



## A Maximum of 3GHz, and the Digit Display Greatly Increased to Accommodate a Maximum of 12Digits/sec

- USB, LAN, RS-232 (option) and full remote control with GPB (option)
- Compare output with digital I/O
- Full lineup of options to provide greater expandability
  - Data stored on USB storage memories.
  - High-stability clock oscillator option.

### SC-7217 / SC-7215 Specifications

|                           |                                                        |                                                                          | SC-7217                                                                                                                   | SC-7215                                                                                                                                                                                                                                                                                                                          |  |
|---------------------------|--------------------------------------------------------|--------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| CH-A, CH-B                | Input impedance                                        |                                                                          | 50Ω ±1.5% / 1MΩ± 1.5% //16pF ±3pF                                                                                         |                                                                                                                                                                                                                                                                                                                                  |  |
|                           | Input withstand pressure                               |                                                                          | 500V / 1MΩ                                                                                                                |                                                                                                                                                                                                                                                                                                                                  |  |
|                           | Frequency band                                         |                                                                          | DC / AC                                                                                                                   |                                                                                                                                                                                                                                                                                                                                  |  |
|                           | Input voltage range                                    |                                                                          | ATT OFF / ON                                                                                                              |                                                                                                                                                                                                                                                                                                                                  |  |
|                           | Trigger level accuracy                                 |                                                                          | ATT OFF / ON                                                                                                              |                                                                                                                                                                                                                                                                                                                                  |  |
|                           | Slope switching                                        |                                                                          | +/-                                                                                                                       |                                                                                                                                                                                                                                                                                                                                  |  |
|                           | Band limiter                                           |                                                                          | 10kHz                                                                                                                     |                                                                                                                                                                                                                                                                                                                                  |  |
|                           | Noise rejection                                        |                                                                          | OFF/ON                                                                                                                    |                                                                                                                                                                                                                                                                                                                                  |  |
| EXT-B                     | Input signal range                                     | Pulse width / frequency                                                  |                                                                                                                           | 500ns min / 1MHz max                                                                                                                                                                                                                                                                                                             |  |
| CH-C                      | Input impedance / SWR / Maximum input electrical power |                                                                          | 50Ω, AC coupling / 2.0 or less / +30dBm                                                                                   | —                                                                                                                                                                                                                                                                                                                                |  |
|                           | Frequency band                                         |                                                                          | 100MHz to 3GHz                                                                                                            | —                                                                                                                                                                                                                                                                                                                                |  |
|                           | AGC                                                    |                                                                          | ON/OFF                                                                                                                    | —                                                                                                                                                                                                                                                                                                                                |  |
|                           | Burst detection                                        |                                                                          | ON/OFF                                                                                                                    | —                                                                                                                                                                                                                                                                                                                                |  |
|                           | Detection sensitivity                                  |                                                                          | Up until 1.2GHz: -20dBm, up until 3GHz: -10dBm                                                                            | —                                                                                                                                                                                                                                                                                                                                |  |
|                           | Burst detection delay time                             |                                                                          | 10μs                                                                                                                      | —                                                                                                                                                                                                                                                                                                                                |  |
| Measurement Functions     | FREQ A, FREQ B                                         |                                                                          | Max, 13-digit, 12-digit/sec (at 1second gate)                                                                             |                                                                                                                                                                                                                                                                                                                                  |  |
|                           |                                                        | Measurement range                                                        | Single: 6mHz to 250MHz, time / EXT-B gate: 12mHz to 450MHz                                                                |                                                                                                                                                                                                                                                                                                                                  |  |
|                           |                                                        | Gate selection                                                           |                                                                                                                           | Single / EXT-B / Time (set at 10μs to 10s 10 <sup>n</sup> ) (n: integer)                                                                                                                                                                                                                                                         |  |
|                           |                                                        | FREQ C                                                                   |                                                                                                                           | Max, 13-digit, 12-digit/sec (at 1second gate)                                                                                                                                                                                                                                                                                    |  |
|                           |                                                        | Measurement range                                                        | 100MHz to 3GHz, 1/16 pre-scaler                                                                                           | —                                                                                                                                                                                                                                                                                                                                |  |
|                           |                                                        | Gate selection                                                           |                                                                                                                           | EXT-B / Time (set at 10μs to 10s 10 <sup>n</sup> ) (n: integer)                                                                                                                                                                                                                                                                  |  |
|                           | FREQ LINE                                              |                                                                          | Measurement range / Gate selection                                                                                        |                                                                                                                                                                                                                                                                                                                                  |  |
|                           | PERIOD A                                               | Measurement range                                                        |                                                                                                                           | 45Hz to 440Hz / 0.1s/1s/10s                                                                                                                                                                                                                                                                                                      |  |
|                           |                                                        | Gate selection                                                           |                                                                                                                           | Single / EXT-B / Time (set at 10μs to 10s 10 <sup>n</sup> ) (n: integer)                                                                                                                                                                                                                                                         |  |
|                           | DUTY A                                                 | Input signal range                                                       | Pulse width / Frequency                                                                                                   | 6ns min / 80MHz max                                                                                                                                                                                                                                                                                                              |  |
|                           |                                                        | Measurement range                                                        | Single / Time                                                                                                             | 0.01μ to 99,999,999,999 / 0.2μ to 99,999,999,8%                                                                                                                                                                                                                                                                                  |  |
|                           |                                                        | Gate selection                                                           |                                                                                                                           | Single / Time (set at 10μs to 10s 10 <sup>n</sup> ) (n: integer)                                                                                                                                                                                                                                                                 |  |
|                           | PULSE WIDTH A                                          | Input signal range                                                       | Pulse width / Frequency                                                                                                   | 6ns min / 80MHz max                                                                                                                                                                                                                                                                                                              |  |
|                           |                                                        | Measurement range                                                        | Single / Time                                                                                                             | 6ns to 171s / 6ns to approximately ½ gate time                                                                                                                                                                                                                                                                                   |  |
|                           |                                                        | Gate selection                                                           |                                                                                                                           | Single / Time (set at 10μs to 10s 10 <sup>n</sup> ) (n: integer)                                                                                                                                                                                                                                                                 |  |
