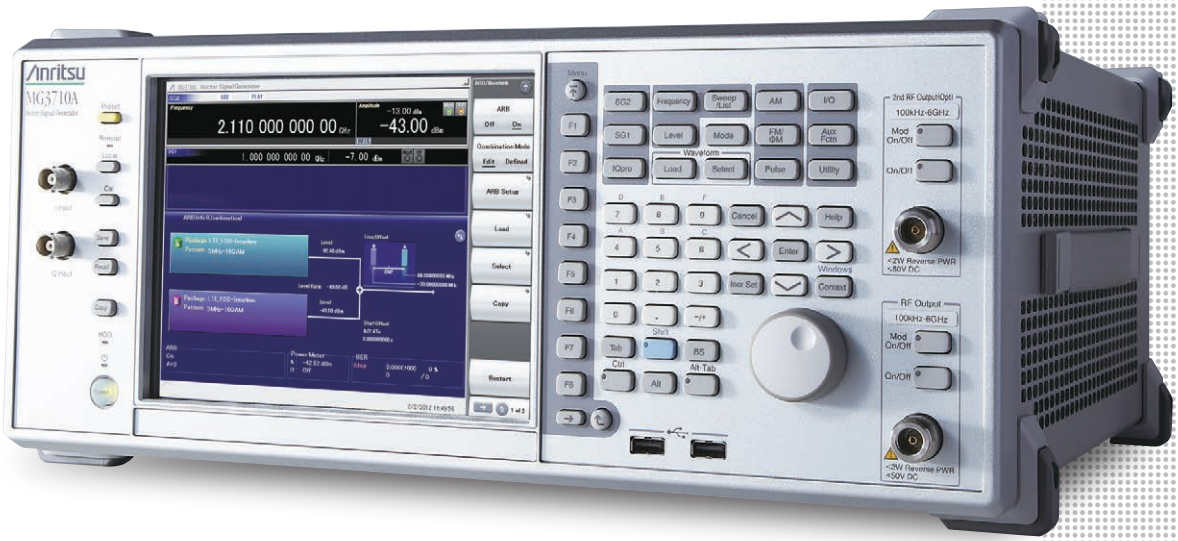
Configuration Guide

Anritsu envision:ensure

Vector Signal Generator

MG3710E/MG3710A

100 kHz to 2.7 GHz
100 kHz to 4.0 GHz
100 kHz to 6.0 GHz



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MG3710E/MG3710A*1
Vector Signal Generator

Reference Oscillator

Pre-installed
Aging Rate: ±1 × 10^{-7}/day

MG3710E-002/102
MG3710A-102
High Stability Reference Oscillator
Aging Rate: ±1 × 10^{-8}/day

MG3710E-001/101
MG3710A-101
Rubidium Reference Oscillator
Aging Rate: ±1 × 10^{-10}/month

Frequency Range for 1stRF

* Require one of following

MG3710E-032
1stRF 100 kHz to 2.7 GHz

MG3710E-034
1stRF 100 kHz to 4 GHz

MG3710E-036
1stRF 100 kHz to 6 GHz

MG3710E-041/141
MG3710A-141
High Power Extension for 1stRF

MG3710E-042/142
MG3710A-142
Low Power Extension for 1stRF

MG3710E-043/143
MG3710A-143
Reverse Power Protection for 1stRF

Frequency Range for 2ndRF

* Select one of following

MG3710E-062/162*2
2ndRF 100 kHz to 2.7 GHz

MG3710E-064/164*2
2ndRF 100 kHz to 4 GHz

MG3710E-066/166*2
2ndRF 100 kHz to 6 GHz

MG3710E-071/171
MG3710A-171
High Power Extension for 2ndRF

MG3710E-072/172
MG3710A-172
Low Power Extension for 2ndRF

MG3710E-073/173
MG3710A-173
Reverse Power Protection for 2ndRF

MG3710E parts marked ☐ must be ordered.

Options with -0xx appended are standard options at shipment.
Options with -1xx can be retrofitted after shipment but no other option numbers can be retrofitted.

*1: Manufacturing of MG3710A Main Frame was stopped in May 2019.
*2: There are no retrofit options for the MG3710A.

MG3710E-017/117
MG3710A-117
Universal Input/Output (with J1539A)

MG3710E-021/121
MG3710A-121
BER Test Function (with J1539A)

J1539A
AUX Conversion Adaptor

MG3710E-011/111
MG3710A-111
2ndary HDD

ARB Memory Upgrade

* Select one of following

Pre-installed for 1stRF
64 Msamples

MG3710E-045/145
MG3710A-145
ARB Memory Upgrade 256 Msample for 1stRF

MG3710E-046/146
MG3710A-146
ARB Memory Upgrade 1024 Msample for 1stRF

MG3710E-048/148
MG3710A-148
Combination of Baseband Signal for 1stRF

MG3710E-049/149
MG3710A-149
AWGN for 1stRF

MG3710E-050/150
MG3710A-150
Additional Analog Modulation Input for 1stRF

MG3710E-018/118
MG3710A-118
Analog IQ Input/Output

ARB Memory Upgrade

* Select one of following

Pre-installed for 2ndRF
64 Msamples

MG3710E-075/175
MG3710A-175
ARB Memory Upgrade 256 Msample for 2ndRF

MG3710E-076/176
MG3710A-176
ARB Memory Upgrade 1024 Msample for 2ndRF

MG3710E-078/178
MG3710A-178
Combination of Baseband Signal for 2ndRF

MG3710E-079/179
MG3710A-179
AWGN for 2ndRF

MG3710E-080/180
MG3710A-180
Additional Analog Modulation Input for 2ndRF

Vector Signal Generator MG3710E

This document explains how to order the new MG3710E and MG3710E/MG3710A retrofit options and software.
Follow the steps below to select your MG3710E/MG3710A configuration.
Manufacturing of MG3710A Main Frame was stopped in May 2019.
Functions marked standard are built-in at factory shipment. Options and software can be added as necessary.
The options for each RF output are color coded as follows:

Options for both 1stRF and 2ndRF	Options only for 1stRF	Options only for 2ndRF

To add options to the MG3710E order as follows:

Example

Model	MG3710E
Option	MG3710E-032
Option	MG3710E-048

Step. 1 Choose frequency range for 1stRF. (Required option: The frequency range cannot be upgraded.)

