ARTIS LINE WITH UNITY 4.0

Pre-Installation Requirements

Line: Artis

Equipment Code: DBxxxQ

Rev: 1.0

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The Wellness Company



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ARTIS LINE with UNITY 4.0 Pre-Installation Requirements Rev. 1.0



The Wellness Company

The information in this manual is intended for QUALIFIED TECHNICAL PERSONNEL - designated by the customer - who are in charge of preparing the electrical and network line, to guarantee the correct functioning of equipment.



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1. GENERAL WARNINGS

This manual includes informative notes with specific meanings:

Safety signs classified according to the relative seriousness of the potential hazards:



DANGER: Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.



WARNING: Indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.



CAUTION: Indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

Signs applicable to equipment:



ATTENTION: REGULATION THAT MAY LEAD TO DAMAGE TO THE EQUIPMENT IF NOT COMPLIED WITH.



Detail regarding the operation in progress.

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2. NETWORK DESIGN – CONFIGURATION AND INSTALLATION

2.1 INTRODUCTION

- Installation and configuration of the network infrastructure (cables), of the network hardware (Switch, Router, firewall) and any wireless network are at the expense of the customer.
- Technogym warns that the efficiency and correct operation of the equipment and of the mywellness Cloud services depend on the technical characteristics of the hardware that is installed.
- Technogym does not guarantee the correct operation of the mywellness Cloud services in the event of failure to comply with all the technical specifications and warnings indicated.

2.2 NETWORK DESIGN AND INSTALLATION (Business-to-Business (B2B))

During the network design and preparation phases, Technogym requests to be put in touch with the technicians of the company performing the work, in order to obtain and provide technical information, so that the network is installed and configured according to the required technical requirements.

Technogym can not be held responsible for failures due to site preparation, assembly and installation not correct.

2.3 CONFIGURATION AND INSTALLATION (Business-to-Business (B2B))

Before performing the installation, the customer should inform Technogym that all the required components have been provided and installed and that they operate correctly.

For this purpose, Technogym will send a check list form to the customer a few days before the date set for installation, and will ask the customer to compile the form and send to the Technical Service department. This check list form will allow Technogym to acquire the information related to the installation status of the network for the equipment and thus check that everything that has been requested to perform installation of the equipment is provided and operational.



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3. DISPLAY

3.1 RUN ARTIS

The RUN ARTIS (DBKxxQ) is fitted with UNITY 4.0 display.



Fig. 1

3.2 RECLINE ARTIS

The RECLINE ARTIS (DBDxxQ) is fitted with UNITY 4.0 display.

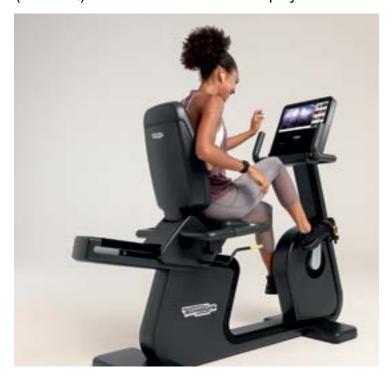


Fig. 2



3.3 BIKE ARTIS

The BIKE ARTIS (DBCxxQ) is fitted with UNITY 4.0 display.



Fig. 3

3.4 CLIMB ARTIS

The CLIMB ARTIS (DBExxQ) is fitted with UNITY 4.0 display.



Fig. 4

3.5 VARIO ARTIS

The VARIO ARTIS (DBFxxQ) is fitted with UNITY 4.0 display.

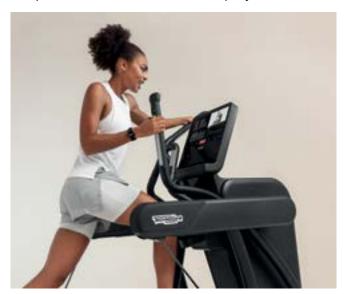


Fig. 5

3.6 SYNCHRO ARTIS

The SYNCHRO ARTIS (DBHxxQ) is fitted with UNITY 4.0 display.

