio beeper
• RS-232 serial port for receipt printer functionality, for example seat, flight and passenger data from M/T format bar code documents
• Integrated on/off switch

Options
• Contactless/NFC capability - Available Q1/2017
• MRZ reading - Available Q1/2017
• Podium metal bracket
Dimensions

Specifications

Barcode reader
Compliance: AEA2012
1D symbologies: Code 128, Code 2 of 5, Interleaved 2 of 5, IATA 2 of 5, Code 39, EAN
2D symbologies: ITU resolution 792, QR, Aztec, PDF417 and Datamatrix codes
Media types: Will read smartphone, tablet and smartwatch displays and paper documents and tickets
Performance: Less than 1 second read capability
Construction: Robust PC/ABS enclosure with no moving parts

OCR reading (option)
Standard OCR fonts: OCR-B
Machine readable passports (MRP): 2 lines of 44 characters
Machine readable visas (MRV): 2 lines of 44 characters. 2 lines of 36 characters
Travel documents: 2 lines of 36 characters. 3 lines of 30 characters

Contactless RF reader (Option)
Supported media: ISO14443 type A and

B cards (Java cards); max baud 424K (extendable to 848K)
Miltare UL, Classic 1K, Classic 4K, Miltare Plus; max baud 106K
Operating frequency: 13.56 MHz
Operating distance: 20 mm

Passenger/agent displays
Display: Colour LCD (480x272px)
Visible/audible: Green (good read) and red (bad read) indicator beacons and audio beeper. Programmable capability.

Interface
USB Interface
Host Interface: RS-232C Baud rates 9600, 19200, 38400, 115200; and USB
Serial port, for optional RF9000 receipt printer or auto access/boarding gate applications
Ethernet: Available by firmware upgrade

Power supply
Input voltage: 12 VDC; PSU supplied
Physical characteristics
Dimensions (mm):

67 x 259 x 143

All trademarks acknowledged. Specifications subject to change without prior notice. This literature is for offline information only. Ver. 1.2 November 2016

Protocols supported [* = Pending]
AirIT Easy®
Amadeus AUS Sit®
ARINCE Mune & MUSE®
Edge CUPPS-T®
RESA CREVIS®
SABRE EGRV®
SITA Airport Connect®
Ultra CUSE®

Environmental
Temperature: Operating 0°C to +50°C, Storage -20°C to +60°C
Humidity: 0% to 95% non-condensing

The BOR750 is available with a flat or angled screen. or for OEM installation with no screen at all.
Annex IX  Access IS LSR130

LSR130
2D Barcode Reader with Integrated MSR

2D barcode imager and manual 4-track MSR, with options for OCR passport reading

Description
The LSR130 combines a 2D barcode imager with a manual four-track magnetic swipe reader, providing a robust and cost-effective solution for check-in areas, duty-free shops and airport lounges that typically handle 2D barcoded boarding passes but have the occasional need to read ATB2 documents, credit cards and frequent flyer cards (F2TV).

The LSR130 has a high-speed omnidirectional 2D barcode imager that reads travel documents face-up, allowing the agent to easily place the barcode in the target zone.

The imager is optimised for high throughput of airline and home-printed documents, and of barcodes on the displays of PDAs and smartphones.

The integrated four-track MSR has no moving parts, maximising reliability and minimising the cost of ownership.

Options
An option exists to integrate OCR swipe reading functionality.

Mag Swipe Features
- Bidirectional reading of ATB2 coupons, credit cards, debit cards and frequent flyer cards.
- 4-track manual swipe reader
- IATA:TE2 T222 format T1, T2, T3, T4
- Highly serviceable, easy access to major components

2D Barcode Imager Features
- Fast, omnidirectional 1D and 2D barcode imager
- Reads on presentation of a document face up
- Reads IATA-recommended linear, PDF417, Aztec, DataMatrix and QR symbologies
- Large document throat allows barcodes to be read from any position on an A4 page
- Reads 2D barcode images on PDAs and smartphones
- Serial RS232 and USB connection to host interface versions are available.
- Audible and visible indicators

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LSR130 reads smartphones, home printed paper documents and magnetic strip data

Unique reader accurately and reliably reads smartphones and tablets
Large document feed can read barcodes anywhere on A4 home printed documents
Easy-to-use MSR-charcoal design

LSR130 2D Barcode Reader with Manual 4-Track MSR
Optional OCR Reader
Specifications

Customer/agent displays
Visible/audible: Bright, green and red indicator beacons and an audio beep

Barcode reader
Linear symbologies: Code 128, Code 2 of 5, Interleaved 2 of 5, IATA 2 of 5, Code 39 enabled as standard. Others can be enabled on request
Stacked-linear and 2D symbologies: IATA resolution 702, PDF417, Aztec, Datamatrix and QR.
Media: All symbologies can be read from paper, including home-printed documents. Linear, Aztec, Datamatrix and QR symbologies can be read from PDA and smartphone displays.
Performance: <1 second read capability
Construction: Compact and durable ABS enclosure with no moving parts

Magnetic swipe reader
Compliance: IATA ATB2, T22C format, T1, T2, T3 and T4. Three track magnetic cards complying with ISO7811/2-5
Media: ATB2 tokens, 8" and 7½", ATB wallet and ATB2 boarding pass (with or without stubs) and credit cards
Processing time: Manual swipe processing/read less than 1 second
Magnetic head life: 250K reads

OCR swipe reader (optional)
General: Reads machine readable travel documents (MRTDs) to ICAO 9303 standard
Machine readable passports (MRP): Two lines of 44 characters
Machine readable visas (MRV): Two lines of 44 characters, two lines of 36 characters
Travel documents: Three lines of 36 characters, three lines of 30 characters

Interface Options
RS-232C by 9-way D-type
USB (keyboard or virtual serial)

Dimensions (overall)
216L x 210W x 160H mm

Power supply for Serial Devices
6V DC. Can be powered using either a USB Power Stealer® device or an external AC universal power supply (specify preference when ordering)

Environmental
Temperature: Operating 0°C to +50°C; storage 0°C to +60°C
Humidity: 0 to 95%, non-condensing
Approvals: FCC Class B, CE EMC Class B, CE Low Voltage Directive, IEC60950-1 LED Safety: Class 1

* All trademarks acknowledged

Ver: 1.4 November 2012