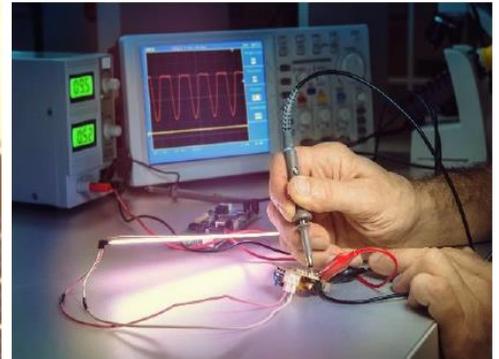
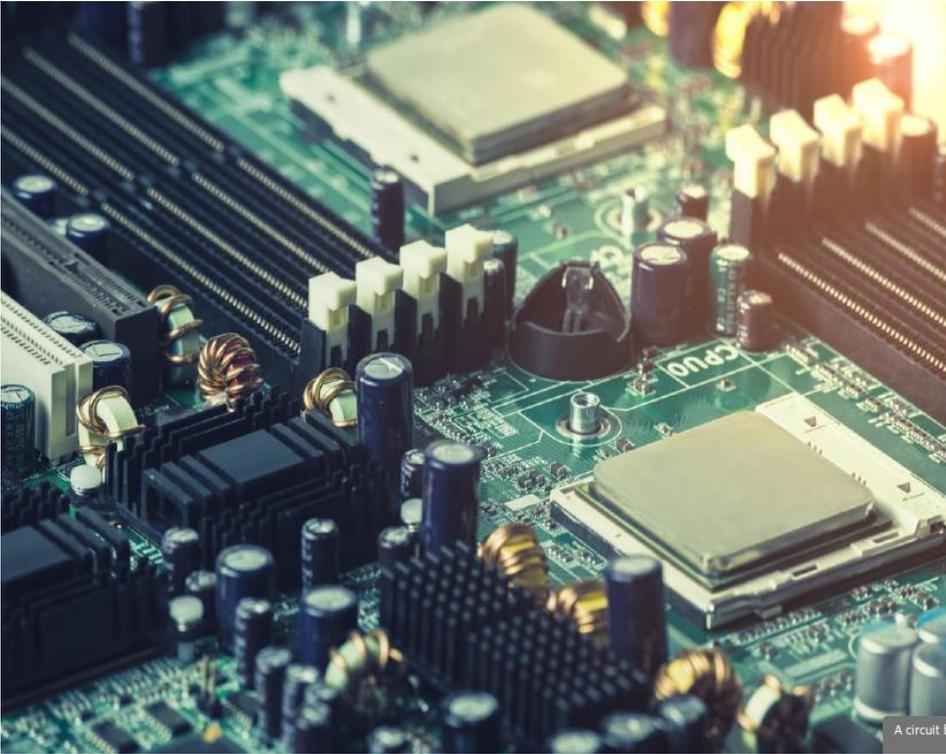


# Model 670C

## 16-Bit Arbitrary Waveform Generator



A circuit board

### Features

- 2 or 4 Analog Channels
- 600 MS/s (1.2 GS/s with x2 interpolation)
- 16-bit Vertical Resolution
- Up to 180 MHz Bandwidth
- Up to 12V<sub>p-p</sub> into 50Ω load
- Up to 512Mpts Waveform Memory per Channel
- 8 Digital Channels in synchronous with analog Generation
- Simple Rider™ UI: designed for touch AWG/AFG user interfaces



**Model 670C**  
**4 Channel Arbitrary Waveform Generator**

### Applications

- Automotive
- IoT and Ind 4.0 perfect RF Modulator
- Research
- Aerospace & Defense
- Semiconductors

# INTRODUCTION

The Model 670C is the cost-effective and powerful 2 or 4 channel Arbitrary Function Generator (AFG) and 2 or 4 channel Arbitrary Waveform Generator (AWG) with advanced sequencer functionality.

180 MHz bandwidth, up to 12Vpp output range and up to 512 Msample memory depth; the 670C is the ideal Arbitrary Waveform Generator choice for automotive, IoT, and medical applications.

