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- LoRaWAN Decoder V3.0 for LoRaWAN Controllers and Nodes
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-

/ **LoRaWAN Downlink Payload Formatting for ChirpStack

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1. Changing Transmission Interval Time (FPort: 06)

To modify the transmission interval time of a LoRaWAN device, convert the desired time to seconds and send the payload.

Example: To set the interval to **10 minutes** (600 seconds):

```
{
    "txTime": 600
}
```

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2. Controlling Device Relays (FPort: 05)

This payload is used to turn on or off relays in both **single-phase** and **three-phase** applications:

- **Single-phase:** Relay1 and Relay2 control independent loads.
- **Three-phase:** Relay1 controls the entire three-phase application.

Examples:

- **Turn on Relay1:**

```
{
    "relay1": 1
}
```

- **Turn off Relay2:**

```
{
    "relay2": 0
}
```

- **Turn on both Relay1 and Relay2:**

```
{
    "relay1": 1,
    "relay2": 1
}
```

- **Turn off both Relay1 and Relay2:**

```
{
    "relay1": 0,
    "relay2": 0
}
```

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3. Reading RS485 Data (FPort: 10)

This payload is used for reading RS485 data from a Modbus device.

Data Type Mapping:

- `00`: INT16
- `01`: UINT16
- `02`: INT32 [MSB]
- `03`: INT32 [LSB]
- `04`: FLOAT32 [MSB]
- `05`: FLOAT32 [LSB]

Example:

```
{
  "Field": 1,
  "slaveId": 2,
  "functionCode": 3,
  "Enable": 1,
  "dataType": 2,
  "numberOfParameters": 2,
  "Registeraddress": 3036
}
```

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4. Writing Modbus Registers (FPort: 9 for Registers, FPort: 8 for Coils)

To write to a Modbus register, specify the slave ID, register address, and value.

Examples:

- **Writing to a register (FPort: 9)::**

```
{
    "slaveId": 4,
    "numberofreg": 1,
    "address": 0,
    "value": 255
}
```

- **Writing to a coil (FPort: 8):**

```
{
    "slaveId": 10,
    "numberofreg": 1,
    "address": 0,
    "value": 65280
}
```

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5. Alarm Configurations (FPort: 11)

5.1 Regular Alarm

```
{
    "index": 1,
    "startTime": 3600,
    "stopTime": 7200,
    "dayData": 127,
    "relayStatus": 1,
    "triggerType": 1,
    "enable": 1
}
```

5.2 Cyclic Alarm

```
{
    "index": 2,
    "startTime": 3600,
    "stopTime": 7200,
    "dayData": 127,
    "relayStatus": 1,
    "triggerType": 2,
    "enable": 1,
    "onTime": 60,
    "offTime": 120
}
```

5.3 Sensor-Based Trigger Alarm

```
{
    "index": 3,
    "startTime": 3600,
    "stopTime": 7200,
    "dayData": 127,
    "relayStatus": 1,
    "triggerType": 3,
    "enable": 1,
    "sensorValue": 85,
    "level": 2,
    "rs485Field": 1
}
```

5.4 Reading an Alarm Configuration

```
{
    "index": 1
}
```

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6. Configuring RS485 RTU Baud Rate (FPort: 12)

Baud rate and parity settings for RS485 RTU serial communication.

- **Parity Options:**
  - `0`: None
  - `1`: Odd
  - `2`: Even

Example:

```
{
    "baud": 9600,
    "pairity": 1
}
```

Conclusion

This document provides structured payload formats for sending downlinks to LoRaWAN end devices via ChirpStack. It includes instructions for modifying transmission intervals, controlling relays, reading/writing Modbus registers, configuring alarms, and setting baud rates.