# UR Interfaces By Version

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| Interface | 1.6 | 1.7 | 1.8 | 3.0 | 3.1 | 3.2 | 3.3 | 3.4 |
| Robot  Mode  Data | int packageSize  unsigned char packageType  uint64\_t timestamp  bool isRobotConnected  bool isRealRobotEnabled  bool isPowerOnRobot  bool isEmergencyStopped  bool isSecurityStopped  bool isProgramRunning  bool isProgramPaused  unsigned char robotMode  double speedFraction | ibid | ibid | int packageSize  unsigned char packageType  uint64\_t timestamp  bool isRobotConnected  bool isRealRobotEnabled  bool isPowerOnRobot  bool isEmergencyStopped  bool isProtectiveStopped  bool isProgramRunning  bool isProgramPaused  unsigned char robotMode  unsigned char controlMode  double targetSpeedFraction  double speedScaling | ibid | int packageSize  unsigned char packageType  uint64\_t timestamp  bool isRobotConnected  bool isRealRobotEnabled  bool isPowerOnRobot  bool isEmergencyStopped  bool isProtectiveStopped  bool isProgramRunning  bool isProgramPaused  unsigned char robotMode  unsigned char controlMode  double targetSpeedFraction  double speedScaling  double targetSpeedFractionLimit | ibid | ibid |

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| Interface | 1.6 | 1.7 | 1.8 | 3.0 | 3.1 | 3.2 | 3.3 | 3.4 |
| Joint  data | double q\_actual  double q\_target  double qd\_actual  float I\_actual  float V\_actual  float T\_motor  float T\_micro  unsigned char jointMode | ibid | ibid | ibid | ibid | ibid | ibid | ibid |

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| Interface | 1.6 | 1.7 | 1.8 | 3.0 | 3.1 | 3.2 | 3.3 | 3.4 |
| Cartesian  Info | double X  double Y  double Z  double Rx  double Ry  double Rz |  |  |  | double X  double Y  double Z  double Rx  double Ry  double Rz  double TCPOffsetX  double TCPOffsetY  double TCPOffsetZ  double TCPOffsetRx  double TCPOffsetRy  double TCPOffsetRz |  |  |  |

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| Interface | 1.6 | 1.7 | 1.8 | 3.0 | 3.1 | 3.2 | 3.3 | 3.4 |
| Version Message | uint64\_t timestamp  char source  char robotMessageType  char projectNameSize  char array projectName  unsigned char majorVersion  unsigned char minorVersion  int svnRevision  char array buildDate | ibid | ibid | ibid | ibid | ibid | uint64\_t timestamp  char source  char robotMessageType  char projectNameSize  char array projectName  unsigned char majorVersion  unsigned char minorVersion  int bugfixVersion  int buildNumber  char array buildDate |  |

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| Interface | 1.6 | 1.7 | 1.8 | 3.0 | 3.1 | 3.2 | 3.3 | 3.4 |
| Masterboard  Data | int packageSize  unsigned char packageType  short digitalInputBits  short digitalOutputBits  char analogInputRange0  char analogInputRange1  double analogInput0  double analogInput1  char analogOutputDomain0  char analogOutputDomain1  double analogOutput0  double analogOutput1  float masterBoardTemperature  float robotVoltage48V  float robotCurrent  float masterIOCurrent  unsigned char masterSaftyState  unsigned char masterOnOffState  char euromap67InterfaceInstalled  int euromapInputBits  int euromapOutputBits  short euromapVoltage  short euromapCurrent) |  |  | int packageSize  unsigned char packageType  int digitalInputBits  int digitalOutputBits  char analogInputRange0  char analogInputRange1  double analogInput0  double analogInput1  char analogOutputDomain0  char analogOutputDomain1  double analogOutput0  double analogOutput1  float masterBoardTemperature  float robotVoltage48V  float robotCurrent  float masterIOCurrent  unsigned char safetyMode  unsigned char InReducedMode  char euromap67InterfaceInstalled  int euromapInputBits  int euromapOutputBits  float euromapVoltage  float euromapCurrent)  uint32\_t (Used by Universal  Robots software only) |  | int packageSize  unsigned char packageType  int digitalInputBits  int digitalOutputBits  char analogInputRange0  char analogInputRange1  double analogInput0  double analogInput1  char analogOutputDomain0  char analogOutputDomain1  double analogOutput0  double analogOutput1  float masterBoardTemperature  float robotVoltage48V  float robotCurrent  float masterIOCurrent  unsigned char safetyMode  unsigned char InReducedMode  char euromap67InterfaceInstalled  int euromapInputBits  int euromapOutputBits  float euromapVoltage  float euromapCurrent)  uint32\_t (Used by Universal  Robots software only)  uint8\_t operationalModeSelectorInput  uint8\_t threePositionEnablingDeviceInput |  |  |

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| Interface | 1.6 | 1.7 | 1.8 | 3.0 | 3.1 | 3.2 | 3.3 | 3.4 |
| Tool  Data | NA | char analogInputRange2  char analogInputRange3  double analogInput2  double analogInput3  float toolVoltage48V  unsigned char toolOutputVoltage  float toolCurrent  float toolTemperature  unsigned char toolMode | ibid | ibid | ibid | ibid | ibid | ibid |

In the configuration data it is sometimes unclear how many fields a "for each joint:" pertains to.

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| Interface | 1.6 | 1.7 | 1.8 | 3.0 | 3.1 | 3.2 | 3.3 | 3.4 |
| Configuration  Data | NA | NA | for each joint:  double jointMinLimit  double jointMaxLimitt  for each joint:  double jointMaxSpeed  double jointMaxAcceleration  double vJointDefault  double aJointDefault  double vToolDefault  double aToolDefault  double eqRadius  for each joint:  double DHa  for each joint:  double DHd  for each joint:  double DHalpha  for each joint:  double DHtheta  int masterboardVersion  int controllerBoxType  int robotType  int robotSubType  for each joint:  int motorType | for each joint:  double jointMinLimit  double jointMaxLimitt  for each joint:  double jointMaxSpeed  double jointMaxAcceleration  double vJointDefault  double aJointDefault  double vToolDefault  double aToolDefault  double eqRadius  for each joint:  double DHa  for each joint:  double DHd  for each joint:  double DHalpha  for each joint:  double DHtheta  int masterboardVersion  int controllerBoxType  int robotType  int robotSubType | ibid | ibid | ibid | ibid |

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| Interface | 1.6 | 1.7 | 1.8 | 3.0 | 3.1 | 3.2 | 3.3 | 3.4 |
| Force  Mode  Data | NA | NA | double X  double Y  double Z  double Rx  double Ry  double Rz  double robotDexterity | ibid | ibid | ibid | ibid | ibid |