The 8 channel digital option combined with 2 or 4 analog channels makes the Model 670C a full featured mixed signal generator. It's now possible to generate 2 or 4 analog signals fully synchronized with 8 digital lines (LVTTTL or LVDS standards).

# SPECIFICATIONS

## General Specifications

|  | 670C-2C                              | 670C-4C / 670C-4C-LF |
|--|--------------------------------------|----------------------|
| <b>Number of Channels</b>  |                                      |                      |
| Analog out   | 2                                    | 4                    |
| Digital out  | 0/8 – optional                       | 0/8 – optional       |
| Marker out   | 1                                    | 1                    |
| <b>Operating Mode</b>  | AFG Mode<br>True Arb Mode            |                      |
|  | 670C                                 | 670C-4C-LF           |
| <b>Amplitude</b>   |                                      |                      |
| Range (50Ω into 50Ω) <sup>1</sup>  | 0 to 6Vp-p (12Vp-p optional)         | 0 to 12Vp-p          |
| Accuracy (1kHz sine wave, 0V offset, >5mVp-p amplitude, 50Ω load) (guaranteed) | ±(1% of setting [Vp-p] + 5mV)        |                      |
| Resolution   | <0.5mVp-p or 5 digits                |                      |
| Output Impedance   | Single-ended: 50Ω, Low Impedance: 0Ω |                      |
| <b>DC</b>  |                                      |                      |
| Amplitude range (50Ω into 50Ω) <sup>1</sup>                                    | -3V to 3V (-6V to 6V optional)       | -6V to 6V            |
| Amplitude accuracy (guaranteed)  | ±(1% of  setting  + 10mV)            |                      |
| <b>Output Attenuator</b>   | 0dB or 20dB selectable               |                      |

## AFG Mode Specifications

|                               |  |
|-------------------------------|--|
| <b>Output Channels</b>        |  |
| Connectors                    | BNC on front panel   |
| Output Type                   | Single-ended   |
| Output Impedance              | 50Ω or 0Ω (low impedance) programmable   |
| <b>General Specifications</b> |  |
| Operating Mode                | DDS mode   |
| Standard Waveforms            | Sine, Square, Pulse, Ramp, more (Noise, DC, Sin(x)/x, Gaussian, Lorentz, Exponential Rise, Exponential Decay, Haversine) |
| Run Modes                     | Continuous, modulation, sweep, burst   |
| Arbitrary Waveforms           | Vertical resolution: 16-bit  |
| Internal Trigger Timer        | Waveform length: 16,384 points   |
| Range                         | 13.4ns to 100s   |
| Resolution                    | 104ps  |
| Accuracy                      | ±(0.1% setting + 5ps)  |