Name	Model No.	Additional Information
1stRF 100 kHz to 2.7 GHz	MG3710E-032	1stRF output of vector signal generator. Select the model with the required frequency range. The 1stRF frequency cannot be changed retroactively after ordering.
1stRF 100 kHz to 4 GHz	MG3710E-034	
1stRF 100 kHz to 6 GHz	MG3710E-036	

Step. 2 Choose frequency range for 2ndRF. (The frequency range cannot be upgraded.)

Name	Model No.	Additional Information
2ndRF 100 kHz to 2.7 GHz	MG3710E-062	2ndRF output of vector signal generator. Select one model with the required frequency range. The 2ndRF frequency cannot be changed retroactively after ordering.
2ndRF 100 kHz to 4 GHz	MG3710E-064	
2ndRF 100 kHz to 6 GHz	MG3710E-066	

Step. 3 Choose frequency reference.

Choose one reference oscillator. The selected reference oscillator performance is enabled and other reference oscillators are disabled.

Name	Model No.	Additional Information
Standard Reference Oscillator	Standard	Aging Rate: $\pm 1 \times 10^{-6}$/year, $\pm 1 \times 10^{-7}$/day
Rubidium Reference Oscillator	MG3710E-001	Aging Rate: $\pm 1 \times 10^{-10}$/month
High Stability Reference Oscillator	MG3710E-002	Aging Rate: $\pm 1 \times 10^{-7}$/year, $\pm 1 \times 10^{-8}$/day

Step. 4 Select the signal output level setting range expansion and the reverse input power protection.

Name	Model No.	Additional Information
High Power Extension for 1stRF	MG3710E-041	Extends signal output setting range upper limit (Standard +17 dBm) Option 041/141 installed and Option 043/143 not installed, CW Level setting range: Hi limit +30 dBm Option 041/141 installed and Option 043/143 installed, CW Level setting range: Hi limit +25 dBm
Low Power Extension for 1stRF	MG3710E-042	Extends signal output setting range lower limit (Standard –110 dBm) Level setting range: Lo limit –144 dBm
Reverse Power Protection for 1stRF	MG3710E-043	Protects signal output connector against reverse input power (Standard 2 W nominal) Max. reverse input: 20 W nominal (1 MHz < frequency ≤ 2 GHz) 10 W nominal (2 GHz < frequency ≤ 6 GHz)
High Power Extension for 2ndRF	MG3710E-071	Extends signal output setting range upper limit (Standard +17 dBm) Option 071/171 installed and Option 073/173 not installed, CW Level setting range: Hi limit +30 dBm Option 071/171 installed and Option 073/173 installed, CW Level setting range: Hi limit +25 dBm
Low Power Extension for 2ndRF	MG3710E-072	Extends signal output setting lower limit (Standard –110 dBm) Level setting range: Lo limit –144 dBm
Reverse Power Protection for 2ndRF	MG3710E-073	Protects signal output connector against reverse input power (Standard 2 W nominal) Max. reverse input: 20 W nominal (1 MHz < frequency ≤ 2 GHz) 10 W nominal (2 GHz < frequency ≤ 6 GHz)

Setting Range of the Signal output level

Options	Setting Range [dBm]	
	Without RPP*	With RPP*
Standard	–110 to +17	–110 to +17
With High Power Extension	–110 to +30	–110 to +25
With Low Power Extension	–144 to +17	–144 to +17
With High & Low Power Extension	–144 to +30	–144 to +25

* RPP: Reverse Power Protection

Accuracy guaranteed upper limit level of the signal output level

Without Reverse Power Protection

Frequency Range	Without High Power Extension	With High Power Extension
100 kHz ≤ f < 10 MHz	+5 dBm	+5 dBm
10 MHz ≤ f < 50 MHz	+10 dBm	+10 dBm
50 MHz ≤ f < 400 MHz	+13 dBm	+20 dBm
400 MHz ≤ f ≤ 3 GHz		+23 dBm
3 GHz < f ≤ 4 GHz		+20 dBm
4 GHz < f ≤ 5 GHz		+13 dBm
5 GHz < f ≤ 6 GHz	+11 dBm	+11 dBm

With Reverse Power Protection

Frequency Range	Without High Power Extension	With High Power Extension
100 kHz ≤ f < 10 MHz	+2 dBm	+2 dBm
10 MHz ≤ f < 50 MHz	+7 dBm	+7 dBm
50 MHz ≤ f < 400 MHz	+10 dBm	+17 dBm
400 MHz ≤ f ≤ 3 GHz		+20 dBm
3 GHz < f ≤ 4 GHz		+17 dBm
4 GHz < f ≤ 5 GHz		+10 dBm
5 GHz < f ≤ 6 GHz	+8 dBm	+8 dBm

Step. 5 Select the baseband vector signal generator ARB memory size option.

The selected memory is enabled and others are disabled.

Name	Model No.	Additional Information
ARB Memory 64 Msample for 1stRF	Standard	Standard baseband generator for 160 MHz sampling rate and 64 Msamples ARB memory size (256 MB)
ARB Memory Upgrade 256 Msample for 1stRF	MG3710E-045	Upgrades ARB size to 256 Msamples (1 GB) With Option 048/148 not installed, installs 1 × 256 Msamples With Option 048/148 installed, installs 2 × 256 Msamples
ARB Memory Upgrade 1024 Msample for 1stRF	MG3710E-046	Upgrades ARB size to 1024 Msamples (4 GB) With Option 048/148 not installed, installs 1 × 1024 Msamples With Option 048/148 installed, installs 2 × 1024 Msamples
ARB Memory 64 Msample for 2ndRF	Standard	Standard baseband generator for 160 MHz sampling rate and 64 Msamples waveform memory size (256 MB)
ARB Memory Upgrade 256 Msample for 2ndRF	MG3710E-075	Upgrades ARB size to 256 Msamples (1 GB) With Option 078/178 not installed, installs 1 × 256 Msamples With Option 078/178 installed, installs 2 × 256 Msamples
ARB Memory Upgrade 1024 Msample for 2ndRF	MG3710E-076	Upgrades ARB size to 1024 Msamples (4 GB) With Option 078/178 not installed, installs 1 × 1024 Msamples With Option 078/178 installed, installs 2 × 1024 Msamples

Note: Since each waveform pattern size is different, if the memory is not upgraded, sometimes the waveform pattern cannot be used.
For details, refer to the MX3700xxA Waveform Pattern brochure and the MX3701xxA IQproducer brochure.

Step. 6 Select the baseband signal combine and AWGN function options.