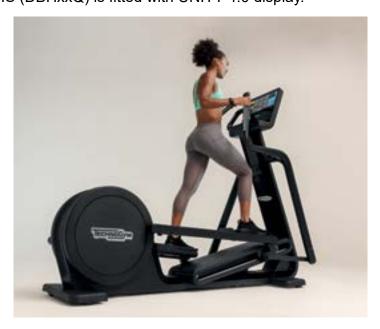


Fig. 6



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4. TECHNICAL CHARACTERISTICS AND REQUIREMENTS

4.1 TECHNICAL DATA AND POWER REQUIREMENTS

4.1.1 Run

	RUN		
Model Code	DBK0EQ (200-240V - CE)	DBK0AQ (100-240V - UL)	
Power Supply	200÷240Vac 50/60Hz	100÷240Vac 50/60Hz	
Max Absorption	10A @ 230 Vac, 50/60 Hz	20A @110 Vac, 50/60 Hz 16 A @230 Vac, 50/60 Hz	
Motor peak power (*)	5800 W (7.8	Hp)	
Weight of the product	215 Kg (474	lb)	
Speed 100Vac power supply maximum power input	-	0.8-25 Km/h (0.5-15.5 mph) 1600VA	
Speed 120Vac power supply maximum power input	-	0.8-25 Km/h (0.5-15.5 mph) 2000VA	
Speed 200-240Vac power supply maximum power input	0.8-25 Km/h (0.5-15.5 mph) 2200VA	0.8-25 Km/h (0.5-15.5 mph) 2200VA	
Gradient	0-15 %		
Noise Level	Less than 70 dB		
Protection grade	IP 20		
Operating Temperature	from +5°C to +	-30°C	

Tab. 1

(*): The peak power values refer to a user with a maximum weight of 100 Kg.



4.1.2 Recline - Bike - Climb - Vario - Synchro

RECLINE - BIKE - CLIMB - VARIO - SYNCHRO		
Power Supply	100÷240Vac 50/60Hz	
Max Absorption (Bike - Recline - Vario - Climb) (*)	100 W 1 A @110 Vac, 50/60 Hz 100 W 1 A @230 Vac, 50/60 Hz	
Max Absorption (Synchro) (*)	250 W 2.5 A @110 Vac, 50/60 Hz 250 W 1.5 A @230 Vac, 50/60 Hz	
Mains power input	160 VA max	
Weight of the Recline Product	98 Kg (216 lb)	
Weight of the Bike Product	71 Kg (156 lb)	
Weight of the Climb Product	190 Kg (418 lb)	
Weight of the Vario Product	200 Kg (441 lb)	
Weight of the Synchro Product	190 Kg (419 lb)	
Fuses	2 x 3.15A (F)	
Braking power (70 rpm) (Recline - Bike)	40÷500 W ± 10%	
Braking power (90 spm) (Synchro)	30÷310 W ± 10%	
Braking power (130 spm) (Vario)	310 W ± 10%	
Time	0÷999 min ± 1%	
Distance (Recline - Bike - Vario - Synchro)	0÷99.99 km ± 5% (0÷99.99 mls ± 5%)	
Distance (Climb)	0÷9999 floors ± 5%	
Protection grade	IP 20	
Electric isolation class	Class I	
Operating Temperature	from +10°C to +25°C, with humidity levels between 20% and 90% during exercise	

(*): theoretical value.

4.2 ELECTRICAL CONNECTION

Before connecting the product to the mains power supply, ensure that the electrical system specifications comply to binding regulations.

For Run equipment: Check the specifications of the mains power supply on the product identification label.

For Bike / Climb / Recline / Synchro / Vario equipment: Verify the main power supply specifications on the label affixed close to the main switch.



WARNING: The wall socket must be located in a place where the plugging and unplugging can be done easily and safely.