|                           | TIME INTERVAL A → B                                    | Input signal range                                                       | Pulse width / Frequency                                                                                                   | 6ns min / 80MHz max                                                                                                                                                                                                                                                                                                              |  |
|                           |                                                        | Measurement range                                                        | Single / Time                                                                                                             | 6ns to 10,995s / 6ns to approximately ½ gate time                                                                                                                                                                                                                                                                                |  |
|                           |                                                        | Gate selection                                                           |                                                                                                                           | Single / Time (set at 10μs to 10s 10 <sup>n</sup> ) (n: integer)                                                                                                                                                                                                                                                                 |  |
|                           | FREQ A/B                                               | Input signal range, Frequency                                            |                                                                                                                           | 250MHz max                                                                                                                                                                                                                                                                                                                       |  |
|                           |                                                        | Measurement range / Gate Selection                                       |                                                                                                                           | 1 E-9 to 1 E+9 / Time (set at 10μs to 10s 10 <sup>n</sup> ) (n: integer)                                                                                                                                                                                                                                                         |  |
|                           | PHAS A → B                                             | Input signal range                                                       | Pulse width / Frequency                                                                                                   | 6ns min / 80MHz max                                                                                                                                                                                                                                                                                                              |  |
|                           |                                                        | Measurement range                                                        | Single / Time                                                                                                             | 0.1μ to 359,999,999,999 / 1μ to 359,999,999 (However, it is necessary or this to be less than half of the gate for non-measurable signal cycles)                                                                                                                                                                                 |  |
|                           | TOT A                                                  | Input signal range                                                       |                                                                                                                           | 2ns min / 250MHz max                                                                                                                                                                                                                                                                                                             |  |
| Gate selection            |                                                        | MANUAL / EXT-B / Time (set at 10μs to 10s 10 <sup>n</sup> ) (n: integer) |                                                                                                                           |                                                                                                                                                                                                                                                                                                                                  |  |
| Peak voltage measurement  | Measurement range                                      |                                                                          | 0 to 4,294,967,295 count                                                                                                  |                                                                                                                                                                                                                                                                                                                                  |  |
|                           | Measurement frequency / Measurement speed              |                                                                          | 150Hz to 150MHz / 2 seconds or less                                                                                       |                                                                                                                                                                                                                                                                                                                                  |  |
|                           | Measurement voltage range                              |                                                                          | ATT OFF / ATT ON                                                                                                          |                                                                                                                                                                                                                                                                                                                                  |  |
| Measurement operations    |                                                        |                                                                          | Repeat / Single / HOLD                                                                                                    |                                                                                                                                                                                                                                                                                                                                  |  |
| Calculation               |                                                        |                                                                          | Smoothing (moving average), scaling, compare, statistics (MAX, MIN, σ, average)                                           |                                                                                                                                                                                                                                                                                                                                  |  |
| Pulse setup               |                                                        |                                                                          | Internal memory (10) or USB memory                                                                                        |                                                                                                                                                                                                                                                                                                                                  |  |
| DATA save memory          |                                                        |                                                                          | MAX, 500,000kinds (volatile memory)                                                                                       |                                                                                                                                                                                                                                                                                                                                  |  |
| Internal standard clock   | Temperature characteristics                            |                                                                          | +/- 1ppm (range of 0 to +40°C with +25°C as the standard)                                                                 |                                                                                                                                                                                                                                                                                                                                  |  |
|                           | Temporal change / Short-term stability                 |                                                                          | ±0.1ppm/month, ±1ppm/year / ±1ppb/s                                                                                       |                                                                                                                                                                                                                                                                                                                                  |  |
| Interface                 | USB / LAN / DIO                                        |                                                                          | USB2.0 HS / 100base-TX / Output: HI/LO/GO/BUSY                                                                            |                                                                                                                                                                                                                                                                                                                                  |  |
| 10MHz STD IN              | Input impedance / Input frequency / Input sensitivity  |                                                                          | Approximately 850 Ωs (at 10MHz), AC coupling / 10MHz +/- 50Hz / 100mVrms                                                  |                                                                                                                                                                                                                                                                                                                                  |  |
| Marker / STD output       |                                                        |                                                                          | STD / Marker selected and output with the setting                                                                         |                                                                                                                                                                                                                                                                                                                                  |  |
|                           | Output impedance / Marker output / STD output          |                                                                          | 500s +/- 10% / 1V0p (0V output during measurement) / 10 MHz sine wave 1Vp-p or more (with 50Ωs at the terminal)           |                                                                                                                                                                                                                                                                                                                                  |  |
| Options (OP when shipped) | OCXO                                                   | Medium stability                                                         | Temperature characteristics                                                                                               | +/- 20ppb (range of 0 to +40°C with +25°C as the standard)                                                                                                                                                                                                                                                                       |  |
|                           |                                                        |                                                                          | Temporal change                                                                                                           | +/- 10ppb/day (fluctuations in one day's frequencies with the standard frequency being that measured after 48 hours. At +25°C)<br>+/- 100ppb/year (fluctuations in one year's frequencies with the standard frequency being that measured 10 days after the power has been switched on. At +25 °C)                               |  |
|                           |                                                        | High stability                                                           | Temperature characteristics                                                                                               | +/- 5ppb (range of 0 to +40°C with +25°C as the standard)                                                                                                                                                                                                                                                                        |  |
|                           |                                                        |                                                                          | Temporal change                                                                                                           | +/- 0.5ppb/day (fluctuations in one day's frequencies with the standard frequency being that measured 30 days after the power has been switched on. At +25°C)<br>+/- 50ppb/year (fluctuations in one year's frequencies with the standard frequency being that measured 30 days after the power has been switched on. At +25 °C) |  |
|                           | Interface                                              |                                                                          | GPiB (conforming to IEEE488-1 with full remote functions.) RS-232C, host for connecting the USB memory (for storage only) |                                                                                                                                                                                                                                                                                                                                  |  |
|                           | Electric power                                         | Voltage / Frequency                                                      |                                                                                                                           | AC 100V to AC 240V ±10% / 50 to 60Hz±5%(100V to 240V) / 400±10%(100V to 120V)                                                                                                                                                                                                                                                    |  |
|                           | Power consumption                                      |                                                                          | 70VA(35W) max                                                                                                             |                                                                                                                                                                                                                                                                                                                                  |  |
| External dimensions (mm)  |                                                        |                                                                          | (210±2)W x(99±2)Hx(353±2)D                                                                                                |                                                                                                                                                                                                                                                                                                                                  |  |
| Accessories               |                                                        |                                                                          | Product users'guide x 1, instructions (CD) x 1, power cable x 1.                                                          |                                                                                                                                                                                                                                                                                                                                  |  |
| Environment               |                                                        |                                                                          | 0°C to +40°C with 80%RH or less and no condensation                                                                       |                                                                                                                                                                                                                                                                                                                                  |  |