Name	Model No.	Additional Information
Combination of Baseband Signal for 1stRF	MG3710E-048	Two internal ARB memories. Selects two waveform patterns per one RF output for setting mutual frequency offset, level offset, delay time, etc., to output 2 signals from 1 RF connector
AWGN for 1stRF	MG3710E-049	Internal AWGN addition function. Adjusts AWGN bandwidth range setting as follows for selected waveform pattern: Band limit: waveform pattern sampling rate × 0.2 to waveform pattern sampling rate × 0.8 CN: ≤40 dB
Combination of Baseband Signal for 2ndRF	MG3710E-078	Two internal ARB memories. Selects two waveform patterns per one RF output for setting mutual frequency offset, level offset, delay time, etc., to output 2 signals from 1 RF connector
AWGN for 2ndRF	MG3710E-079	Internal AWGN addition function. Adjusts AWGN bandwidth range setting as follows for selected waveform pattern: Band limit: waveform pattern sampling rate × 0.2 to waveform pattern sampling rate × 0.8 CN: ≤40 dB

Step. 7 Choose the analog input/output options.

Name	Model No.	Additional Information
Analog IQ Input/Output	MG3710E-018	Installs analog I/Q input and output connectors on rear panel of main frame but only supports SG1 side (1stRF side)

Step. 8 Choose the external input/output options.

Name	Model No.	Additional Information
Universal Input/Output	MG3710E-017	Installs following signal I/O connectors on rear panel of main frame Baseband Reference Clock Input/Output Sweep Output (only supports 1stRF) Local Signal Input/Output *: Also provides AUX Conversion Adapter J1539A for Option 017/117 to use rear panel AUX connector
AUX Conversion Adapter	J1539A	Adapter for converting rear panel AUX connector to BNC connector
Additional Analog Modulation Input for 1stRF	MG3710E-050	Adds additional analog modulation inputs function for 1stRF. Extends to two internal modulation sources (AM/FM/ΦM), and one external modulation source supporting simultaneous two-signal modulation. Installs external signal input connector on rear panel of main unit.
Additional Analog Modulation Input for 2ndRF	MG3710E-080	Adds additional analog modulation inputs function for 2ndRF. Extends to two internal modulation sources (AM/FM/ΦM), and one external modulation source supporting simultaneous two-signal modulation. Installs external signal input connector on rear panel of main unit.

Step. 9 Choose the BER test function.

Name	Model No.	Additional Information
BER Test Function	MG3710E-021	Installs BER measurement function Input signals: Data, Clock, Enable Bit rate: 100 bps to 40 Mbps *: Also provides AUX Conversion Adapter J1539A for Option 021/121 to use rear panel AUX connector

Step. 10 Choose HDD option.

Name	Model No.	Additional Information
2ndary HDD	MG3710E-011	User installable/removable HDD

Step. 11 Choose warranty options.

Name	Model No.	Additional Information
1 Year Warranty Service	Standard	Excludes consumables
2 Years Extended Warranty Service	MG3710E-ES210	
3 Years Extended Warranty Service	MG3710E-ES310	
5 Years Extended Warranty Service	MG3710E-ES510	

Step. 12 Choose waveform pattern software.

The waveform pattern software function sets the selected waveform using previously set parameters. The waveform patterns are installed in the MG3710E and the signal is output by selecting them.
When outputting a waveform pattern from the MG3710E, no signal is output unless a license for that system is installed in the main frame.

Note: Since the size of each waveform pattern is different, sometimes waveforms cannot be output if the memory upgrade option has not been installed.
For details refer to the MX3700xxA Waveform Pattern brochure.

Name	Model No.	Additional Information
Standard Waveform Patterns*	Standard*	LTE FDD (E-TM1.1 to E-TM3.3), LTE TDD (E-TM1.1 to E-TM3.3), W-CDMA/HSDPA, GSM/EDGE, CDMA2000 1X/1xEV-DO, Bluetooth®, GPS, PDC, PHS, Broadcast (ISDB-T/BS/CS/CATV), WLAN (IEEE802.11a/11b/11g)
DFS Radar Pattern	MX370073B	Sets pulse signals for testing 5-GHz band WLAN DFS functions. The MX370073B supports the waveform patterns for the FCC and Japan MIC test specifications. Pulse signals are output simply by selecting the pattern.
DFS (ETSI) Waveform Pattern	MX370075A	Sets pulse signals for testing 5-GHz band WLAN DFS functions. The MX370075A supports the waveform patterns for the ETSI specifications. Pulse signals are output simply by selecting the pattern.
ISDB-Tmm Waveform Pattern	MX370084A	Archive of ARIB STD-B46 waveform patterns. Supports MER and spectrum evaluation of Tx characteristics tests and sensitivity/simple BER tests at Rx characteristics tests.

*: The following option is installed as standard when ordering the MG3710E. It does not require a separate order.
Model No.: MX371099A
Name: MG3710A Standard Waveform Pattern

Step. 13 Choose IQproducer software license.

IQproducer is PC application software for generating waveform patterns. The parameters are set using IQproducer and the waveform pattern is created to output the signal by selection at the MG3710E. This one software application includes all the following systems.
Since it runs on any PC, the supported functions and parameter range can be verified before purchase.
When outputting a waveform pattern from the MG3710E, no signal is output unless a license for that system is installed in the main frame.

Note: Since the size of each waveform pattern is different, sometimes waveforms cannot be output if the memory upgrade option has not been installed.
For details refer to the MX3701xxA IQproducer brochure.