|   | 670C   | 670C-4C-LF  |
|---|--|---|
| <b>Sine Waves</b>   |  |   |
| Frequency Range (50Ω into 50Ω)  | 1 μHz to ≤ 150 MHz: 6 V <sub>p-p</sub><br>>150 MHz to ≤ 180 MHz: 5 V <sub>p-p</sub><br><b>HV option:</b><br>1 μHz to ≤ 50 MHz: 12 V <sub>p-p</sub><br>>50 MHz to ≤ 60 MHz: 10 V <sub>p-p</sub><br>>60 MHz to ≤ 100 MHz: 8 V <sub>p-p</sub><br>>100 MHz to ≤ 150 MHz: 6 V <sub>p-p</sub><br>>150 MHz to ≤ 180 MHz: 5 V <sub>p-p</sub> | 1 μHz to ≤ 50 MHz: 12 V <sub>p-p</sub><br>>50 MHz to ≤ 60 MHz: 10 V <sub>p-p</sub><br>>60 MHz to ≤ 100 MHz: 8 V <sub>p-p</sub>  |
| Max Frequency Value   | 180 MHz  | 100 MHz   |
| Flatness (1V <sub>p-p</sub> , relative to 1 kHz)  | DC to 180 MHz: ±0.5dB  | DC to 100 MHz: ±0.5dB   |
| Harmonic Distortion (1V <sub>p-p</sub> )  | 1 μHz to ≤ 20 kHz: <-75dBc<br>>20 kHz to ≤ 1 MHz: <-70dBc<br>>1 MHz to ≤ 10 MHz: <-65dBc<br>>10 MHz to ≤ 50 MHz: <-55dBc<br>>50 MHz to ≤ 120 MHz: <-45dBc<br>>120 MHz to ≤ 180 MHz: <-40dBc  | 1 μHz to ≤ 20 kHz: <-75dBc<br>>20 kHz to ≤ 1 MHz: <-70dBc<br>>1 MHz to ≤ 10 MHz: <-65dBc<br>>10 MHz to ≤ 50 MHz: <-55dBc<br>>50 MHz to ≤ 100 MHz: <-45dBc                                       |
| Total Harmonic Distortion (1V <sub>p-p</sub> )  | 10 Hz to 20 kHz: <0.04%  |   |
| Spurious (1V <sub>p-p</sub> )<br>(excluding f <sub>sa</sub> -f <sub>out</sub> , f <sub>sa</sub> -2*f <sub>out</sub> ) | 1 μHz to ≤ 10 MHz: <-80dBc<br>>10 MHz to ≤ 180 MHz:<br><-80dBc + 6dBc/octave   | 1 μHz to ≤ 10 MHz: <-80dBc<br>>10 MHz to ≤ 100 MHz:<br><-80dBc + 6dBc/octave  |
| Phase Noise (1V <sub>p-p</sub> , 10kHz offset)  | 10 MHz: < -127dBc/Hz typ<br>100 MHz: < -115dBc/Hz typ  |   |
| <b>Square Waves</b>   |  |   |
| Frequency range   | 1 μHz to 80 MHz: 6V <sub>p-p</sub><br><b>HV option:</b><br>1 μHz to ≤ 30 MHz: 12V <sub>p-p</sub><br>>30 MHz to ≤ 50 MHz: 11V <sub>p-p</sub><br>>50 MHz to ≤ 70 MHz: 10V <sub>p-p</sub><br>>70 MHz to ≤ 80 MHz: 9V <sub>p-p</sub>   | 1 μHz to ≤ 30 MHz: 12V <sub>p-p</sub><br>>30 MHz to ≤ 50 MHz: 11V <sub>p-p</sub>  |
| Rise/fall time  | 4ns  | 5ns   |
| Overshoot (1V <sub>p-p</sub> )  | <1%  | <1%   |
| Jitter (rms)  | <2ps   | <2ps  |
| <b>Pulse Waves</b>  |  |   |
| Frequency Range   | 1 μHz to 80 MHz: 6V <sub>p-p</sub><br><b>HV Option:</b><br>1 μHz to ≤ 3 MHz: 12V <sub>p-p</sub><br>>3 MHz to ≤ 10 MHz: 11V <sub>p-p</sub><br>>10 MHz to ≤ 70 MHz: 10V <sub>p-p</sub><br>>70 MHz to ≤ 80 MHz: 9V <sub>p-p</sub>   | 1 μHz to ≤ 3 MHz: 12V <sub>p-p</sub><br>>3 MHz to ≤ 10 MHz: 11V <sub>p-p</sub><br>>10 MHz to ≤ 50 MHz: 10V <sub>p-p</sub>   |
| Leading/trailing edge transition time   | 4ns to 1000s   | 5ns to 1000s  |
| Pulse width   | 5ns to (Period – 5ns)  | 7ns to (Period – 7ns)   |
| Pulse width resolution  | 20ps or 15 digits  |   |
| Transition time resolution  | 2ps or 15 digits   |   |
| Pulse duty  | 0% to 100% 14 digits (limitations of pulse width apply)  |   |
| Overshoot (1V <sub>p-p</sub> )  | <1%  |   |
| Jitter (rms, with rise and fall time ≥4ns)  | <2ps   |   |
| <b>Double Pulse Waves</b>   |  |   |
| Frequency Range   | 1 μHz to ≤ 3 MHz: 12V <sub>p-p</sub><br>>3 MHz to ≤ 50 MHz: 6V <sub>p-p</sub><br>where V <sub>p-p</sub> =  V <sub>p-p1</sub>   +  V <sub>p-p2</sub>  <br><b>HV option:</b><br>1 μHz to ≤ 3 MHz: 24V <sub>p-p</sub><br>>3 MHz to ≤ 10 MHz: 11V <sub>p-p</sub><br>>10 MHz to ≤ 50 MHz: 10V <sub>p-p</sub>                              | 1 μHz to ≤ 3 MHz: 24V <sub>p-p</sub><br>>3 MHz to ≤ 10 MHz: 11V <sub>p-p</sub><br>>10 MHz to ≤ 50 MHz: 10V <sub>p-p</sub><br>where V <sub>p-p</sub> =  V <sub>p-p1</sub>   +  V <sub>p-p2</sub> |