# Universal Counter SC-7200H Series

A new lineup of high-performance counters that transcend their class!



**GPIB**  
3GHz x 1ch &  
230MHz x 2ch  
Universal Counter  
**SC-7207H**



**GPIB**  
2GHz x 1ch &  
230MHz x 1ch  
Universal Counter  
**SC-7206H**



**GPIB**  
[Option]  
230MHz x 2ch  
Universal Counter  
**SC-7205H**

## Useful functions based on the need for a maximum of 3GHz and easy use.

- Enables frequency measurements for two independent channels (SC-7207H, SC-7205H.)
- Pulse width measurements and time interval measurements greatly broaden the scope of single-gate measurement.
- Easy operations with single key strokes for each action.
- Easy-to-see fluorescent display area. Detailed information displayed with 5 x 7 dot resolution.
- \* A full-spelling guide provides powerful support for operations.
- Auto-trigger function that eradicates the need for setting the trigger level. Manual setup is, of course, also possible.
- Making line inspection tasks more efficient is a simple chore with the comparison and statistic calculation functions.
- The scaling calculation function enables single unit conversion (revolutions, speed, etc.)
- Input signal peak voltage measurements make it easy to confirm the waveform amplitude.
- The save/recall function for panel setup makes predetermined inspection tasks more efficient.
- The GPIB (optional for the SC-7205H: SC-701) and RS-232 interfaces provide full remote control.

\* Transmission is performed in the real-time at a high speed of a maximum 200 items of data/second, which contributes to improved line throughput.

- Full lineup of options to provide greater expandability
- Comparator output (open collector) with digital I/O (SC-702.) External trigger input.
- \* 150mA can be used for line monitoring equipment without modification to provide a margin of 50V.
- The high-stability standard oscilloscope (SC-703A) provides highly accurate measurements.

### Specifications and Performance

|                                                              |                                                                                                                                                |
|--------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Output Interfaces                                            | RS-232: Fitted as standard.<br>GPIB Fitted as standard (optional for the SC-7205H: SC-701) Digital I/O: Optional (SC-702)                      |
| Dimensions (mm) and Weight                                   | Approximately 210(W) x 99(H) x 353(D) (excluding options and protrusions)<br>4.0kg or less (when mounted with the SC-701, 702 and 703 options) |
| High-stability Standard Oscillator (manufactured on request) | Two types of options available (only one type may be mounted)<br>Temperature Characteristics: +/-0.05ppm, Oscillation Frequency: 10MHz         |

## Universal Counter Option

### GPB Interface

#### SC-701

For use with the SC-7205H

- Mounting the SC-701 onto the SC-7207H, 7206H and 7205H Universal Counters (fitted as standard to the SC-7207H and 7206H) enables measurements taken with external GPB controllers to be reset, the remote setup of measurement functions, time base functions and calculations, etc., and the results of measurements to be transmitted as data to external sources.