Name	Model No.	Additional Information
HSDPA/HSUPA IQproducer	MX370101A	Sets parameters according to 3GPP HSDPA/HSUPA (Uplink and Downlink) specifications, and generates HSDPA/HSUPA waveform patterns including Fixed Reference Channel (3GPP TS 25.101 Annex A.7).
TDMA IQproducer	MX370102A	Sets required parameters for TDMA waveform patterns and generates various waveform patterns. Setting parameters include Modulation, Frame, Slot, Data, Filter, etc. Supports wide application range including public wireless.
CDMA2000 1xEV-DO IQproducer	MX370103A	Sets parameters according to CDMA2000 1xEV-DO Forward/Reverse specifications and generates 1xEV-DO waveform patterns.
Multi-carrier IQproducer	MX370104A	Generates multi-carrier waveform patterns combination files using MG3710E Baseband Signal Combine function (requires Option 048/078).
DVB-T/H IQproducer	MX370106A	Sets parameters according to ETSI EN 300 744 V1.5.1 (2004-11) physical layer standard and generates DVB-T/H waveform patterns. Generated waveform patterns can be used for device TRx characteristics evaluation tests (Error Correction BER, graphics).
Fading IQproducer	MX370107A	Performs IQ channel fading processing, correlation matrix calculation, AWGN combination. Input data file created by selecting waveform pattern file created with other IQproducer software, and IQ data (ASCII) created with other general-purpose simulation tools.
LTE IQproducer	MX370108A	Generates wanted waveform patterns with parameters modified according to 3GPP TS 36.211, TS 36.212, TS 36.213 LTE FDD specifications.
LTE-Advanced FDD Option	MX370108A-001	Installing in the MX370108A supports simple generation of carrier aggregation signals added by 3GPP Rel. 10. Additionally, clustered SC-FDMA signals can be generated at Uplink. *: Requires MX370108A
LTE TDD IQproducer	MX370110A	Generates wanted waveform patterns with parameters modified according to 3GPP TS 36.211, TS 36.212, TS 36.213 LTE TDD specifications.
LTE-Advanced TDD Option	MX370110A-001	Installing in the MX370110A supports simple generation of carrier aggregation signals added by 3GPP Rel. 10. Additionally, clustered SC-FDMA signals can be generated at Uplink. *: Requires MX370110A
WLAN IQproducer	MX370111A	Generates waveform patterns for IEEE Std 802.11-2007 and IEEE Std 802.11n-2009 IEEE 802.11a/b/g/j/n/p specifications.
802.11ac (160 MHz) Option	MX370111A-002	Installing in the MX370111A supports waveform patterns generation compliant with LTE-Advanced FDD specifications. *: Requires MX370111A.
TD-SCDMA IQproducer	MX370112A	Generates wanted waveform patterns with parameters modified according to TD-SCDMA specifications standardized by TRx characteristics evaluation tests (excluding performance tests) for 3GPP TS 25.221, TS 25.222, TS 25.223, TS 25.105, TS 25.142
5G NR TDD sub-6 GHz IQproducer	MX370113A	Generates 3GPP TS 38.211, TS 38.212 and TS 38.213-compliant 5G NR sub-6 GHz Test Model TDD waveform patterns used by the Tx test for 5G NR base stations (BS) as well as Fixed Reference Channel (FRC) waveform patterns used by the Rx test.
5G NR FDD sub-6 GHz IQproducer	MX370114A	Generates 3GPP TS 38.211, TS 38.212 and TS 38.213-compliant 5G NR sub-6 GHz Test Model FDD waveform patterns used by the Tx test for 5G NR base stations (BS) as well as Fixed Reference Channel (FRC) waveform patterns used by the Rx test.

Retrofit to Current MG3710E/MG3710A

Hardware Option Retrofits
The following hardware options can be retrofitted. Order the Z1572A Installation Kit as well.
The MG3710E/MG3710A must be returned to the Anritsu plant for hardware retrofitting.

Name	Model No.	Additional Information	Reference Steps
Options for both 1stRF and 2ndRF			
Rubidium Reference Oscillator	MG3710E-101/MG3710A-101		3
High Stability Reference Oscillator	MG3710E-102/MG3710A-102		3
2ndary HDD	MG3710E-111/MG3710A-111		10
Universal Input/Output	MG3710E-117/MG3710A-117		8
BER Test Function	MG3710E-121/MG3710A-121		9
CPU/Windows10 Upgrade Retrofit	MG3710E-182/MG3710A-182	Due to OS license restrictions, this option cannot be installed in MG3710A units with MG3710A-313 Removable HDD (sales discontinued) installed.	—
1stRF Options			
Analog IQ Input/Output	MG3710E-118/MG3710A-118		7
High Power Extension for 1stRF	MG3710E-141/MG3710A-141		4
Low Power Extension for 1stRF	MG3710E-142/MG3710A-142		4
Reverse Power Protection for 1stRF	MG3710E-143/MG3710A-143		4
ARB Memory Upgrade 256 Msample for 1stRF	MG3710E-145/MG3710A-145	Not simultaneously with Option 046/146	5
ARB Memory Upgrade 1024 Msample for 1stRF	MG3710E-146/MG3710A-146	Not simultaneously with Option 045/145	5
Combination of Baseband Signal for 1stRF	MG3710E-148/MG3710A-148		6
AWGN for 1stRF	MG3710E-149/MG3710A-149		6
Additional Analog Modulation Input for 1stRF	MG3710E-150/MG3710A-150		8
2ndRF Options			
2ndRF 100 kHz to 2.7 GHz	MG3710E-162	Cannot be installed if 2ndRF option not installed There are no retrofit options for the MG3710A.	2
2ndRF 100 kHz to 4 GHz	MG3710E-164	Cannot be installed if 2ndRF option not installed There are no retrofit options for the MG3710A.	2
2ndRF 100 kHz to 6 GHz	MG3710E-166	Cannot be installed if 2ndRF option not installed There are no retrofit options for the MG3710A.	2
High Power Extension for 2ndRF	MG3710E-171/MG3710A-171		4
Low Power Extension for 2ndRF	MG3710E-172/MG3710A-172		4
Reverse Power Protection for 2ndRF	MG3710E-173/MG3710A-173		4
ARB Memory Upgrade 256 Msample for 2ndRF	MG3710E-175/MG3710A-175	Not simultaneously with Option 076/176	5
ARB Memory Upgrade 1024 Msample for 2ndRF	MG3710E-176/MG3710A-176	Not simultaneously with Option 075/175	5
Combination of Baseband Signal for 2ndRF	MG3710E-178/MG3710A-178		6
AWGN for 2ndRF	MG3710E-179/MG3710A-179		6
Additional Analog Modulation Input for 2ndRF	MG3710E-080/MG3710A-080		8
Application parts			
Installation Kit	Z1572A	Required when retrofitting hardware options or installing IQproducer (MX3701xxA)	—

Software Option Retrofits
The following software options can be retrofitted. Order the Z1572A Installation Kit as well.
The MG3710E/MG3710A does not require return to the Anritsu plant for software retrofitting.