|   |  |                             |
|---|--|-----------------------------|
|   | where $V_{p-p} =  V_{p-p1}  +  V_{p-p2} $            |                             |
| Other Pulse Parameters  | Same as pulse waves                                  |                             |
| <b>Ramp Waves</b>   |  |                             |
| Frequency Range   | 1 $\mu$ Hz to 5 MHz                                  |                             |
| Linearity (<10 kHz, 1Vp-p, 100%)                                  | $\leq 0.1\%$   |                             |
| Symmetry  | 0% to 100%   |                             |
| <b>Other Waves</b>  |  |                             |
| Frequency Range   |  |                             |
| Exponential Rise, Exponential Decay                               | 1 $\mu$ Hz to 5 MHz                                  |                             |
| Sin(x)/x, Gaussian, Lorentz, Haversine                            | 1 $\mu$ Hz to 10 MHz                                 |                             |
| Additive Noise  |  |                             |
| Bandwidth (-3dB)  | >200 MHz   | >100 MHz                    |
| Level   | 0V to 6V –  carrier max value [ $V_{pk}$ ]           |                             |
| Resolution  | 1 mV   |                             |
| <b>Arbitrary</b>  |  |                             |
| Number of Samples   | 2 to 16,384  |                             |
| Jitter (rms)  | <2ps   |                             |
| Frequency Range   | 1 $\mu$ Hz to $\leq 80$ MHz                          | 1 $\mu$ Hz to $\leq 50$ MHz |
| Analog Bandwidth (-3 dB)  | 87.5 MHz   | 70 MHz                      |
| Rise/fall time  | 4ns  | 5ns                         |
| <b>Frequency Resolution</b>                                       |  |                             |
| Sine, Square, Pulse, Arbitrary, Sin(x)/s                          | 1 $\mu$ Hz or 15 digits                              |                             |
| Gaussian, Lorentz, Exponential Rise, Exponential Decay, Haversine | 1 $\mu$ Hz or 14 digits                              |                             |
| <b>Frequency Accuracy</b>   |  |                             |
| Non-ARB   | $\pm 2.0 \times 10^{-6}$ of setting                  |                             |
| ARB   | $\pm 2.0 \times 10^{-6}$ of setting $\pm 1$ $\mu$ Hz |                             |

## Modulations

|                                     |  |               |
|-------------------------------------|--|---------------|
| <b>Amplitude Modulation (AM)</b>    |  |               |
| Carrier waveforms                   | Standard waveforms (except Pulse, DC and Noise), ARB |               |
| Modulation source                   | Internal   |               |
| Internal modulating waveforms       | Sine, Square, Ramp, Noise, ARB                       |               |
| Modulating frequency                | 500 $\mu$ Hz to 48 MHz                               |               |
| Depth                               | 0.00% to 120.00%                                     |               |
| <b>Frequency Modulation (FM)</b>    |  |               |
| Carrier waveforms                   | Standard waveforms (except Pulse, DC and Noise), ARB |               |
| Modulation source                   | Internal   |               |
| Internal modulating waveforms       | Sine, Square, Ramp, Noise, ARB                       |               |
| Modulating frequency                | 500 $\mu$ Hz to 48 MHz                               |               |
| Peak Deviation                      | DC to 180 MHz  | DC to 100 MHz |
| <b>Phase Modulation (PM)</b>        |  |               |
| Carrier waveforms                   | Standard waveforms (except Pulse, DC and Noise), ARB |               |
| Modulation source                   | Internal   |               |
| Internal modulating waveforms       | Sine, Square, Ramp, Noise, ARB                       |               |
| Modulating frequency                | 500 $\mu$ Hz to 48 MHz                               |               |
| Phase deviation range               | 0° to 360°   |               |
| <b>Frequency Shift Keying (FSK)</b> |  |               |
| Carrier waveforms                   | Standard waveforms (except Pulse, DC and Noise), ARB |               |
| Modulation source                   | Internal   |               |
| Internal modulating waveforms       | Square   |               |
| Key rate                            | 500 $\mu$ Hz to 48 MHz                               |               |
| Number of keys                      | 2  |               |