\* This is a factory option and needs to be ordered at the same time as the main unit. Ordering factory installation at a later date will be chargeable.

### Digital I/O

#### SC-702

For use with the SC-7207H, SC-7206H and SC-7205H

- Installing the SC-702 onto the SC-7207H, SC-7206H and SC-7205H Universal Counters will enable control over the start of measurement and the output of comparison calculation results. (open collector) Connecting an external lamp also allows parts to be selected and inspection results to be easily browsed.

\* This is a factory option and needs to be ordered at the same time as the main unit. Ordering factory installation at a later date will be chargeable.



SC-701

SC-702

Digital I/O (Factory option)  
GPB Interface (Equipped as standard on SC-7207H and SC-7205H, Factory option only for SC-7206H)

### Main Performance

|                                |                    |            |
|--------------------------------|--------------------|------------|
| Maximum Output Terminal Rating | Withstand voltage  | DC50V      |
|                                | Withstand current  | DC150mA    |
|                                | Frequency response | DC to 1kHz |
| Maximum Input Terminal Rating  | Withstand voltage  | DC5V       |
|                                | Frequency response | DC to 1kHz |

### RS-USB Converter

#### SC-525

For use with the SC-7207H, SC-7206H and SC-7205H

- The cable for connecting the RS-232 measurement unit to a personal computer's USB port.

- Overall length approximately 85cm.

\* Can also be used with the VOAC 7500H series, the SG-4115 and the SG-4105.



### High-stability Standard Oscilloscope

#### SC-703A Custom Order

|                              | New Crystal (SC-703A)                                                                                        |
|------------------------------|--------------------------------------------------------------------------------------------------------------|
| Oscillation Frequency        | 10MHz                                                                                                        |
| Temperature Characteristics  | +/-0.05ppm<br>Range of 0 °C to 40 °C with +25 °C as the standard.                                            |
| Rising Time                  | +/-0.05ppm<br>10 minutes for power switch-on with the frequency 1 hour after power switch-on as the standard |
| Time Fluctuations (per day)  | +/-0.02ppm<br>Value at 72 hours after power switch-on with 48 hours after power switch-on as the standard    |
| Time Fluctuations (per year) | +/-0.02ppm<br>Value at one year after power switch-on with 10 days after power switch-on as the standard     |

## Universal Counters SC-7207H / SC-7206H / SC-7205H Specifications

| Frequency A (FREQ-A)                                                       |              |                                                                                   |                |                    |
|----------------------------------------------------------------------------|--------------|-----------------------------------------------------------------------------------|----------------|--------------------|
| *Measuring range and resolution * SC-7206H is not equipped with EXT-B gate |              |                                                                                   |                |                    |
|                                                                            |              | SC-7207H                                                                          |                | SC-7206H, SC-7205H |
| Reference time (reference frequency)                                       |              | 10ns (100MHz)                                                                     |                | 100ns (10MHz)      |
| Range                                                                      |              | 6MHz to 230MHz                                                                    |                | 0.6MHz to 230MHz   |
| Resolution and count method                                                | DC           | 10Hz to 230MHz                                                                    |                |                    |
|                                                                            | Frequency    | Below 100MHz                                                                      | 100MHz or more | Below 10MHz        |
|                                                                            | Count method | Reciprocal count                                                                  | Direct count   | Reciprocal count   |
|                                                                            | 1ms gate     | 5 digits                                                                          | 1kHz           | 4 digits           |
|                                                                            | 10ms gate    | 6 digits                                                                          | 100Hz          | 5 digits           |
|                                                                            | 0.1s gate    | 7 digits                                                                          | 10Hz           | 6 digits           |
|                                                                            | 1s gate      | 8 digits                                                                          | 1Hz            | 7 digits           |
|                                                                            | 10s gate     | 9 digits                                                                          | 0.1Hz          | 8 digits           |
|                                                                            | EXT-B gate * | Reciprocal count method: The number of digits is determined by external gate time |                |                    |
|                                                                            | SQL gate     | Reciprocal count method: The number of digits is determined by measured signal    |                |                    |

| AC Line Frequency (FREQ-LINE) (for SC-7207H and SC-7205H only) |           |               |  |          |
|----------------------------------------------------------------|-----------|---------------|--|----------|
| *Measuring range and resolution                                |           |               |  |          |
|                                                                |           | SC-7207H      |  | SC-7205H |
| Reference time                                                 |           | 10ns          |  | 100ns    |
| Range                                                          |           | 45Hz to 440Hz |  |          |
| Resolution                                                     | 0.1s gate | 7 digits      |  | 6 digits |
|                                                                | 1s gate   | 8 digits      |  | 7 digits |
|                                                                | 10s gate  | 9 digits      |  | 8 digits |