Name	Model No.	Additional Information	Reference Steps
Waveform Patterns			
DFS Radar Pattern	MX370073B		12
DFS (ETSI) Waveform Pattern	MX370075A		12
ISDB-Tmm Waveform Pattern	MX370084A		12
IQproducer			
HSDPA/HSUPA IQproducer	MX370101A		13
TDMA IQproducer	MX370102A		13
CDMA2000 1xEV-DO IQproducer	MX370103A		13
Multi-carrier IQproducer	MX370104A		13
DVB-T/H IQproducer	MX370106A		13
Fading IQproducer	MX370107A		13
LTE IQproducer	MX370108A		13
LTE-Advanced FDD Option	MX370108A-001	*: Requires MX370108A	13
LTE TDD IQproducer	MX370110A		13
LTE-Advanced TDD Option	MX370110A-001	*: Requires MX370110A	13
WLAN IQproducer	MX370111A		13
802.11ac (160 MHz) Option	MX370111A-002	*: Requires MX370111A.	13
TD-SCDMA IQproducer	MX370112A		13
5G NR TDD sub-6 GHz IQproducer	MX370113A		13
5G NR FDD sub-6 GHz IQproducer	MX370114A		13
Application parts			
Installation Kit	Z1572A	Required when retrofitting hardware options or installing IQproducer (MX3701xxA)	—

Options Configuration Guide

The following table shows the recommended option combinations. Options that are no longer in production for the MG3710A are also listed.

Type	Model No.	Retrofit	Name	032	034	036	018	041	042	043	045	046	048
1stRF	MG3710E-032/MG3710A-032		1stRF 100 kHz to 2.7 GHz		*1	*1							
1stRF	MG3710E-034/MG3710A-034		1stRF 100 kHz to 4 GHz	*1		*1							
1stRF	MG3710E-036/MG3710A-036		1stRF 100 kHz to 6 GHz	*1	*1								
1stRF	MG3710E-018/MG3710A-018	118	Analog IQ Input/Output										
1stRF	MG3710E-041/MG3710A-041	141	High Power Extension for 1stRF										
1stRF	MG3710E-042/MG3710A-042	142	Low Power Extension for 1stRF										
1stRF	MG3710E-043/MG3710A-043	143	Reverse Power Protection for 1stRF										
1stRF	MG3710E-045/MG3710A-045	145	ARB Memory Upgrade 256 Msample for 1stRF									*3	
1stRF	MG3710E-046/MG3710A-046	146	ARB Memory Upgrade 1024 Msample for 1stRF								*3		
1stRF	MG3710E-048/MG3710A-048	148	Combination of Baseband Signal for 1stRF										
1stRF	MG3710E-049/MG3710A-049	149	AWGN for 1stRF										
1stRF	MG3710E-050/MG3710A-050	150	Additional Analog Modulation Input for 1stRF										
2ndRF	MG3710E-062/MG3710A-062	162	2ndRF 100 kHz to 2.7 GHz										
2ndRF	MG3710E-064/MG3710A-064	164	2ndRF 100 kHz to 4 GHz										
2ndRF	MG3710E-066/MG3710A-066	166	2ndRF 100 kHz to 6 GHz										
2ndRF	MG3710E-071/MG3710A-071	171	High Power Extension for 2ndRF										
2ndRF	MG3710E-072/MG3710A-072	172	Low Power Extension for 2ndRF										
2ndRF	MG3710E-073/MG3710A-073	173	Reverse Power Protection for 2ndRF										
2ndRF	MG3710E-075/MG3710A-075	175	ARB Memory Upgrade 256 Msample for 2ndRF										
2ndRF	MG3710E-076/MG3710A-076	176	ARB Memory Upgrade 1024 Msample for 2ndRF										
2ndRF	MG3710E-078/MG3710A-078	178	Combination of Baseband Signal for 2ndRF										
2ndRF	MG3710E-079/MG3710A-079	179	AWGN for 2ndRF										
2ndRF	MG3710E-080/MG3710A-080	180	Additional Analog Modulation Input for 2ndRF										
Common	MG3710E-001	101	Rubidium Reference Oscillator										
Common	MG3710E-002	102	High Stability Reference Oscillator										
Common	MG3710E-011	111	2ndary HDD										
Common	MG3710E-017	117	Universal Input/Output										
Common	MG3710E-021	121	BER Test Function										
Common	MG3710E-182/MG3710A-182	182	CPU/Windows10 Upgrade Retrofit*4										

*1: Only one of 2.7 GHz, 4 GHz, and 6 GHz options. Install any one 1stRF option. Retrofitting one of these options disables previously installed option.
*2: Only one of 2.7 GHz, 4 GHz, and 6 GHz options. Retrofitting one of these options disables previously installed option. Install any one 2ndRF option.
Can be retrofitted only when 2ndRF not installed.
*3: Select any one. Selected memory size enabled and all others disabled.
*4: Replace the MG3710A/ MG3710E CPU board with either Windows Embedded Standard 2009 (Windows XP), Windows 7 professional (Option 029) or Windows Embedded Standard 7 (Windows 7) and upgrade the operating system to Windows 10 IoT Enterprise LTSC2019.
Cannot be installed in MG3710A units with MG3710A-313 Removable HDD (sales discontinued) installed.
WES2009 (Windows XP) or Windows 7 Professional (Option 029) is installed in MG3710A units ordered until May 2018.
WES7 (Windows 7) is installed in MG3710A/MG3710E units ordered from June 2018. MG3710A has a label indicating C1 attached near the serial number.
Windows 10 is installed in MG3710E units ordered from September 2020 and has a label indicating C2 attached near the serial number.

Maximum Waveform Pattern Size and Required Options for Simultaneous Use

1stRF (Option 032/034/036)

Combination of Baseband Signal (Option 048)	ARB Memory Upgrade 256 Msample (Option 045) ARB Memory Upgrade 1024 Msample (Option 046)		
	W/O	With Option 045	With Option 046
W/O	64 Msamples × 1 pc	256 Msamples × 1 pc	1024 Msamples × 1 pc*1
With Option 048*2	64 Msamples × 2 pcs 128 Msamples × 1 pc	256 Msamples × 2 pcs 512 Msamples × 1 pc	1024 Msamples × 2 pcs*1

2ndRF (Option 062/064/066)

Combination of Baseband Signal (Option 078)	ARB Memory Upgrade 256 Msample (Option 075) ARB Memory Upgrade 1024 Msample (Option 076)		
	W/O	With Option 075	With Option 076
W/O	64 Msamples × 1 pc	256 Msamples × 1 pc	1024 Msamples × 1 pc*1
With Option 078*2	64 Msamples × 2 pcs 128 Msamples × 1 pc	256 Msamples × 2 pcs 512 Msamples × 1 pc	1024 Msamples × 2 pcs*1

*1: The maximum size per waveform pattern supported by the MG3710E/MG3710A varies with the IQproducer version.
For details refer to the MG3710E/MG3710A brochure.
*2: The Baseband Signal Combine option supports two ARB memories and can either set two different waveform patterns or combine them as one memory to support one large waveform pattern.