|                                   |   |   |
|-----------------------------------|---|---|
| Hop frequency                     | 1 $\mu$ Hz to 180 MHz                                       | 1 $\mu$ Hz to 100 MHz                                       |
| <b>Phase Shift Keying (PSK)</b>   |   |   |
| Carrier waveforms                 | Standard waveforms (except Pulse, DC and Noise), ARB        |   |
| Modulation source                 | Internal  |   |
| Internal modulating waveforms     | Square  |   |
| Key rate                          | 500 $\mu$ Hz to 48 MHz                                      |   |
| Hop phase                         | 0° to +360°   |   |
| Number of keys                    | 2   |   |
| <b>Pulse Width Modulation</b>     |   |   |
| Carrier waveforms                 | Pulse   |   |
| Modulation source                 | Internal  |   |
| Internal modulating waveforms     | Sine, Square, Ramp, Noise, ARB                              |   |
| Modulating frequency              | 500 $\mu$ Hz to 48 MHz                                      |   |
| Deviation range                   | 0% to 50% of pulse period                                   |   |
| <b>Sweep</b>                      |   |   |
| Type                              | Linear, Logarithmic, Staircase, and user defined            |   |
| Waveforms                         | Standard waveforms (except Pulse, DC and Noise), ARB        |   |
| Sweep time                        | 40ns to 2000s   |   |
| Hold/return times                 | 0 to (2000s – 40ns)   |   |
| Sweep/hold/return time resolution | 20ns or 12digits  |   |
| Total sweep time accuracy         | $\leq 0.4\%$  |   |
| Trigger source                    | Internal / External / Manual                                |   |
| Start/stop frequency range        | Sine: 1 $\mu$ Hz to 180 MHz<br>Square: 1 $\mu$ Hz to 80 MHz | Sine: 1 $\mu$ Hz to 100 MHz<br>Square: 1 $\mu$ Hz to 50 MHz |
| <b>Burst</b>                      |   |   |
| Waveforms                         | Standard waveforms (except DC and Noise), ARB               |   |
| Type                              | Triggered or Gated  |   |
| Burst count                       | 1 to 4,294,967,295 cycles or Infinite                       |   |