| Frequency C (FREQ-C) (for SC-7207H and SC-7206H only) |                 |                                                                                   |                |                               |
|-------------------------------------------------------|-----------------|-----------------------------------------------------------------------------------|----------------|-------------------------------|
| *Measuring range and resolution                       |                 |                                                                                   |                |                               |
|                                                       |                 | SC-7207H                                                                          |                | SC-7206H                      |
| Reference time (reference frequency)                  |                 | 10ns (100MHz)                                                                     |                | 100ns (10MHz)                 |
| Range (for AC coupling only)                          |                 | 100MHz to 3GHz 1/16 prescaler                                                     |                | 100MHz to 2GHz 1/16 prescaler |
| Resolution and count method                           | Measured signal | Below 1.6GHz                                                                      | 1.6GHz or more | Below 160MHz                  |
|                                                       | Count method    | Reciprocal count                                                                  | Direct count   | Reciprocal count              |
|                                                       | 1ms gate        | 5 digits                                                                          | 10kHz          | 4 digits                      |
|                                                       | 10ms gate       | 6 digits                                                                          | 1kHz           | 5 digits                      |
|                                                       | 0.1s gate       | 7 digits                                                                          | 100Hz          | 6 digits                      |
|                                                       | 1s gate         | 8 digits                                                                          | 10Hz           | 7 digits                      |
|                                                       | 10s gate        | 9 digits                                                                          | 1Hz            | 8 digits                      |
|                                                       | EXT-B gate      | Reciprocal count method: The number of digits is determined by external gate time |                | Not equipped with EXT-B       |
|                                                       | SQL gate        | Reciprocal count method: The number of digits is determined by measured signal    |                |                               |
|                                                       |                 |                                                                                   |                |                               |

| Period A (PER-A)                                                          |              |                                                          |  |                    |
|---------------------------------------------------------------------------|--------------|----------------------------------------------------------|--|--------------------|
| *Measuring range and resolution *SC-7206H is not equipped with EXT-B gate |              |                                                          |  |                    |
|                                                                           |              | SC-7207H                                                 |  | SC-7206H, SC-7205H |
| Reference time                                                            |              | 10ns                                                     |  | 100ns              |
| Range                                                                     |              | 5ns to 171s                                              |  | 5ns to 1.717s      |
| Resolution                                                                | DC couple    | 5ns to 0.1s                                              |  |                    |
|                                                                           | AC couple    |                                                          |  |                    |
|                                                                           | 1ms gate     | 5 digits                                                 |  | 4 digits           |
|                                                                           | 10ms gate    | 6 digits                                                 |  | 5 digits           |
|                                                                           | 0.1s gate    | 7 digits                                                 |  | 6 digits           |
|                                                                           | 1s gate      | 8 digits                                                 |  | 7 digits           |
|                                                                           | 10s gate     | 9 digits                                                 |  | 8 digits           |
|                                                                           | EXT-B gate * | The number of digits is determined by external gate time |  |                    |
|                                                                           | SQL gate     | The number of digits is determined by measured signal    |  |                    |
|                                                                           |              |                                                          |  |                    |

| Duty ratio A (DUTY-A)           |                       |                                      |  |                                      |
|---------------------------------|-----------------------|--------------------------------------|--|--------------------------------------|
| *Measuring range and resolution |                       |                                      |  |                                      |
|                                 |                       | SC-7207H                             |  | SC-7206H, SC-7205H                   |
| Input signal frequency range    |                       | Same as FREQ-A                       |  |                                      |
| Measuring range                 | SQL gate              | 0.01μ to 99,999,999.99 [%]           |  |                                      |
|                                 | Internal gate         | 0.2μ to 99,999,999.8 [%]             |  |                                      |
|                                 | SQL gate              | 10ns/input period x 100 [%]          |  | 100ns/input period x 100 [%]         |
|                                 | 1 to 24               | 10ns/average input period x 100 [%]  |  | 100ns/average input period x 100 [%] |
|                                 | 25 to 2,499           | 1ns/average input period x 100 [%]   |  | 10ns/average input period x 100 [%]  |
|                                 | 2,500 to 249,999      | 100ps/average input period x 100 [%] |  | 1ns/average input period x 100 [%]   |
|                                 | 250,000 to 24,999,999 | 10ps/average input period x 100 [%]  |  | 100ps/average input period x 100 [%] |
|                                 | 25,000,000 or more    | 1ps/average input period x 100 [%]   |  | 10ps/average input period x 100 [%]  |
|                                 |                       |                                      |  |                                      |
|                                 |                       |                                      |  |                                      |

| Pulse width A (P.W-A)                                                                          |                            |                               |  |                                |
|------------------------------------------------------------------------------------------------|----------------------------|-------------------------------|--|--------------------------------|
| *Minimum pulse width: 6ns *Maximum repetitive frequency: 80MHz *Measuring range and resolution |                            |                               |  |                                |
|                                                                                                |                            | SC-7207H                      |  | SC-7206H, SC-7205H             |
| Reference time                                                                                 |                            | 10ns                          |  | 100ns                          |
| Measuring range                                                                                | SQL gate                   | 10ns to 171s                  |  |                                |
|                                                                                                | Internal gate (1ms to 10s) | 10ns to approx. 1/2 gate time |  | 100ns to approx. 1/2 gate time |
|                                                                                                |                            |                               |  |                                |
| Measuring resolution                                                                           | SQL gate                   | 10ns to 100ns                 |  | 100ns to 1ms                   |
|                                                                                                | 1 to 24                    | 10ns                          |  | 100ns                          |
|                                                                                                | 25 to 2,499                | 1ns                           |  | 10ns                           |
|                                                                                                | 2,500 to 249,999           | 100ps                         |  | 1ns                            |
|                                                                                                | 250,000 to 24,999,999      | 10ps                          |  | 100ps                          |
|                                                                                                | 25,000,000 or more         | 1ps                           |  | 10ps                           |
|                                                                                                |                            |                               |  |                                |