The power supply socket must be grounded. If not, a ground connection must be installed by a qualified electrician before connecting the equipment to the electricity mains.

The product must be grounded. The product plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.



WARNING: Check with a qualified electrician or serviceman if you are in doubt as to whether the product is properly grounded. Do not modify the plug provided with the product; if it will not fit in the outlet, have a proper outlet installed by a qualified electrician.



4.3 POSITIONING OF POWER INLET

4.3.1 Run Artis



Fig. 7 - Right front side

4.3.2 Recline Artis



Fig. 8



4.3.3 Bike Artis



Fig. 9

4.3.4 Climb Artis



Fig. 10 - Central front side



4.3.5 Vario Artis



Fig. 11

4.3.6 Synchro Artis



Fig. 12

5. NETWORK REQUIREMENTS

5.1 INTRODUCTION

The equipment support both wireless and wired internet connection.

in all situations, where possible, Technogym recommends connection via network cable.

In all cases, the network must be installed and configured by the customer before Technogym delivers the product, in accordance with the technical specifications set out below.

5.2 ETHERNET CABLED NETWORK

_Category 5e/6 - UTP Ethernet cables with RJ45 patch;

_Switch with a number of ports greater than the number of equipment fitted with UNITY connected.

5.3 WI-FI NETWORK REQUIREMENTS

Connect the product to the Wi-Fi network, taking into account the following requirements:

- Standard: IEEE 802.11 a/b/g/n/ac at 5GHz or 2.4GHz;
- Security Protocol: WEP, WPA/WPA2, open (free) network;
 - The Protocol WPA2 Enterprise is not supported.
- There must be only one dedicated Access Point / Wi-Fi router that provides the service;
- DHCP enabled:
- It's recommended to avoid broadcasting the same SSID, through 2.4 and 5 GHz, at the same time.

In case of professional Access Point or if the equipment is used in a public / company network (hotel, fitness facility) you must cover the following additional requirements:

- Configure the Access Point to broadcast only one SSID (Service Set Identifier) needed for the equipment installation. The SSID must not be hidden;
- Program in the display of equipment (Customer Menu 2406 --> Network-->Wi-Fi) just only the SSID defined above:
- · Frequency Band:
 - 5GHz band only (not automatic) is the configuration suggested;
 - _If the Access Point is not provided with 5GHz band, 2.4GHz is ok but might need some channel fine tuning by the local IT company. The best practice for 2.4GHz Wi-Fi configuration is enabling Wi-Fi on one of the following channels: 1, 6, 7, 8, 9,



10, 11, 12. Other channels: 2, 3, 4, 13, 14 might cause interference with Bluetooth signal and it's best to avoid them.

_Avoid in any case to broadcast the same SSID, through 2.4 and 5 GHz, at the same time.

- LEASE TIME : at least three days;
- SESSION TIMEOUT disabled (Typically achieved setting the timeout = 0).
 - For more details about Access Point (AP), refer to the AP technical specifications.

5.4 WIRELESS GUIDELINES

The following indications must be interpreted only as guidelines.

5.4.1 Home (Business to Consumer (B2C))

- Make sure the wi-fi signal is reachable by the equipment.
- If you use an Access Point / Wi-Fi router with a fixed channel: avoid overlapping problems if, in the same area, there are Access Points / Wi-Fi routers that use the same channel.

5.4.2 Facility / Hotel (Business to Business (B2B))

The wireless network should be installed and configured only by specialised companies and expert technicians.

- The equipment must not be more than 25-30 metres LOS (line of sight) away from the Access Point (analyse possible problems due to the presence of walls or other obstacles between the Access Point and the equipment).
- If you use an Access Point with a fixed channel: avoid overlapping problems if, in the same area, there are Access Points that use the same channel.