## True Arb Mode Specifications

| Output Channels   |  |   |
|---|--|---|
| Connectors  | BNC on front panel   |   |
| Output type   | Single-ended DC coupled  |   |
| Output Impedance  | 50Ω or 0Ω (low impedance)  |   |
|   | <b>670C</b>  | <b>670C-4C-LF</b>   |
| General specifications  |  |   |
| Operating mode  | Variable clock (True Arbitrary)  |   |
| Run Modes   | Continuous, Triggered Continuous, Single/Burst, Stepped, Advanced                    |   |
| Vertical Resolution   | 16 bit   |   |
| Waveform length   | 16 to 2M samples per channel<br>(up to 512 samples optional)                         | 16 to 2M samples per channel<br>(up to 128M samples optional) |
| Waveform Granularity  | 1 if the entry length is >384 samples<br>8 if entry length is ≥16 and ≤384 samples   |   |
| Sequence length   | 1 to 16,384  |   |
| Sequence repeat counter   | 1 to 4,294,967,295 or infinite   |   |
| Timer   |  |   |
| Range   | 23.52ns to 7s  |   |
| Resolution  | ±1 sampling clock period   |   |
| Analog channel to channels skew   |  |   |
| Range   | 0 to 6.59 us (depending on internal sampling rate)                                   |   |
| Resolution  | Channel 1/2 to Channel 3/4: ≤ 5ps, Channel 1/3 to Channel 2/4: 1 DAC sampling period |   |
| Accuracy  | ±(1% of setting + 20ps)  |   |
| Initial Skew  | <200 ps  |   |
| Calculated Bandwidth (0.35 / rise or fall time) <sup>2</sup>            | ≥160 MHz   | ≥100 MHz  |
| Harmonic Distortion (Sine wave 32pts, 1V <sub>p-p</sub> )               | < -62dBc (@ 600MS/s, 18.75 MHz)  |   |
| Spurious (Sine wave 32 pts, 1V <sub>p-p</sub> )                         | < -80dBc (@ 600MS/s, 18.75 MHz)  |   |
| SFDR (Sine wave 32 pts, 1V <sub>p-p</sub> , including harmonics)        | < -62dBc (@ 600MS/s, 18.75 MHz)  |   |
| Rise/fall time (1V <sub>p-p</sub> single-ended 10% to 90%) <sup>2</sup> | ≤2.2ns   | ≤3.5ns  |
| Overshoot (1V <sub>p-p</sub> single-ended) <sup>2</sup>                 | < 2%   |   |
| Timing & Clock  |  |   |
| Sampling Rate   |  |   |
| Range   | 1 S/s to 600 MS/s (1 S/s to 1.2 GS/s with x2 interpolation)                          |   |
| Resolution  | 16 Hz  |   |
| Accuracy  | ±2.0ppm  |   |
| Random jitter on clock pattern (rms)                                    | <2ps   |   |
| Digital outputs   |  |   |
| Optional  |  |   |
| Output channels   |  |   |
| Connectors  | Mini-SAS HD connector on rear panel<br>(non-standard pin-out)                        |   |
| Number of connectors  | 1  |   |
| Number of outputs   | 8 bits   |   |
| Output impedance  | 100Ω differential  |   |
| Output type   | LVDS   |   |
| Rise/fall time (10% to 90%)   | <1ns   |   |
| Jitter (rms)  | 20ps   |   |
| Maximum update rate   | 600 Mbps   |   |
| Memory depth  | 2MSamples per digital channel<br>(up to 512MSamples optional)                        |   |

|  |                                      |
|--|--------------------------------------|
| <b>8 vit LVDS to LVTTTL Converter Probe</b><br>Optional AT-DTTL8 |                                      |
| <b>Output connector</b>  | 20 position 2.54 mm 2 Row IDC Header |
| <b>Output type</b>   | LVTTTL                               |
| <b>Output impedance</b>  | 50Ω nominal                          |
| <b>Output voltage</b>  | 0.8V to 3.8V programmable            |
| <b>Maximum update rate</b>                                       | 125Mbps@0.8V and 400Mbps@3.6V        |
| <b>Dimensions</b>  | W 52mm – H 22mm – D 76mm             |
| <b>Input connector</b>   | Proprietary standard                 |
| <b>Cable length</b>  | 1 meter                              |
| <b>Cable type</b>  | Proprietary standard                 |
| <b>Proprietary Mini SAS HD to SMA cable</b><br>Optional          |                                      |
| <b>Output connector</b>  | SMA                                  |
| <b>Output type</b>   | LVDS                                 |
| <b>Number of SMA</b>   | 16 (8 bits)                          |
| <b>Cable type</b>  | Proprietary standard                 |
| <b>Cable length</b>  | 1 meter                              |