| Time interval A → B (T.INT A → B) (for SC-7207H and SC-7205H only)                               |                            |                               |  |                                |
|--------------------------------------------------------------------------------------------------|----------------------------|-------------------------------|--|--------------------------------|
| *Minimum time interval: 6ns *Maximum repetitive frequency: 80MHz *Measuring range and resolution |                            |                               |  |                                |
|                                                                                                  |                            | SC-7207H                      |  | SC-7205H                       |
| Reference time                                                                                   |                            | 10ns                          |  | 100ns                          |
| Measuring range                                                                                  | SQL gate                   | 10ns to 10,955s               |  |                                |
|                                                                                                  | Internal gate (1ms to 10s) | 10ns to approx. 1/2 gate time |  | 100ns to approx. 1/2 gate time |
|                                                                                                  |                            |                               |  |                                |
| Measuring resolution                                                                             | SQL gate                   | 10ns to 10μs                  |  | 100ns to 100μs                 |
|                                                                                                  | 1 to 24                    | 10ns                          |  | 100ns                          |
|                                                                                                  | 25 to 2,499                | 1ns                           |  | 10ns                           |
|                                                                                                  | 2,500 to 249,999           | 100ps                         |  | 1ns                            |
|                                                                                                  | 250,000 to 24,999,999      | 10ps                          |  | 100ps                          |
|                                                                                                  | 25,000,000 or more         | 1ps                           |  | 10ps                           |
|                                                                                                  |                            |                               |  |                                |