5.5 MAXIMUM NUMBER OF EQUIPMENT CONNECTED TO ONE ACCESS POINT

I In to b	401/1000:	1100 0	commercial	^ ^ ^ ^ ^ ^	1 /010+
	actiocs.	asc a	ooi i ii i oi oidi	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1 01116.

More than 5 devices: use a professional Access Point (see the technical datasheet).

For more details about Access Point (AP), refer to the AP technical specifications.

5.6 INTERNET CONNECTION BANDWIDTH REQUIREMENTS

5.6.1 Home (Business to Consumer (B2C))

	Internet Speed requirements
N°1 Equipment	
5 Mbps or more	for the best audio and video experience: HD quality (up to 1080p)
3 Mbps	for viewing medium quality (standard definition video, DVD quality)
1.5 Mbps	for viewing low quality video (minimum) (not recommended)
N°2 Equipment	
(5 Mbps or more) *2	for the best audio and video experience: HD quality (up to 1080p)
3 Mbps *2	for viewing medium quality (standard definition video, DVD quality)
1.5 Mbps *2	for viewing low quality video (minimum) (not recommended)

Tab. 2

5.6.2 Facility / Hotel (Business to Business (B2B))

The below table illustrates the minimum infrastructure requirements, based on the number of equipment fitted with UNITY 4.0. In detail, the requirements (minimum and target) are based on average usage of UNITY 4.0 machines / applications at the same time.

Configuration with minimum Internet bandwidth may slow down Internet browsing when all equipment fitted with UNITY 4.0 are using Internet at the same time.



				INN	TY 4.0 - NET	WORK/INTE	ORK/INTERNET BANDWI max #equipment units	UNITY 4.0 - NETWORK/INTERNET BANDWIDTH REQUIREMENTS max #equipment units	MENTS				
		(4)	2	10		7	20	4	40	09		100	0
M	local network	WiFi or	WiFi or Cable	WiFi or Cable	. Cable	WiFi c	WiFi or Cable	WiFi or Cable	Cable	WiFi or Cable	Cable	WiFi or Cable	Cable
requirements (webpages without	internet connection	Download	Upload	Download	Upload	Download	Upload	Download	Upload	Download	Upload	Download	Upload
video, Facebook, Cloud)	(bandwidth requirements)	> 2 Mbps	>512Kbps	>5 Mbps	>512Kbps	>7 Mbps	>1Mbps	>10 Mbps	>1Mbps	>16 Mbps	>2Mbps	>20 Mbps	>2 Mbps
	local server	not necessary	ssary	not necessary	sary	not necessary	ssary	not necessary	ssary	not necessary	ary	not necessary	sary
	local network	WiFi or Cable	· Cable	WiFi or Cable	· Cable	WiFi or	WiFi or Cable	WiFi or Cable	Cable	WiFi or Cable	Cable	WiFi or Cable	Cable
raguirements (With web video like	internet connection	Download	Upload	Download	Upload	Download	Upload	Download	Upload	Download	Upload	Download	Upload
youtube, racebook video, Netflix	(bandwidth requirements)	>5 Mbps	>512Kbps	>7 Mbps	>512Kbps	>10 Mbps	>1Mbps	>20 Mbps	>1 Mbps	>30 Mbps	>2 Mbps	>50 Mbps	>2 Mbps
	local server	not necessary	ssary	not necessary	sary	not necessary	ssary	not necessary	ssary	not necessary	ary	not necessary	ssary

Fig. 13

5.7 FIREWALL / ROUTER RULES FOR ACCESS TO MYWELLNESS CLOUD SERVICES

The Firewall\Router installed locally must be configured with **ports 80 and 443 open**. These ports must also be opened on the devices of the related ISP (Internet service provider).

Free access to the Internet must be guaranteed for correct use of the Mywellness Cloud services, and in particular access to the following DNS names must never be disabled.