## Auxiliary Input & Output Characteristics

|  | 670C-2C  | 670C-4C-LF, 670C-4C |
|--|--|---------------------|
| <b>Marker output</b>                                   |  |                     |
| <b>Connector type</b>                                  | BNC on front panel   | BNC on rear panel   |
| <b>Number of connectors</b>                            | 1  |                     |
| <b>Output impedance</b>                                | 50 Ω   |                     |
| <b>Output level (into 50 Ω)</b>                        |  |                     |
| Amplitude  | 1V to 2.5V   |                     |
| Resolution   | 10mV   |                     |
| Accuracy   | ±(2% setting + 10mV)   |                     |
| <b>Rise/fall time (10% to 90%, 2.5V<sub>p-p</sub>)</b> | <700ps   |                     |
| <b>Jitter (rms)</b>                                    | 20ps   |                     |
| <b>Marker out to analog channel skew</b>               |  |                     |
| Range  | True Arb Mode: 0 to 3μs<br>AFG Mode: 0 to 14s in Continuous Mode<br>0 to 3μs in Triggered Mode   |                     |
| Resolution   | True Arb Mode: 78ps,<br>AFG Mode: 39ps   |                     |
| Accuracy   | ±(1% of setting + 140 ps)  |                     |
| Initial Skew   | < 1 ns   |                     |
| <b>Trigger/Gate Input</b>                              |  |                     |
| <b>Connector</b>                                       | BNC on front panel   | BNC on rear panel   |
| <b>Input impedance</b>                                 | 50Ω / 1kΩ programmable   |                     |
| <b>Slope/polarity</b>                                  | Positive or negative or both   |                     |
| <b>Input damage level</b>                              | <-15V or >+15V   |                     |
| <b>Threshold control level</b>                         | -10V to 10V  |                     |
| <b>Resolution</b>                                      | 10mv   |                     |
| <b>Threshold control accuracy</b>                      | ±(10% of  setting  + 0.2V)   |                     |
| <b>Input voltage swing</b>                             | 0.5V <sub>p-p</sub> minimum  |                     |
| <b>Minimum pulse width (1V<sub>p-p</sub>)</b>          | 3ns  |                     |
| <b>Initial trigger/gate delay to Analog Output</b>     | AFG mode: <400 ns (<460 ns in triggered sweep mode)<br>True Arb mode: <131*DAC sampling period + 22.5 ns<br>(<143*DAC sampling period+22.5 ns with 2x interpolation) |                     |
| <b>Trigger In to output jitter</b>                     | AFG mode: <45ps  |                     |

|                               |  |
|-------------------------------|--|
| <b>Maximum frequency</b>      | True Arb mode: 0.29*DAC sampling period<br>AFG mode: 55 MTps on Rising/Falling Edge,<br>80 MTps on Both Edges<br>True Arb mode: 42.5 MTps on Rising/Falling Edge,<br>42.5 MTps on Both Edges<br>where MTps = Mega Transitions per second |
| <b>Reference clock input</b>  |  |
| <b>Connector type</b>         | SMA on rear panel  |
| <b>Input impedance</b>        | 50Ω, AC coupled  |
| <b>Input voltage range</b>    | -4 dBm to 11dBm sine or square wave<br>(rise time T <sub>10-90</sub> <1ns and duty cycle from 40% to 60%)  |
| <b>Damage level</b>           | +14dBm   |
| <b>Frequency range</b>        | 5 MHz to 100 MHz   |
| <b>Reference clock output</b> |  |
| <b>Connector type</b>         | SMA on rear panel  |
| <b>Output impedance</b>       | 50Ω, AC coupled  |
| <b>Frequency</b>              | 10 MHz   |
| <b>Accuracy</b>               | ±2.0x10 <sup>-6</sup>  |
| <b>Aging</b>                  | ±1.0x10 <sup>-6</sup> /year  |
| <b>Amplitude</b>              | 1.65V  |
| <b>Jitter (rms)</b>           | <20ps  |

## Power

|                                       |                                     |
|---------------------------------------|-------------------------------------|
| <b>Source Voltage &amp; Frequency</b> | 100 to 240VAC ±10% @ 45 Hz to 66 Hz |
| <b>Max. power consumption</b>         | 100W                                |

## Environmental Characteristics

|                                    |  |
|------------------------------------|--|
| <b>Temperature (operating)</b>     | +5°C to +40°C (+41°F to 104°F)   |
| <b>Temperature (non-operating)</b> | -20°C to +60°C (-4°F to 140°F)   |
| <b>Humidity (operating)</b>        | 5% to 80% relative humidity with a maximum wet bulb temperature of 29°C at or below +40°C, (upper limit de-rates to 20.6% relative humidity at +40°C). Non-condensing. |
| <b>Humidity (non-operating)</b>    | 5% to 95% relative humidity with a maximum wet bulb temperature of 40°C at or below +60°C, upper limit de-rates to 29.8% relative humidity at +60°C. Non-condensing.   |
| <b>Altitude (operating)</b>        | 3,000 meters (9,842 feet) maximum at or below 25°C   |
| <b>Altitude (non-operating)</b>    | 12,000 meters (39,370 feet) maximum  |