|                                                                                                                                                                                                                                                                                                                                    |                                                                             |                                                                                                                 |                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|----------------------------|
| Frequency ratio A/B (FREQ A/B) (for SC-7207H and SC-7205H only)                                                                                                                                                                                                                                                                    |                                                                             |                                                                                                                 |                            |
| •Measuring range and resolution                                                                                                                                                                                                                                                                                                    |                                                                             |                                                                                                                 |                            |
|                                                                                                                                                                                                                                                                                                                                    |                                                                             | SC-7207H                                                                                                        | SC-7205H                   |
| Input signal frequency range                                                                                                                                                                                                                                                                                                       |                                                                             | Both CH-A and CH-B are the same as that for FREQ-A                                                              |                            |
| Measuring range                                                                                                                                                                                                                                                                                                                    | Internal gate (1ms to 10s)                                                  | 1E-9 to 1E+9                                                                                                    |                            |
| Measuring resolution                                                                                                                                                                                                                                                                                                               | Internal gate (1ms to 10s)                                                  | 1+LOG (CH-A input frequency x gate time) digits                                                                 |                            |
| Phase measuring A → B (PHAS A → B) (for SC-7207H and SC-7205H only)                                                                                                                                                                                                                                                                |                                                                             |                                                                                                                 |                            |
| •Minimum time interval: 6ns •Maximum repetitive frequency: 80MHz •Measuring range and resolution                                                                                                                                                                                                                                   |                                                                             |                                                                                                                 |                            |
|                                                                                                                                                                                                                                                                                                                                    |                                                                             | SC-7207H                                                                                                        | SC-7205H                   |
| Reference time                                                                                                                                                                                                                                                                                                                     |                                                                             | 10ns                                                                                                            | 100ns                      |
| Measuring range                                                                                                                                                                                                                                                                                                                    |                                                                             | 0.1μ to 359,999,999.9 [°]                                                                                       |                            |
| Measuring resolution                                                                                                                                                                                                                                                                                                               | SGL gate                                                                    | 1μ to 359,999,999 [°]                                                                                           |                            |
|                                                                                                                                                                                                                                                                                                                                    | Internal gate                                                               | 100ns/input period x 360 [°]                                                                                    |                            |
|                                                                                                                                                                                                                                                                                                                                    | SGL gate                                                                    | 100ns/input period x 360 [°]                                                                                    |                            |
|                                                                                                                                                                                                                                                                                                                                    | 1 to 24                                                                     | 10ns/average input period x 360 [°]                                                                             |                            |
|                                                                                                                                                                                                                                                                                                                                    | 25 to 2,499                                                                 | 1ns/average input period x 360 [°]                                                                              |                            |
|                                                                                                                                                                                                                                                                                                                                    | 2,500 to 249,999                                                            | 100ps/average input period x 360 [°]                                                                            |                            |
| Average count of internal gate                                                                                                                                                                                                                                                                                                     | 250,000 to 24,999,999                                                       | 10ps/average input period x 360 [°]                                                                             |                            |
|                                                                                                                                                                                                                                                                                                                                    | 25,000,000 or more                                                          | 1ps/average input period x 360 [°]                                                                              |                            |
|                                                                                                                                                                                                                                                                                                                                    |                                                                             | 100ps/average input period x 360 [°]                                                                            |                            |
| Peak voltage measuring (SC-7206H is not equipped with CH-B)                                                                                                                                                                                                                                                                        |                                                                             |                                                                                                                 |                            |
| Measures and displays in real-time the voltage amplitude of the measured signal at CH-A or CH-B.                                                                                                                                                                                                                                   |                                                                             |                                                                                                                 |                            |
| Frequency range                                                                                                                                                                                                                                                                                                                    |                                                                             | 150Hz ≤ input frequency ≤ 50MHz                                                                                 |                            |
| Response time                                                                                                                                                                                                                                                                                                                      |                                                                             | 2 seconds or less                                                                                               |                            |
| Voltage range                                                                                                                                                                                                                                                                                                                      |                                                                             | ±2.50V (ATT off, resolution: 10mV), ±50.0V (ATT on, resolution: 100mV)                                          |                            |
| Measuring error                                                                                                                                                                                                                                                                                                                    |                                                                             | ATT off: 10% of indication ±50mV ATT on: not specified                                                          |                            |
| CH-A, CH-B input terminal (SC-7206H is not equipped with CH-B)                                                                                                                                                                                                                                                                     |                                                                             |                                                                                                                 |                            |
| Input RC                                                                                                                                                                                                                                                                                                                           |                                                                             | Approx. 1MΩ//20pF or less                                                                                       |                            |
| Coupling                                                                                                                                                                                                                                                                                                                           |                                                                             | AC or DC                                                                                                        |                            |
| Low pass filter                                                                                                                                                                                                                                                                                                                    |                                                                             | Off, 10kHz                                                                                                      |                            |
| Attenuator                                                                                                                                                                                                                                                                                                                         |                                                                             | Off, 26dB (1/20)                                                                                                |                            |
| Trigger level                                                                                                                                                                                                                                                                                                                      | Measuring Range                                                             | -2.50V to +2.50V (resolution: 10mV)                                                                             |                            |
|                                                                                                                                                                                                                                                                                                                                    | ATT on                                                                      | -50.0V to +50.0V (resolution: 100mV)                                                                            |                            |
|                                                                                                                                                                                                                                                                                                                                    | accuracy (0°C to +40°C)                                                     | 10% ±30mV of the set value (±3% when +2V to -2 V )                                                              |                            |
|                                                                                                                                                                                                                                                                                                                                    | ATT on                                                                      | 10% ±300mV of the set value (±3% when +40V to -40 V )                                                           |                            |
| Operating input voltage range                                                                                                                                                                                                                                                                                                      |                                                                             | ±2.5V<br>±50V                                                                                                   |                            |
| Input sensitivity                                                                                                                                                                                                                                                                                                                  | Manual trigger                                                              | 30mVrms (DC to 230MHz)                                                                                          |                            |
|                                                                                                                                                                                                                                                                                                                                    | ATT on                                                                      | 0.6Vrms (DC to 230MHz)                                                                                          |                            |
|                                                                                                                                                                                                                                                                                                                                    | Auto trigger                                                                | 200mVrms (10kHz to 230MHz, sine wave)                                                                           |                            |
|                                                                                                                                                                                                                                                                                                                                    | ATT on                                                                      | 4Vrms (10kHz to 230MHz, sine wave)                                                                              |                            |