DNS Names
mywellness.com
technogym.com
facebook.com
facebook.net
fbcdn.net
google.com
googleapis.com
google-analytics.com
worldweatheronline.com
clouddrive.com;
cloudfront.net;
amazonaws.com
time.android.com

Tab. 3 - DNS Names for ARTIS LINE with UNITY 4.0 Display

i It must be possible to download .tar packets.

5.8 PROXY

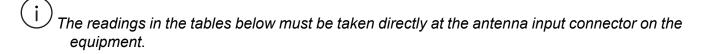
This parameter MUST ALWAYS BE DISABLED, because if enabled UNITY does not manage the Apps.

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6. STANDARD TV TECHNICAL SPECIFICATIONS

6.1 INTRODUCTION

The data useful to antenna installers for checking the suitability of the antenna signal input to the equipment with UNITY 4.0 are detailed below.



If the equipment is not connected to a terrestrial antenna or if it is connected but the signal is interrupted by line disconnection switches, such as television control units or modulators or other devices, the equipment will not be able to receive the signal to tune into the radio stations.

- Key to abbreviations:
 - $dB\mu V = dB \ micro Volt$
 - dBmV = dB milliVolt
 - dBm = dB milliWatt
 - SNR = Signal to Noise Ratio

Hereafter is shown the UNITY 4.0 – Digital TV standards broadcasting map:



TV: DVB WORLDWIDE @ UNITY 4.0

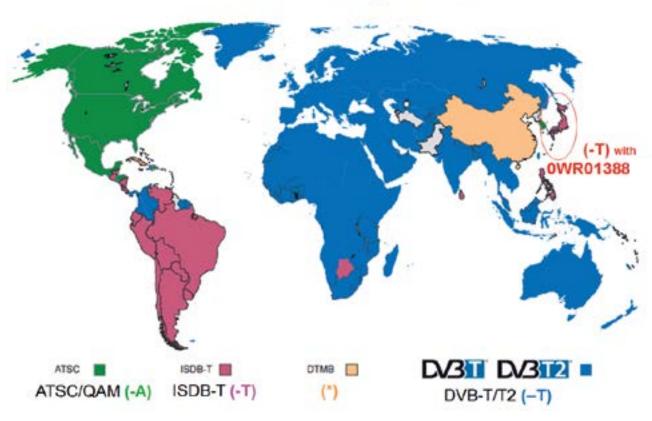


Fig. 14

(*): DTMB not supported yet.

The code 0WR01388 is officially released when the Artis Line with Unity 4.0 is commercially released in Japan.

6.2 VIRTUAL LAN

UNITY 4.0 doesn't manage the VLANs because it has only one CPU port that manages both Internet and IPTV on the same network. Therefore it's not possible to set a VLAN network on IPTV infrastructure.

However, it's possible to manage the VLANs, through a dedicated upgrade kit. See the below standard options.

6.3 LAN

If there's an IPTV infrastructure via LAN, internet must be via ethernet.

However, it's possible to have internet via Wi-Fi, through a dedicated upgrade kit. See the below standard options.

6.4 UNITY 4.0 DVB-T / T2 / C / ISDB-Tb VERSION (-T) STANDARD OPTIONS

NOT ENCRYPTED

- Analog TV + FM Radio;
- Digital TV DVB-T/ DVB-T2 (mpeg2, H264, HEVC) not encrypted;
- Digital TV ISDB-Tb not encrypted (ADD-ON 0WR01388 for Japan version);
- If the equipment must be installed in Japan, the equipment is sent with the Japanese Power Supply cable and the kit 0WR01388. The kit is mounted on the machine during the installation phase.
 - Cable DVB-C (64/128/256) not encrypted;
 - IPTV (LAN- mpeg over UDP/RTP) not encrypted + Internet via LAN
 - IPTV (LAN- mpeg over UDP/RTP) not encrypted+ Internet via LAN (different VLAN) -> (ADD-ON A0001109 (not available yet))
 - IPTV (LAN -mpeg over UDP/RTP) not encrypted + Internet via Wi-Fi -> (ADD-ON A0001109 (not available yet))

ENCRYPTED

DIGITAL COAX - ENCRYPTED:

- Pro:IDIOM (Released only in US): Cable TV (coax QAM-B 64/256) ENCRYPTED Pro:IDIOM
 -> (ADD-ON A0000845)
- Other encryption standards:
 - centrally convert the signal to COAX analog/digital (DVB-C) without encryption;
 - HDMI-IN input ready for external STB (ADD-ON A0001054: HDMI Kit (cable) for Artis Cardio): not available yet.