049	050	062	064	066	071	072	073	075	076	078	079	080	001	002	011	017	021	182
			*2	*2														
		*2		*2														
		*2	*2															
									*3									
								*3										

Ordering Information

Please specify the model/order number, name and quantity when ordering.
The names listed in the chart below are Order Names. The actual name of the item may differ from the Order Name.

MG3710E Main Frame and Hardware Options

Model/Order No.	Name	Remarks
	Main Frame	
MG3710E	Vector Signal Generator	
	Standard Accessories	
	Power Cord: 1 pc	
P0031A	USB Memory	USB2.0 Flash Driver, ≥256 MB
	Install CD-ROM	Operation manual (PDF) and application software (IQproducer)
	Options	
	(Common Parts)	
MG3710E-001	Rubidium Reference Oscillator	Select when ordering main frame, aging rate: ±1 × 10^{-10}/month
MG3710E-002	High Stability Reference Oscillator	Select when ordering main frame, aging rate: ±1 × 10^{-7}/year
MG3710E-011	2ndary HDD	Select when ordering main frame, spare HDD for saving user data without Windows OS
MG3710E-017	Universal Input/Output	Select when ordering main frame, Adds BNC connectors for following signals to rear panel of main frame, includes J1539A AUX Conversion Adapter (Baseband Reference Clock Input/Output, Sweep Output, Local Signal Input/Output)
MG3710E-021	BER Test Function	Select when ordering main frame, Built-in BER measurement, Bit Rate: 100 bps to 40 Mbps AUX Conversion Adapter J1539A required for Data/Clock/Enable signal input
MG3710E-101	Rubidium Reference Oscillator Retrofit	Retrofitted to shipped MG3710E
MG3710E-102	High Stability Reference Oscillator Retrofit	Retrofitted to shipped MG3710E
MG3710E-111	2ndary HDD Retrofit	Retrofitted to shipped MG3710E
MG3710E-117	Universal Input/Output Retrofit	Retrofitted to shipped MG3710E
MG3710E-121	BER Test Function Retrofit	Retrofitted to shipped MG3710E
MG3710E-182	CPU/Windows10 Upgrade Retrofit	Retrofitted to shipped MG3710E
	(For 1stRF)	
MG3710E-032	1stRF 100 kHz to 2.7 GHz	Select when ordering main frame, select 1stRF frequency range, frequency cannot be changed after installation
MG3710E-034	1stRF 100 kHz to 4 GHz	Select when ordering main frame, select 1stRF frequency range, frequency cannot be changed after installation
MG3710E-036	1stRF 100 kHz to 6 GHz	Select when ordering main frame, select 1stRF frequency range, frequency cannot be changed after installation
MG3710E-041	High Power Extension for 1stRF	Select when ordering main frame, increases upper limit of output signal power setting range
MG3710E-042	Low Power Extension for 1stRF	Select when ordering main frame, increases lower limit of output signal power setting range
MG3710E-043	Reverse Power Protection for 1stRF	Select when ordering main frame, prevents damage caused by reverse input to output connector
MG3710E-045	ARB Memory Upgrade 256 Msample for 1stRF	Select when ordering main frame, expands ARB memory capacity
MG3710E-046	ARB Memory Upgrade 1024 Msample for 1stRF	Select when ordering main frame, expands ARB memory capacity
MG3710E-048	Combination of Baseband Signal for 1stRF	Select when ordering main frame, adds baseband combine function
MG3710E-049	AWGN for 1stRF	Select when ordering main frame, adds AWGN combine function
MG3710E-050	Additional Analog Modulation Input for 1stRF	Select when ordering main frame, Adds BNC connector for inputting external signals to rear panel of mainframe.
MG3710E-018	Analog IQ Input/Output	Select when ordering main frame, installs IQ input/output BNC connector in main frame
MG3710E-141	High Power Extension for 1stRF Retrofit	Retrofitted to shipped MG3710E
MG3710E-142	Low Power Extension for 1stRF Retrofit	Retrofitted to shipped MG3710E
MG3710E-143	Reverse Power Protection for 1stRF Retrofit	Retrofitted to shipped MG3710E
MG3710E-145	ARB Memory Upgrade 256 Msample for 1stRF Retrofit	Retrofitted to shipped MG3710E
MG3710E-146	ARB Memory Upgrade 1024 Msample for 1stRF Retrofit	Retrofitted to shipped MG3710E
MG3710E-148	Combination of Baseband Signal for 1stRF Retrofit	Retrofitted to shipped MG3710E
MG3710E-149	AWGN for 1stRF Retrofit	Retrofitted to shipped MG3710E
MG3710E-150	Additional Analog Modulation Input for 1stRF Retrofit	Retrofitted to shipped MG3710E
MG3710E-118	Analog IQ Input/Output Retrofit	Retrofitted to shipped MG3710E