## EMC & Safety

|                       |  |
|-----------------------|--|
| <b>Compliance</b>     | CE compliant   |
| <b>Safety</b>         | EN61010-1  |
| <b>Main Standards</b> | EN 61326-1:2013 – Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 1: General requirements |
| <b>Immunity</b>       | EN 61326-1:2013  |

## System Specifications

|                | 670C-2C                            | 670C-4C, 670C-4C-LF |
|----------------|------------------------------------|---------------------|
| <b>Display</b> | 7", 1024x600, capacitive touch LCD |                     |

|                               |   |   |
|-------------------------------|---|---|
| <b>Operative System</b>       | Windows 10  |   |
| <b>External Dimensions</b>    | W 362 mm – H 143 mm – D 258 mm<br>(3U 10" rackmount)  |   |
| <b>Weight</b>                 | 6.25 kg   |   |
| <b>Front panel connectors</b> | CH1, CH2 OUTPUT (BNC)<br>MARKER OUT (BNC)<br>TRIGGER IN (BNC)   | CH1, CH2 OUTPUT (BNC)<br>CH3, CH4 OUTPUT (BNC)  |
| <b>Rear panel connectors</b>  | REF CLK IN (SMA)<br>REF CLK OUT (SMA)<br>External Monitor ports<br>DIGITAL POD A[7..0]<br>1 USB 2.0 ports or more<br>Ethernet port (10/100/1000BaseT<br>Ethernet, RJ45 port)<br>2 PS/2 keyboard and mouse ports | REF CLK IN (SMA)<br>REF CLK OUT (SMA)<br>MARKER OUT (BNC)<br>TRIGGER IN (BNC)<br>External Monitor ports<br>DIGITAL POD A[7..0]<br>1 USB 2.0 ports or more<br>Ethernet port (10/100/1000BaseT<br>Ethernet, RJ45 port)<br>2 PS/2 keyboard and mouse ports |
| <b>Hard disk</b>              | 240 GB SSD or better  |   |
| <b>Processor</b>              | Intel® Celeron J1900, 2 GHz (or better)   |   |
| <b>Processor Memory</b>       | 4 GB or better  |   |

## TABLE OF AVAILABLE MODELS

| Item            | Description                               |
|-----------------|---|
| 670C-2C-2M      | 2ch 600Ms/s AWG 2Ms memory - 180MHz AFG   |
| 670C-2C-64M     | 2ch 600Ms/s AWG 64Ms memory - 180MHz AFG  |
| 670C-2C-256M    | 2ch 600Ms/s AWG 256Ms memory - 180MHz AFG |
| 670C-2C-512M    | 2ch 600Ms/s AWG 512Ms memory - 180MHz AFG |
| 670C-4C-2M      | 4ch 600Ms/s AWG 2Ms memory - 180MHz AFG   |
| 670C-4C-64M     | 4ch 600Ms/s AWG 64Ms memory - 180MHz AFG  |
| 670C-4C-256M    | 4ch 600Ms/s AWG 256Ms memory - 180MHz AFG |
| 670C-4C-512M    | 4ch 600Ms/s AWG 512Ms memory - 180MHz AFG |
| 670C-4C-2M-LF   | 4ch 600Ms/s AWG 2Ms memory – 100MHz AFG   |
| 670C-4C-128M-LF | 4ch 600Ms/s AWG 128Ms memory – 100MHz AFG |

## TABLE OF AVAILABLE OPTIONS & ACCESSORIES

| Item               | Description  |
|--------------------|--|
| <b>Options</b>     |  |
| 670C-2C-HV         | High voltage output (12Vpp on 50ohm)               |
| 670C-4C-HV         | High voltage output (12Vpp on 50ohm)               |
| <b>Accessories</b> |  |
| AT-DTTL8           | LVDS to LVTTTL digital adapter probe               |
| AT-LVDS-SMA8       | LVDS to SMA digital adapter cable                  |
| RIDER-C-RACK       | Rackmount kit for Rider C series                   |
| GPIB / USB-TMC     | GPIB and USBTMC Ports for Remote Control           |
| SSD-250            | Additional 250GB Solid State Disk for RIDER series |