DIGITAL IPTV - ENCRYPTED:

- Pro:IDIOM: IPTV SD/HD (LAN mpeg over UDP/RTP) ENCRYPTED Pro:IDIOM -> (ADD-ON A0001109 (not available yet));
- IPTV (other encryption standards):
 - centrally convert the signal to IPTV WITHOUT encryption;
 - HDMI-IN input ready for external STB (ADD-ON A0001054: HDMI Kit (cable) for Artis Cardio): not available yet.



INTERNET IPTV (e.g. Netflix)

ANDROID APP (FREE) - Compatibility check

SUPPORTED ANALOGIC STANDARDS (DVB-T / T2 / C)

- PAL B/G , PAL I , SECAM DK , SECAM L , SECAM L1;
- NTSC M , PAL M , PAL N;
- PAL B/G AUSTRALIA;
- PAL D/K.

SUPPORTED ANALOGIC STANDARDS (ISDB-Tb): NTSC M

STANDARD (NOT ENCRYPTED) DVB-T/ DVB-T2 / DVB-C/ISDB-Tb			
	A	NALOG/ IPTV	
	UNIT	Y4 VERSION "-T"	
	DIGITAL TV: DV Tb	B-T / DVB-T2 (mpeg2, H264, HEVC) / DVB-C / ISDB-	
	ANALOG TV: YES	5	
	RADIO FM: YES		
Broadcast System	RF INPUT: F-Type connector		
	INPUT INPEDENCE: 75 Ohm (max nondestructive input power: 10 dBm)		
		QAM 16, 32, 64, 128, 256 / BANDWIDTH 8 MHz	
	DVB-C	CABLE TUNER: 42 MHz to 1002 MHz	
		Symbol Rate: 6875, 6900, 6956, manual setting	
		(Automatic selection of the first one available)	
	DVB-C	MIN: $-50 \text{ dBm} / 59 \text{ dB}\mu\text{V} / -1 \text{ dBmV}$ (SNR> 33)	
Signal Level (COAX)	(256 QAM)	MAX: 0 dBm / 109 dBμV / 49 dBmV (SNR>33)	
	DVB-T/T2/ISDB- Tb	MIN: : -60 dBm / 49 dBμV / -11 dBmV (SNR> 23)	
		MAX:: 0 dBm / 109 dBμV / 49 dBmV (SNR>23)	
Codecs	MPEG-2 MP@HL. MPEG -4 pt10 AVC/H.264 HP@L4-VC1. HEVC/H265 MAIN, MAIN 10 PROFILE		
Video Resolutions	Decodes up to 720p and 1080p		
Audio	MPEG 1, 2, MP3, E	DD/DD+, AAC, AC3	
	INPUT: Ethernet 1	0/100/1000 BaseT via RJ-45 shielded connector	
IPTV	PROTOCOLS: mp	eg TS over UDP/RTP protocols	
	Supports IP and R	F tuning: direct IPTV, RF only, and mixed RF/IP	