Ordering Information

Model/Order No.	Name	Remarks
	(For 2ndRF)	
MG3710E-062	2ndRF 100 kHz to 2.7 GHz	Select when ordering main frame, select 2ndRF frequency range, frequency cannot be changed after installation
MG3710E-064	2ndRF 100 kHz to 4 GHz	Select when ordering main frame, select 2ndRF frequency range, frequency cannot be changed after installation
MG3710E-066	2ndRF 100 kHz to 6 GHz	Select when ordering main frame, select 2ndRF frequency range, frequency cannot be changed after installation
MG3710E-071	High Power Extension for 2ndRF	Select when ordering main frame, increases upper limit of output signal power setting range
MG3710E-072	Low Power Extension for 2ndRF	Select when ordering main frame, increases lower limit of output signal power setting range
MG3710E-073	Reverse Power Protection for 2ndRF	Select when ordering main frame, prevents damage caused by reverse input to output connector
MG3710E-075	ARB Memory Upgrade 256 Msample for 2ndRF	Select when ordering main frame, expands ARB memory capacity
MG3710E-076	ARB Memory Upgrade 1024 Msample for 2ndRF	Select when ordering main frame, expands ARB memory capacity
MG3710E-078	Combination of Baseband Signal for 2ndRF	Select when ordering main frame, adds baseband combine function
MG3710E-079	AWGN for 2ndRF	Select when ordering main frame, adds AWGN combine function
MG3710E-080	Additional Analog Modulation Input for 2ndRF	Select when ordering main frame, Adds BNC connector for inputting external signals to rear panel of mainframe.
MG3710E-162	2ndRF 100 kHz to 2.7 GHz Retrofit	Retrofitted to shipped MG3710E when 2ndRF not installed
MG3710E-164	2ndRF 100 kHz to 4 GHz Retrofit	Retrofitted to shipped MG3710E when 2ndRF not installed
MG3710E-166	2ndRF 100 kHz to 6 GHz Retrofit	Retrofitted to shipped MG3710E when 2ndRF not installed
MG3710E-171	High Power Extension for 2ndRF Retrofit	Retrofitted to shipped MG3710E
MG3710E-172	Low Power Extension for 2ndRF Retrofit	Retrofitted to shipped MG3710E
MG3710E-173	Reverse Power Protection for 2ndRF Retrofit	Retrofitted to shipped MG3710E
MG3710E-175	ARB Memory Upgrade 256 Msample for 2ndRF Retrofit	Retrofitted to shipped MG3710E
MG3710E-176	ARB Memory Upgrade 1024 Msample for 2ndRF Retrofit	Retrofitted to shipped MG3710E
MG3710E-178	Combination of Baseband Signal for 2ndRF Retrofit	Retrofitted to shipped MG3710E
MG3710E-179	AWGN for 2ndRF Retrofit	Retrofitted to shipped MG3710E
MG3710E-180	Additional Analog Modulation Input for 2ndRF Retrofit	Retrofitted to shipped MG3710E
	Maintenance service	
MG3710E-ES210	2 Years Extended Warranty Service	
MG3710E-ES310	3 Years Extended Warranty Service	
MG3710E-ES510	5 Years Extended Warranty Service	

MG3710A Hardware Options

Model/Order No.	Name	Remarks
	Common Parts	
MG3710A-101	Rubidium Reference Oscillator Retrofit	Retrofitted to shipped MG3710A
MG3710A-102	High Stability Reference Oscillator Retrofit	Retrofitted to shipped MG3710A
MG3710A-111	2ndary HDD Retrofit	Retrofitted to shipped MG3710A
MG3710A-117	Universal Input/Output Retrofit	Retrofitted to shipped MG3710A
MG3710A-121	BER Test Function Retrofit	Retrofitted to shipped MG3710A
MG3710A-182	CPU/Windows10 Upgrade Retrofit	Retrofitted to shipped MG3710A Due to OS license restrictions, this option cannot be installed in MG3710A units with MG3710A-313 Removable HDD (sales discontinued) installed.
	For 1stRF	
MG3710A-141	High Power Extension for 1stRF Retrofit	Retrofitted to shipped MG3710A
MG3710A-142	Low Power Extension for 1stRF Retrofit	Retrofitted to shipped MG3710A
MG3710A-143	Reverse Power Protection for 1stRF Retrofit	Retrofitted to shipped MG3710A
MG3710A-145	ARB Memory Upgrade 256 Msample for 1stRF Retrofit	Retrofitted to shipped MG3710A
MG3710A-146	ARB Memory Upgrade 1024 Msample for 1stRF Retrofit	Retrofitted to shipped MG3710A
MG3710A-148	Combination of Baseband Signal for 1stRF Retrofit	Retrofitted to shipped MG3710A
MG3710A-149	AWGN for 1stRF Retrofit	Retrofitted to shipped MG3710A
MG3710A-150	Additional Analog Modulation Input for 1stRF Retrofit	Retrofitted to shipped MG3710A
MG3710A-118	Analog IQ Input/Output Retrofit	Retrofitted to shipped MG3710A
	For 2ndRF	
MG3710A-171	High Power Extension for 2ndRF Retrofit	Retrofitted to shipped MG3710A
MG3710A-172	Low Power Extension for 2ndRF Retrofit	Retrofitted to shipped MG3710A
MG3710A-173	Reverse Power Protection for 2ndRF Retrofit	Retrofitted to shipped MG3710A
MG3710A-175	ARB Memory Upgrade 256 Msample for 2ndRF Retrofit	Retrofitted to shipped MG3710A
MG3710A-176	ARB Memory Upgrade 1024 Msample for 2ndRF Retrofit	Retrofitted to shipped MG3710A
MG3710A-178	Combination of Baseband Signal for 2ndRF Retrofit	Retrofitted to shipped MG3710A
MG3710A-179	AWGN for 2ndRF Retrofit	Retrofitted to shipped MG3710A
MG3710A-180	Additional Analog Modulation Input for 2ndRF Retrofit	Retrofitted to shipped MG3710A

Ordering Information

Software

Model/Order No.	Name	Remarks
	Waveform pattern	(License for waveform patterns)
MX370073B	DFS Radar Pattern	For MG3710A/MG3710E, WLAN 5.3/5.6 GHz band DFS tests (for FCC and Japan MIC) waveform pattern, license for main frame, manual (PDF)
MX370075A	DFS (ETSI) Waveform Pattern	For MG3710A/MG3710E, WLAN 5.3/5.6 GHz DFS test (ETSI) waveform pattern, license for main frame, manual (PDF)
MX370084A	ISDB-Tmm Waveform Pattern	For MG3710A/MG3710E, ISDB-Tmm Waveform Patterns, license for main frame, manual (PDF)
	IQproducer	(License for IQproducer)
MX370101A	HSDPA/HSUPA IQproducer	For MG3710A/MG3710E, IQproducer software, license for main frame, manual (PDF)
MX370102A	TDMA IQproducer	For MG3710A/MG3710E/MG3740A, IQproducer software, license for main frame, manual (PDF)
MX370103A	CDMA2000 1xEV-DO IQproducer	For MG3710A/MG3710E, IQproducer software, license for main frame, manual (PDF)
MX370104A	Multi-carrier IQproducer	For MG3710A/MG3710E, IQproducer software, license for main frame, manual (PDF)
MX370106A	DVB-T/H IQproducer	For MG3710A/MG3710E, IQproducer software, license for main frame, manual (PDF)
MX370107A	Fading IQproducer	For MG3710A/MG3710E/MG3740A, IQproducer software, license for main frame, manual (PDF)
MX370108A	LTE IQproducer	For MG3710A/MG3710E, IQproducer software, license for main frame, manual (PDF)
MX370108A-001	LTE-Advanced FDD Option	For MG3710A/MG3710E, IQproducer software, license for main frame, manual (PDF). Requires MX370108A.
MX370110A	LTE TDD IQproducer	For MG3710A/MG3710E, IQproducer software, license for main frame, manual (PDF)
MX370110A-001	LTE-Advanced TDD Option	For MG3710A/MG3710E, IQproducer software, license for main frame, manual (PDF). Requires MX370110A.
MX370111A	WLAN IQproducer	For MG3710A/MG3710E, IQproducer software, license for main frame, manual (PDF)
MX370111A-002	802.11ac (160 MHz) Option	For MG3710A/MG3710E, IQproducer software, license for main frame, manual (PDF). Requires MX370111A
MX370112A	TD-SCDMA IQproducer	For MG3710A/MG3710E, IQproducer software, license for main frame, manual (PDF)
MX370113A	5G NR TDD sub-6 GHz IQproducer	For MG3710A/MG3710E, IQproducer software, license for main frame, manual (PDF)
MX370114A	5G NR FDD sub-6 GHz IQproducer	For MG3710A/MG3710E, IQproducer software, license for main frame, manual (PDF)