| CH-C input terminal (for SC-7207H and SC-7206H only)                                                                                                                                                                                                                                                                               |                                                                             |                                                                                                                 |                            |
| Maximum input power                                                                                                                                                                                                                                                                                                                |                                                                             | +30dBm (approx. 7Vrms when 1mΩ/50Ω = 0dBm as a reference)                                                       |                            |
| Impedance                                                                                                                                                                                                                                                                                                                          |                                                                             | Approx. 50Ω                                                                                                     |                            |
| Coupling                                                                                                                                                                                                                                                                                                                           |                                                                             | AC                                                                                                              |                            |
| VSWR                                                                                                                                                                                                                                                                                                                               |                                                                             | 2.0 or less (SC-7207H: 100MHz to 3GHz, SC-7206H: 100MHz to 2GHz)                                                |                            |
| Input sensitivity                                                                                                                                                                                                                                                                                                                  |                                                                             | (Sine wave: up to 2 GHz for SC-7206H)                                                                           |                            |
| AGC off/on                                                                                                                                                                                                                                                                                                                         | -20dBm                                                                      | (100MHz ≤ input frequency ≤ 300MHz)                                                                             |                            |
|                                                                                                                                                                                                                                                                                                                                    | -25dBm                                                                      | (300MHz < input frequency ≤ 1.5GHz)                                                                             |                            |
|                                                                                                                                                                                                                                                                                                                                    | -20dBm                                                                      | (1.5GHz < input frequency ≤ 3.0GHz)                                                                             |                            |
|                                                                                                                                                                                                                                                                                                                                    |                                                                             |                                                                                                                 |                            |
| Burst detection                                                                                                                                                                                                                                                                                                                    | Detection frequency range                                                   | SC-7207H<br>100MHz to 3GHz                                                                                      | SC-7206H<br>100MHz to 2GHz |
|                                                                                                                                                                                                                                                                                                                                    | Input sensitivity                                                           | (Sine wave: up to 2GHz for SC-7206H)                                                                            |                            |
|                                                                                                                                                                                                                                                                                                                                    | AGC off                                                                     | (100MHz ≤ input frequency ≤ 1.2GHz)                                                                             |                            |
|                                                                                                                                                                                                                                                                                                                                    | -20dBm                                                                      | (1.2GHz < input frequency ≤ 3.0GHz)                                                                             |                            |
|                                                                                                                                                                                                                                                                                                                                    | -10dBm                                                                      |                                                                                                                 |                            |
| Detection delay time                                                                                                                                                                                                                                                                                                               |                                                                             | 500μs (Burst period ≥ set gate + 500μs)                                                                         |                            |
| 10MHz STD IN                                                                                                                                                                                                                                                                                                                       |                                                                             |                                                                                                                 |                            |
| BNC terminal for more stable input of the external reference frequency                                                                                                                                                                                                                                                             |                                                                             |                                                                                                                 |                            |
| Frequency                                                                                                                                                                                                                                                                                                                          |                                                                             | 10MHz±50Hz (±5ppm)                                                                                              |                            |
| Amplitude                                                                                                                                                                                                                                                                                                                          |                                                                             | 1Vrms to 5Vrms, threshold = 0V                                                                                  |                            |
| Input resistance                                                                                                                                                                                                                                                                                                                   |                                                                             | Approx. 6.4kΩ                                                                                                   |                            |
| Input coupling                                                                                                                                                                                                                                                                                                                     |                                                                             | AC                                                                                                              |                            |
| 10MHz STD OUT(MARKER OUT)                                                                                                                                                                                                                                                                                                          |                                                                             |                                                                                                                 |                            |
| BNC terminal for output of internal reference oscillator or marker signal.                                                                                                                                                                                                                                                         |                                                                             |                                                                                                                 |                            |
| Marker signal is a signal that presupposes the brightness modulation (Z axis) of the analog oscilloscope for example. It is enabled at the SGL gate when the function is in between the time interval (T.JINT A → B) and phase (PHAS A → B). Output is "Lo level" from the start of CH-A measuring to the start of CH-B measuring. |                                                                             |                                                                                                                 |                            |
| Output                                                                                                                                                                                                                                                                                                                             |                                                                             | CMOS level                                                                                                      |                            |
| Reference frequency output                                                                                                                                                                                                                                                                                                         |                                                                             | 10MHz: Stability is the same as that for the internal reference oscillator.                                     |                            |
| Marker output                                                                                                                                                                                                                                                                                                                      |                                                                             | In the 5MHz band, L-state is output during actual measuring. (for SC-7207H and SC-7205H only.)                  |                            |
| Output interface                                                                                                                                                                                                                                                                                                                   |                                                                             | Environmental conditions                                                                                        |                            |
| •RS-232 is equipped as standard •GPIB is equipped as standard (option SC-701 for SC-7205H)                                                                                                                                                                                                                                         |                                                                             | •Warm-up time: 60 minutes or more •Operating temperature/humidity: 0°C to +40°C/85%RH or less (no condensation) |                            |
| •Digital I/O option can be installed (SC-702)                                                                                                                                                                                                                                                                                      |                                                                             | •Storage temperature/humidity: -20°C to +60°C/90%RH or less (no condensation)                                   |                            |
| Reference oscillator                                                                                                                                                                                                                                                                                                               |                                                                             |                                                                                                                 |                            |
| Equipped with SC-7207H, SC-7206H and SC-7205H as standard                                                                                                                                                                                                                                                                          |                                                                             |                                                                                                                 |                            |
| Output is possible to the 10MHz OUT BNC terminal on the rear panel of the main unit.                                                                                                                                                                                                                                               |                                                                             |                                                                                                                 |                            |
| •Oscillation frequency: 10MHz •Temperature characteristics: ± 2.5ppm/unit environmental temperature: 0°C to +40°C •Aging rate: ± 1.0ppm/year                                                                                                                                                                                       |                                                                             |                                                                                                                 |                            |
| Power supply conditions and power supply voltage changes (factory option)                                                                                                                                                                                                                                                          |                                                                             |                                                                                                                 |                            |
| •Voltage: AC100V / 110V to 120V / 220V to 240V •Frequency: 50Hz, 60Hz, 400Hz                                                                                                                                                                                                                                                       |                                                                             |                                                                                                                 |                            |
| •Power consumption: At AC100V with optional SC-701 and SC-702 are installed.                                                                                                                                                                                                                                                       |                                                                             |                                                                                                                 |                            |
| Power Consumption                                                                                                                                                                                                                                                                                                                  | SC-7207H<br>36VA MAX                                                        | SC-7206H<br>33VA MAX                                                                                            | SC-7205H<br>31VA MAX       |
| Dimensions (mm)                                                                                                                                                                                                                                                                                                                    | (210 ± 2)W x (99 ± 2)H x (353 ± 2)D (excluding options and protruded parts) |                                                                                                                 |                            |
| Weight                                                                                                                                                                                                                                                                                                                             | 4.0kg or less (including optional SC-701 and SC-702)                        |                                                                                                                 |                            |
| Accessory                                                                                                                                                                                                                                                                                                                          | Power cable (1), operation manual CD-ROM (1)                                |                                                                                                                 |                            |