Tab. 4



COA	COAX QAM Pro:IDIOM®: ATSC/ QAM-B Pro:IDIOM®		
UN	TITY 4.0 VERSION '	'-T" + UPGRADE KIT A0000845	
	CABLE TV: QAM cing 6 MHz	-B (64/256 QAM –ITU J83 Annex B) – Channel spa-	
	DIGITAL TV : ATS	SC (free to air)	
Broadcast System	ANALOG TV: No	t available	
220000000000000000000000000000000000000	RADIO FM: Not available		
	RF INPUT: F-Type connector		
	INPUT INPEDENCE: 75 Ohm (max nondestructive input power: 10 dBm)		
	CABLE TUNER: 5	4 MHz to 1GHz	
	256 QAM	MIN: $-50 dBm / 59 dB\mu V / -1 dBm V $ (SNR>33)	
Signal Level		MAX: 0 dBm / 109 dBμV / 49 dBmV (SNR>33)	
	ATSC	MIN:: -60 dBm / 49 dBμV / -11 dBmV (SNR> 23)	
		MAX:: 0 dBm / 109 dBμV / 49 dBmV (SNR> 23)	
Codecs	MPEG-2 MP@HL. MPEG -4 pt10 AVC/H.264 HP@L4-VC1. HEVC/H265 MAIN, MAIN 10 PROFILE		
Video Resolutions	Decodes up to 720	p and 1080p	
Encrypted TV	Embedded Zenith	Pro:IDIOM® DECRYPTION	
	Closed Captioning	g	
Audio	MPEG 1, 2, MP3, I	DD/DD+, AAC, AC3	

Tab. 5

	IPTV Pro:IDIOM®	
UNITY 4.0 V	ERSION "-A" + UPGRADE KIT A0001109 (not available yet)	
Codecs	MPEG-2 MP@HL. MPEG -4 pt10 AVC/H.264 HP@L4-VC1. HEVC/H265	
	MAIN, MAIN 10 PROFILE	
Video Resolutions	Decodes up to 720p and 1080p	
Audio	MPEG 1, 2, MP3, DD/DD+, AAC, AC3	
Input	Ethernet 10/100 BaseT via RJ-45 shielded connector	
Protocols	mpeg TS over UDP/RTP protocols	
Encrypted TV	Embedded Zenith Pro:IDIOM® DECRYPTION	

Tab. 6



6.5 UNITY 4.0 - VERSION (-A) STANDARD OPTIONS - USA/CANADA

NOT ENCRYPTED

- Analog TV (e.g. NTSC) + FM Radio;
- Digital TV (coax ATSC) not encrypted;
- Cable TV (coax QAM-B 64/256) not encrypted;
- IPTV (LAN- mpeg over UDP/RTP) not encrypted + Internet via LAN;
- IPTV (LAN- mpeg over UDP/RTP) not encrypted + Internet via LAN (different VLAN) -> (ADD-ON A0001109 (not available yet));
- IPTV (LAN -mpeg over UDP/RTP) not encrypted + Internet via Wi-Fi (ADD-ON A0001109 (not available yet)).

ENCRYPTED

DIGITAL COAX - ENCRYPTED:

- Pro:IDIOM: Cable TV (coax QAM-B 64/256) ENCRYPTED Pro:IDIOM (ADD-ON A0000845);
- Other encryption standards
 - centrally convert the signal to COAX analog/digital (QAM) without encryption;
 - HDMI-IN input ready for external STB (ADD-ON A0001054: HDMI Kit (cable) for Artis Cardio): not available yet.

DIGITAL IPTV - ENCRYPTED

- Pro:IDIOM: IPTV SD/HD (LAN mpeg over UDP/RTP) ENCRYPTED Pro:IDIOM -> (ADD-ON A0001109 (not available yet));
- IPTV (other encryption standards):
 - centrally convert the signal to IPTV WITHOUT encryption;
 - HDMI-IN input ready for external STB (ADD-ON A0001054: HDMI Kit (cable) for Artis Cardio): not available yet.