Optional Accessories

Model/Order No.	Name	Remarks
W3580AE	MG3710E/MG3710A/MG3740A Operation Manual (Main Unit)	Booklet, for MG3710E/MG3710A/MG3740A Main Frame (Operation, Remote Control)
W2496AE	MG3710E/MG3710A/MG3740A Operation Manual (IQproducer)	Booklet, for IQproducer (Operation for Common Parts)
W3581AE	MG3710E/MG3710A Operation Manual (Pre-installed Waveform Patterns)	Booklet, for Pre-installed Waveform Patterns (Usage, Detailed Parameters)
W3986AE	MX370073B Operation Manual	Booklet, for DFS (for FCC and Japan MIC) Waveform Patterns
W3597AE	MX370075A Operation Manual	Booklet, for DFS (ETSI) Waveform Patterns
W3508AE	MX370084A Operation Manual	Booklet, for ISDB-Tmm Waveform Patterns
W2915AE	MX370101A Operation Manual	Booklet, for HSDPA/HSUPA IQproducer
W2916AE	MX370102A Operation Manual	Booklet, for TDMA IQproducer
W2505AE	MX370103A Operation Manual	Booklet, for CDMA2000 1xEV-DO IQproducer
W2917AE	MX370104A Operation Manual	Booklet, for Multi-carrier IQproducer
W2798AE	MX370106A Operation Manual	Booklet, for DVB-T/H IQproducer
W2995AE	MX370107A Operation Manual	Booklet, for Fading IQproducer
W3023AE	MX370108A Operation Manual	Booklet, for LTE IQproducer/LTE-Advanced FDD Option
W3221AE	MX370110A Operation Manual	Booklet, for LTE TDD IQproducer/LTE-Advanced TDD Option
W3488AE	MX370111A Operation Manual	Booklet, for WLAN IQproducer/802.11ac Option
W3582AE	MX370112A Operation Manual	Booklet, for TD-SCDMA IQproducer
W3984AE	MX370113A Operation Manual	Booklet, for 5G NR TDD sub-6 GHz IQproducer
W4033AW	MX370114A Operation Manual	Booklet, for 5G NR FDD sub-6 GHz IQproducer
J1539A	AUX Conversion Adapter	Converts MG3710E/MG3710A/MG3740A rear-panel AUX connector to BNC connector
Z1572A	Installation Kit	Required when retrofitting hardware options or installing IQproducer (MX3701xxA)
Z1594A	Standard Waveform Pattern for Backup	Latest MG3710E/MG3710A Pre-installed waveform pattern set for backup
MA24105A	Inline Peak Power Sensor	350 MHz to 4 GHz, Inline type, with USB A to micro-B Cable
MA24106A	USB Power Sensor	50 MHz to 6 GHz, with USB A to mini-B Cable
MA24108A	Microwave USB Power Sensor	10 MHz to 8 GHz, with USB A to micro-B Cable
MA24118A	Microwave USB Power Sensor	10 MHz to 18 GHz, with USB A to micro-B Cable
MA24126A	Microwave USB Power Sensor	10 MHz to 26 GHz, with USB A to micro-B Cable
K240B	Power Divider (K connector)	DC to 26.5 GHz, K-J, 50Ω, 1 Wmax

Ordering Information

Model/Order No.	Name	Remarks
MA1612A	Four-Port Junction Pad	5 MHz to 3 GHz, N-J
J0576B	Coaxial Cord, 1.0 m	N-P · 5D-2W · N-P
J0576D	Coaxial Cord, 2.0 m	N-P · 5D-2W · N-P
J0127A	Coaxial Cord, 1.0 m	BNC-P · RG-58A/U · BNC-P
J0127B	Coaxial Cord, 2.0 m	BNC-P · RG-58A/U · BNC-P
J0127C	Coaxial Cord, 0.5 m	BNC-P · RG-58A/U · BNC-P
J0322A	Coaxial Cord, 0.5 m	SMA-P · SMA-P, DC to 18 GHz, 50Ω
J0322B	Coaxial Cord, 1.0 m	SMA-P · SMA-P, DC to 18 GHz, 50Ω
J0322C	Coaxial Cord, 1.5 m	SMA-P · SMA-P, DC to 18 GHz, 50Ω
J0322D	Coaxial Cord, 2.0 m	SMA-P · SMA-P, DC to 18 GHz, 50Ω
J0004	Coaxial Adapter	N-P · SMA-J Conversion Adapter, DC to 12.4 GHz
J1261B	Ethernet Cable (Shield Type)	Straight-through, 3 m
J1261D	Ethernet Cable (Shield Type)	Crossover, 3 m
J0008	GPIB Cable, 2.0 m	
B0635A	Rack Mount Kit	EIA
B0657A	Rack Mount Kit (JIS)	JIS
B0636C	Carrying Case	Hard Type. With Casters and B0671A Front Cover
B0671A	Front Cover for 1MW4U	
Z0975A	Keyboard (USB)	
Z0541A	USB Mouse	

The following option is installed as standard when ordering the MG3710E. It does not require a separate order.
MX371099A MG3710A Standard Waveform Pattern

Typical (typ.): Performance not warranted. Must products meet typical performance.
Nominal (nom.): Values not warranted. Included to facilitate application of product.
Measured (meas): Performance not warranted. Data actually measured by randomly selected measuring instruments.