INTERNET IPTV (E.G. NETFLIX)

ANDROID APP (FREE) - Compatibility check

SUPPORTED ANALOGIC STANDARDS:

NTSC M , PAL M , PAL N;



STANDARD (NOT ENCRYPTED) ATSC/ QAM-B / ANALOG NTSC / IPTV UNITY 4.0 VERSION "-A"					
Broadcast System	CABLE TV: QAM-B (64/256 QAM –ITU J83 Annex B) – Channel spacing 6 MHz				
	DIGITAL TV : ATSC (free to air)				
	ANALOG TV: YES				
	RADIO FM: YES				
	RF INPUT: F-Type connector				
	INPUT INPEDENCE: 75 Ohm (max nondestructive input power: 10 dBm)				
	CABLE TUNER: 54 MHz to 1GHz				
Signal level	256 QAM	MIN: -50 dBm / 59 dBμV / -1 dBmV (SNR>33)			
(COAX)		MAX: 0 dBm / 109 dBμV / 49 dBmV (SNR>33			
	ATSC	MIN:: -60 dBm / 49 dBμV / -11 dBmV (SNR> 23)			
		MAX:: 0 dBm / 109 dBμV / 49 dBmV (SNR> 23)			
Codecs	MPEG-2 MP@HL. MPEG -4 pt10 AVC/H.264 HP@L4-VC1. HEVC/H265 MAIN, MAIN 10 PROFILE				
Video Resolutions	Decodes up to 720p and 1080p				
Audio	MPEG 1, 2, MP3, DD/DD+, AAC, AC3				
IPTV	INPUT: Ethernet 10/100/1000 BaseT via RJ-45 shielded connector				
	PROTOCOLS: mpeg TS over UDP/RTP protocols				
	Supports IP and RF tuning: direct IPTV, RF only, and mixed RF/IP				

Tab. 7



COAX QAM Pro:IDIOM®: ATSC/ QAM-B Pro:IDIOM®				
UNITY 4.0 VERSION "-A" + UPGRADE KIT A0000845				
Broadcast System	CABLE TV: QAM-B (64/256 QAM –ITU J83 Annex B) – Channel spacing 6 MHz			
	DIGITAL TV : ATSC (free to air)			
	ANALOG TV: Not available			
	RADIO FM: Not available			
	RF INPUT: F-Type connector			
	INPUT INPEDENCE: 75 Ohm (max nondestructive input power: 10 dBm)			
	CABLE TUNER: 54 MHz to 1GHz			
Signal level	256 QAM	MIN: $-50 dBm / 59 dB\mu V / -1 dBm V $ (SNR>33)		
		MAX: 0 dBm / 109 dBμV / 49 dBmV (SNR>33)		
	ATSC	MIN: -60 dBm / 49 dBμV / -11 dBmV (SNR> 23)		
		MAX:: 0 dBm / 109 dBμV / 49 dBmV (SNR> 23)		
Codecs	MPEG-2 MP@HL. MPEG -4 pt10 AVC/H.264 HP@L4-VC1. HEVC/H265 MAIN, MAIN 10 PROFILE			
Video Resolutions	Decodes up to 720p and 1080p			
Encrypted TV	Embedded Zenith Pro:IDIOM® DECRYPTION			
	Closed Captioning			
Audio	MPEG 1, 2, MP3, DD/DD+, AAC, AC3			

Tab. 8

IPTV Pro:IDIOM®					
UNITY 4.0 VERSION "-A" + UPGRADE KIT A0001109 (not available yet)					
Codecs	MPEG-2 MP@HL. MPEG -4 pt10 AVC/H.264 HP@L4-VC1. HEVC/H265 MAIN, MAIN 10 PROFILE				
Video Resolutions	Decodes up to 720p and 1080p				
Audio	MPEG 1, 2, MP3, DD/DD+, AAC, AC3				
Input	Ethernet 10/100 BaseT via RJ-45 shielded connector				
Protocols	mpeg TS over UDP/RTP protocols				
Encrypted TV	Embedded Zenith Pro:IDIOM® DECRYPTION				

Tab. 9



7. ACKNOWLEDGEMENT AND ACCEPTANCE

Date:		
Ackno	wledged and accepted _	

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